



Arts, Science & Commerce College Kolhar

Books and chapters in edited volumes/books published during the year-2022-23

Index

Sr. No.	Name of the teacher	Book/chapters/ Proceeding	Title of the book/chapters / Proceedings	Title of the paper	Page No.
1	Dr. H. R. Aher	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	Synthesis of Nickel Oxide Nanoparticles using different synthetic method and their Application : A Review	4
2	M. D. Kakade R. D. Borse	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	Review on Role of Physical Mutagen in Mutation Breeding.	10
3	A.A. Aher, A.S. Wabale	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	A Review on Algae as Bio fertilizer	18
4	Dr. Kanawade P. V. & Mr. Divekar H. L.	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	National Education Policy 2020: Merits and Demerits in Higher Education	23
5	Amol K. Kharde, Vinod R. Kadu, Somnath S. Gholap	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	A review on Oxazines: Synthesis and Biological Potentials	27
6	Vinod R. Kadu, Amol K. Kharde	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	Azoles: Biological Activities and Synthetic Pathways	38
7	Mrs. Dhimate Sangita Sunil & Salve Priyanka	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	The Importance of Language in National Education Policy 2020	54
8	Mr. Aher T.V.	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	Stylistic Analysis of Father Returning Home by Dilip Chitre	60



9	Dr.P.T.Tupe	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	Nai Shiksha Bhartiya Bhasha Ki Upyogita	67
10	S.K.Pulate, S.B.Gholap	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	National Education Policy 2020: Issues and Challenges	73
11	S.S.Shelke	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	NEP: Changes of Education	81
12	Labade Archana Babasaheb	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	ब्रिटीष्काळातील शैक्षणिक धोरणाची ऐतिहासिक पार्श्वभूमी	85
13	Dr Sopan N.Shingote	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	Role of NEP 2020 in emerging economy-A study With Special Reference to Maharashtra	90
14	Mr. Thoke Rajesh Dr.Vikhe A.A	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	A review of Agriculture Education in National education policy 2020	95
15	Dr.Vikhe A.A, Mr. Dighe V.K	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	भारतीय राष्ट्रीय शैक्षणिक धोरणाचे तुलनात्मक अध्ययन	101
16	Dr.Vikhe A.A, Mrs.Pagare S. D	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	राष्ट्रीय शैक्षणिक धोरण 2020- गरज, तत्वे आणि मूलभूत सिद्धांत	107
17	Mr.Waditke S.G.	Chapter in Book	Implementation of National Education Policy- 2020: Multidisciplinary Education.	साहित्य समाज आणि शिक्षण	112
18	Mr.Waditke S.G.	Chapter in Book	अंतर्विद्याशास्त्रीय विचार प्रवाह	जागतिकीकरण आणि शिक्षण	117
19	Dr. Borde G.D	Chapter in Book	Implementation of NEP-2020: (Industry Institute Linkage)	National Education Policy 2020 Benefits	122

20	Dr. Shingote S. N.	Proceeding	International Journal of Advance Applied Research	Physical and Chemical Properties of Water in Rahuri Tahsil of Ahmednagar District (M.S.)	126
21	M. D. Kakade, Dr. R. D. Borse	Proceeding	Research Journey	Gamma Radiation Induced Changes in Phytochemical Composition of Irradiated Alfalfa (Medicago Sativa L.) in M1 Generation.	132
22	A.A. Aher A.S. Wabale	Proceeding	Research Journey	Effect of algae on seedling growth of Cluster bean	140
23	Amol K. Kharde and Vinod R. Kadu	Proceeding	Research Journey	Boric acid mediated synthesis of 4,4'-diaminotriarylmethane derivatives in aqueous condition	144
24	Dr. Shelke D. S.	Proceeding	Research Journey	A Study of Digital Marketing and its impact on Marketers and Consumers	153
25	Mr. Gholap S. B.	Proceeding	Research Journey	New Trends in E-Banking in India	158

Implementation of National Education Policy -2020: Multidisciplinary Education

Editor

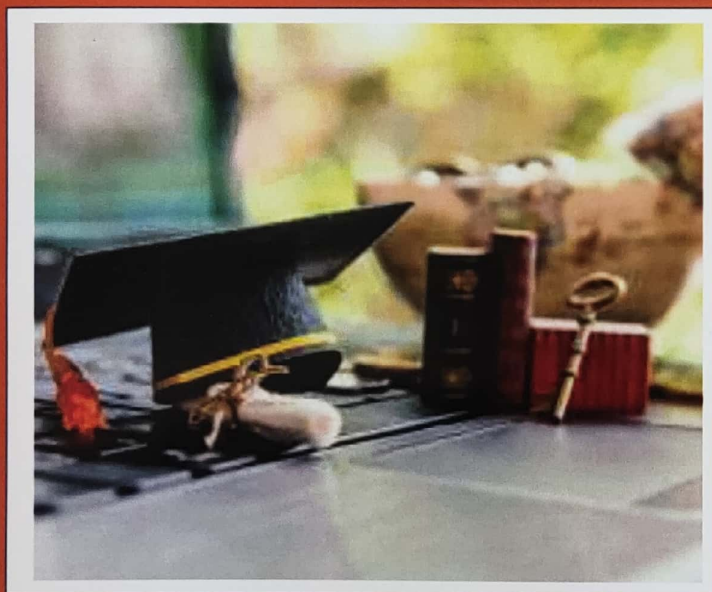
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Dr. A. A. Vikhe

Dr. S. N. Shingote

Dr. A. A. Aher

Dr. V. R. Kadu



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Volume: I

Sr.No.	Title	Page no.
1	A Review on Algae as Biofertilizer A. A. Aher, A. S. Wabale	1-3
2	A Review of Agricultural Education in National Education Policy 2020 Rajesh M. Thoke, Shinde V. G., Vikhe A.A.	4-6
3	Review on Role of Physical Mutagen in Mutation Breeding M. D. Kakade, R. D. Borse	7-10
4	A Review of Composition and Metabolism of Bioactive Components in Citrus Fruits and Vegetables Vikhe A. S., Kharde H. S., Vikhe P. S., Rohamare S. S.	11-15
5	Academia and Industry - Society: A Paradigm Shift in the NEP -2020 Vidya M. Jirage	16-19
6	Humanistic Pessimism in the major novels of Thomas Hardy Adik Manisha, Amol Sawant	20-22
7	In-Vitro Micropropagation Of Rose (<i>Rosa Hybrida</i> L.) Using Different Growth Hormones. Sabale S. C., Shinde N. G.	23-26
8	National Education Policy 2020: Merits and Demerits in Higher Education Pratibha V. Kanawade, Hari L. Divekar	27-28
9	Synthesis of Nickel Oxide Nanoparticle using different synthetic method and their Applications: A review Kamal K. Chitalkar, Rupali D. Murade, Snehal V. Darandale, Sonali R. Magar, Haribhau R. Aher	29-33
10	Review on Multi-component Synthesis of Biologically Important 2H-indazole[2,1-b]phthalazine-triones derivatives (2017-2021) Dilip Aute, Hrishikesh Nirmal, Vitisha Vikhe, Vaishali Murade, Anil Gadhave	34-38
11	A Review on Biomedical Approaches of Green Synthesized Cerium Oxide Nanostructure" Sumaiyya M. Patel, Vaishali D. Murade, Shobha A. Musmade, Dinesh P. Hase, Surekha K. Kadu, Gajanan R. Pandhare	39-43
12	A Review On Bioactivity Of Schiff Base Cobalt And Nickel Metal Complexs Sonali A. Muntode, Shweta B. Dighe, Priyanka A. Tambe, Priyanka A. Gagare, Sonali S. Pardhe, Gajanan R. Pandhare, Haribhau R. Aher	44-47
13	Qualities And Techniques In Sports Coaching For Better Performance Harde.S.M., Kadu .P .A	48-50
14	Implementation Of National Education Policy-2020 Madhuri Sontakki	51-52
15	Review on Different Extraction Techniques Used for Bioanalysis R. J. Galkwad, A. A. Jondhale, V.A.Kadnor	53-55
16	Health risk of local fruit; Pomegranates Amruta K. Mhaske, Bhagwat K. Uphade	56-61
17	Outcome-Based Education (OBE) using Student Centered Learning (SCL) for Commerce faculties Rahul. M. Bhandari	62-65
18	A review on Oxazines: Synthesis and Biological Potentials Amol K. Kharde, Vinod R. Kadu, Somnath S. Gholap	66-72
19	The Airborne Spread of Staphylococcus aureus in various Environmental Conditions - A systematicoverview Aarif Khan, Pramod N. Kamble, Nazeer Mohammed	73-83
20	Academic Bank of Credits in Higher Education Institutions Deshmukh Kanchan Samish.	84-86
21	National Education Policy 2020: Reformation in Educational System of India Kanawade Pratibha Vijay	87-88

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Volume: I

Synthesis of Nickel Oxide Nanoparticle using different synthetic method and their Applications: A review

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Haribhau R. Aher⁵

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Abstract- In the last decade, NiO nanostructures (NSs) have gained a growing attention from the scientific community because they are cheap, facile to produce and isolate, which is an important transition metal oxide in various applications significantly as energy storage material. Throughout this review, the most widely employed and effective synthetic techniques are summarized and their advantages and drawbacks are highlighted and compared. Almost all these synthetic pathways produce amorphous nanostructures that need to obtain crystalline products. Various easy and widely used method to prepare nickel oxide has been discussed which includes wet chemical synthesis, sol-gel method, hydrothermal method, microwave assisted route and thermal decomposition. Then physical properties are reviewed briefly including its structural, magnetic, electrical and optical properties.

Introduction

Nanotechnology¹ plays a vital role in technology and development. Nano science and nanotechnology have revolutionized the whole world. Nanomaterial shows unique properties such as having small size (1-100nm) with one or more dimension and large surface to volume ratio². Nanomaterials exhibit significantly enhanced mechanical, electronic, magnetic, thermal, catalytic, and optical properties in comparison with their bulk counterparts, and have attracted significant interests³. The scientific and advanced application of nanoparticle depended on physiochemical properties such as particle size, surface area, morphology, phase composition, band gap, magnetization, surface defect, adsorption performance and photo catalytic reactivity etc⁴ by considering numerous studies many researcher have focused on metal oxide nanoparticle. This nanoparticle depends on such parameter like temperature, concentration of substance, additives, surfactant, pH, method of synthesis etc⁵. These are classified into different classes inorganic nanoparticle, organic nanoparticle carbon base nanoparticle and ceramic nanoparticle its shows the electronic, magnetic and catalytic properties^{6,7}. There are main approaches of synthesis of nanoparticle Physical\top down (ball milling, sputtering, laser ablation, electrospraying, electron beam, evaporation etc.) and Chemical\bottom up (sol-gel, co-precipitation, hydrothermal, solvothermal, sonochemical, microemulsion, chemical vapour deposition etc)^{8,9,10}.

Chemical method more effective than physical method¹¹ because of physical method have some drawback like use of expensive equipment, less purity, and morphology related issue. Synthesis of many metal and metal oxide such as ZnO¹², TiO₂¹³, Cu₂O¹⁴, MnO₂¹⁵, Fe₂O₃¹⁶, WO₃¹⁷ and CeO₂¹⁸ have been reported but they have some drawbacks like wide band gap, lower absorption sunlight, single phase semiconductors, electron hole pair combination etc^{19, 20}. NiO nanoparticles have the prospective for use in applications such as in the fabricate of magnetic materials, gas sensors, p-type transparent conducting films, catalyst, electrochromic, films, alkaline batteries cathode, and solid oxide fuel cell anode.

Also use of NiO nanoparticle for eliminating dyes from the industrial wastewater. The use of dyes has increased tremendously in various industries ranging from food, leather, textile, paper, cosmetic, pharmaceutical etc. The problem has emerged due to disposing of the dyes in the open environment and mostly it is dispersed along with industrial waste into water bodies which become harmful for animal aquatic life and human health²¹. To overcome this problem by using different absorbing agent for complete degradation of dyes many researcher focuses on the use of absorbing agent such as activated charcoal, zeolite, clay, mineral, fullerene, graphene, chitosan etc. these agent are easily available to improve the photo catalytic performance²². This literature review focused on to study different synthetic methodologies for the

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Volume: I

fabrication of nickel oxide nanoparticles also

discuss their applications.

Sr. No	Synthesis methods	Metal precursor	Size	Morphology	Application	Ref.
1	Co-precipitation	Ni(NO ₃) ₂	25–30 nm.	semi-Spherical	Biosensor	23
2	Sol-gel	Ni(NO ₃) ₂ ·6H ₂ O	68-34 nm	antiferromagnetic	Photo catalytic, dielectric	24
3.	Chemical precipitation	Ni(NO ₃) ₂ ·6H ₂ O	17.0 and 21.0 nm	spherical particles and like dandelion flower	-	25
4	Sol-gel	Ni(CH ₃ COO) ₂ ·4H ₂ O	10 μm	cubic crystalline structure	-	26
5.	Sol gel	Ni(NO ₃) ₂ ·6H ₂ O	-	face centered cubic (FCC)	Magnetic properties	27
6.	Sol gel	Ni(NO ₃) ₂ ·6H ₂ O	5 nm	nano rode	Photo catalytic solar cell	28
7	Sol-gel	Ni(NO ₃) ₂ ·6H ₂ O	32.9 nm	spherical		29
8	Green method	Ni(NO ₃) ₂ ·6H ₂ O	9.69 nm	spherical	Biomedical application cytotoxic effect	30
11	Ultrasonication method	Ni(NO ₃) ₂ ·6H ₂ O	12.2 nm	sphere-like	-	31
12	Sol gel	Ni(CH ₃ COO) ₂ ·4H ₂ O	15-30 nm	spherical	Degradation of dye	32
13	Combustion	Ni(CH ₃ COO) ₂ ·4H ₂ O	42 and 36 nm	sheets-like cubic-phase	Antibacterial and photocatalytic	33
14	flash-combustion	Ni(NO ₃) ₂ ·6H ₂ O	Below 20 nm.	spherical shape	Photocatalytic activities	34
15	Emulsion nano-reactors method	Ni(CH ₃ COO) ₂ ·4H ₂ O	32.58 nm	flower like and plate-like	Photocatalytic activity	35
16	Hydrothermal	NiCl ₂ ·6H ₂ O	-	partial spherical	Electrochemical and photocatalytic	36
17	Hydrothermal	NiCl ₂ ·6H ₂ O	18 nm	flower-like	Gas-sensing	37
18	Hydrothermal	NiCl ₂ ·6H ₂ O, Na ₂ C ₂ O ₄	29 up to 36 nm	worm-like nano rode	Photocatalytic	38
19	Hydrothermal	NiCl ₂ ·6H ₂ O	-	nanorods	Supercapacitor Glucose biosensing	39
20	Hydrothermal	Ni(CH ₃ CO ₂) ₂ ·4H ₂ O	9.3 nm	spherical clusters	Supercapacitor application	40
21	microwave	Ni(NO ₃) ₂ ·6H ₂ O	15 ± 0.5 nm	semispherical	-	41
22	Micro emulsion	NiCl ₂ ·6H ₂ O	16.1nm	nano rode	Photo catalytic	42
23	Microwave	Nickel acetate	20 nm.	spherical-like	-	43

Implementation of National Education Policy -2020: Multidisciplinary Education

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Volume: I

24	Wet chemical	Ni(NO ₃) ₂ .6H ₂ O	21.49 nm	spherically shaped	-	44
25	Chemical route	NiCl ₂ 6H ₂ O	6.36 nm	irregular spherical	Photocatalytic degradation of methylene blue	45
26	Solvothermal	NiCl ₂ 6H ₂ O	3.5-3.7nm	nano crystal	Photocatalytic	46
27	Solvothermal	Ni(NO ₃) ₂ .6H ₂ O	4.5 nm	sheet-like	Supercapacitor	47
28	Solvothermal	Ni(NO ₃) ₂ .6H ₂ O	30-40 nm	uniform nanoparticle	Supercapacitor	48
29	Solvothermal	Nickel acetate	9.3 nm	spherical shape	Sonophotocatalytic	49
30	Solvothermal	NiCl ₂ 6H ₂ O	13-14nm	spherical shape	Photocatalytic	50

Conclusion:

Throughout this work, the most widely employed techniques for the synthesis of NiO nanostructures are reviewed and discussed. This nanoparticle shows uniformed particle size and morphology reports a simple and facile protocol of photocatalytic and supercapacitor application. Nanomaterial's exhibits significantly enhanced mechanical, electronic, magnetic, thermal, catalytic, and optical properties.

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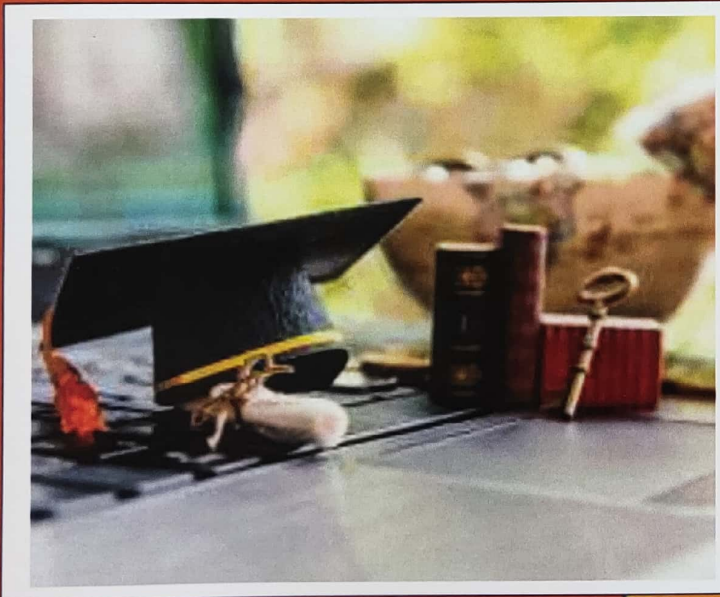
Volume: I

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Sr.No.	Title	Page no.
1	A Review on Algae as Biofertilizer A. A. Aher, A. S. Wabale	1-3
2	A Review of Agricultural Education in National Education Policy 2020 Rajesh M. Thohe, Shinde V. G., Vikhe A.A.	4-6
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8	National Education Policy 2020: Merits and Demerits in Higher Education Pratibha V. Kanawade, Hari L. Divekar	27-28
9	Synthesis of Nickel Oxide Nanoparticle using different synthetic method and their Applications: A review Kamal K. Chitalkar, Rupali D. Murade, Snehal V. Darandale, Sonali R. Magar, Haribhau R. Aher	29-33
10	Review on Multi-component Synthesis of Biologically Important 2H-indazole[2,1-b]phthalazine-triones derivatives (2017-2021) Dilip Aute, Hrishikesh Nirmal, Vitisha Vikhe, Vaishali Murade, Anil Gadhave	34-38
11	A Review on Biomedical Approaches of Green Synthesized Cerium Oxide Nanostructure" Sumaiyya M. Patel, Vaishali D. Murade, Shobha A. Musmade, Dinesh P. Hase, Surekha K. Kadu, Gajanan R. Pandhare	39-43
12	A Review On Bioactivity Of Schiff Base Cobalt And Nickel Metal Complexs Sonali A. Muntode, Shweta B. Dighe, Priyanka A. Tambe, Priyanka A. Gagare, Sonali S. Pardhe, Gajanan R. Pandhare, Haribhau R. Aher	44-47
13	Qualities And Techniques In Sports Coaching For Better Performance Harde.S.M., Kadu .P .A	48-50
14	Implementation Of National Education Policy-2020 Madhuri Sontakki	51-52
15	Review on Different Extraction Techniques Used for Bioanalysis R. J. Gaikwad, A. A. Jondhale, V.A.Kadnor	53-55
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**Implementation of National Education Policy -
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Volume: I

22	NEP: Changes of Education System Shelke Digambar Sakharan	89-91
23	The Importance of Language in National Education Policy 2020 Dhimate Sangita Sunil · Salve Priyanka	92-94
24	Role of NEP 2020 in emerging economy- A study with special reference to Maharashtra Sopan N. Shingote, Jayshree R.Singar	95-97
25	Implementation of National Education Policy (NEP) 2020 in Agricultural Education: - A Theoretical Analysis. D. N. Karle, S. R. Varpe	98-101
26	Stylistic Analysis of <i>Father Returning Home</i> by Dilip Chitre Aher T. V, Patel Mateen Ayyab	102-105
27	Azoles: Biological Activities and Synthetic Pathways Vinod R. Kadu, Amol K. Kharde	106-117
28	National Education Policy-2020: Issues and Challenges S.K. Pulate, S.B.Gholap	118-122
29	भारतातील राष्ट्रीय शैक्षणिक धोरणांचे तुलनात्मक अध्ययन विखे अर्चना अनिल., वैभव किशोर दिघे.	123- 126
30	साहित्य समाज आणि शिक्षण . वडितके शंकर गोरक्ष	127-128
31	नवीन शैक्षणिक धोरण 2020 मध्ये ग्रंथालयाचे महत्व आशिष ए.ठाणेकर	129-132
32	राष्ट्रीय शिक्षा नीति २०२० विमर्श: मानविकी और भाषाएँ जयवीर सिंह	133-136
33	नई शिक्षा नीति भारतीय भाषा की उपयोगिता प्रवीण तुलशीराम तुपे	137-139
34	ब्रिटीश काळातील शैक्षणिक धोरणाची ऐतिहासिक पार्श्वभूमी लवडे अर्चना बाबासाहेब	140-141
35	राष्ट्रीय शैक्षणिक धोरण – 2020 : गरज, तत्वे आणि मुलभूत सिध्दांत विखे ए.ए., पगारे सोनाली दिनकर	142-143
36	Planning And Performance Budgeting – Conceptual Frame Work Dr. Prashant Khoptikar	144-145
37	A Study of Performance and Analysis of Higher Education in India and it Opportunities and Challenges before National Education Policy 2020 Dattatraya Shivaji Thorat	146-152

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Review on Role of Physical Mutagen in Mutation Breeding

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Abstract

Radiation is a simple and quick way of breeding that has applications in agriculture and biology. The majority of the researchers concluded that increasing the production and nutritional value of this key crop using radiation would result in significant improvements in the quality and quantity of animals and their products. Scientists have found that when plants mature and reproduce, protein content is converted to carbs, resulting in a drop in protein %; nevertheless, early investigations have indicated an increase in protein and carbohydrate content in response to a specific dose of gamma radiation. The main topics of this review article are mutation, mutant selection, when to employ induced mutations, how much of them to utilise, and their applications in plant breeding. Mutation is brought on by a mutagen. Mutants are widely used in a variety of fields, including genetics, plant breeding, and plant physiology. Hugo de Vries first used the term "mutation" in 1901 to describe an abrupt change in personality that was thought to be heritable. Consequently, an agent that causes mutation is referred to as a mutagen, while transmissible to the progeny. Naturally occurring mutations can also be caused by other factors, including chemical mutagens, ultraviolet radiation, x-rays, gamma rays, and so on (induced mutation). Mutagenesis is the process through which an organism's genetic makeup changed in a stable way and led to mutation.

Keywords: Mutation, Physical Mutagen, Mutation Breeding

Introduction:

Mutation breeding refers to the method of using artificial mutagenesis to obtain new biological cultivars, mainly through chemical or radiation mutagenesis. Chemical mutagenesis refers to the biochemical reaction between chemical agents and genetic material, and the result is mostly point mutations in genes (Chandrashekaret.al, 2013). Although chemical mutagenesis is effective, its environmental optimization and biological safety need to be improved. Comparatively, radiation mutagenesis has the characteristics of more complex genetic mutations and more beneficial mutant phenotypes.

Since it has been employed for almost a century, radiation mutation breeding has successfully enhanced crops by boosting genetic diversity. Numerous issues, including rapid population increase, environmental pollution, and climate change, are posing problems for the world's food production. Breeders face huge hurdles in trying to feed the enormous human population on the planet. Enhancing germplasm diversity through mutation is still essential in modern and classical radiation breeding because it is more likely to produce random mutations in

the entire genome. This is true even though advanced technologies, such as gene editing, have made it possible to breed varieties by editing one or more specific target genes. This review also looks into the future development of radiation mutation breeding, hoping to deepen our understanding and provide new vitality for the further development of radiation mutation breeding.

Need For Genetic Improvement:

India is primarily an agricultural country with animals being an important element. It is India's economic strength in terms of income, employment and foreign exchange remunerations. The dairying industry is anticipated to contribute 15% of the country's gross national income. Nearly 65-70 percent of people in the country live in villages and 69 percent practice in agriculture or work in the dairy industry. Increased research efforts in the domain of feed processing using biological, biotechnological, chemical and physical technologies are needed to meet the nutritional requirements of high yielding milk animals by enhancing bioavailability of feeds and fodders. In plant breeding, mutation breeding is one of the most common strategies. It has applications in morphology,

cytogenetics, biotechnology and molecular biology among other domains. In recent years, mutation breeding has gained popularity as a useful technique for crop development and as a means of complementing existing germplasm for cultivar improvement in breeding programmes.

Selection of Mutagen:

Plant products such as plant parts, flowers, anthers, pollen grains, single cell culture, seeds, complete plants and protoplast are all irradiated using gamma sources. For plant breeding, radiation has been successfully utilised to generate beneficial mutation (Desai and Rao, 2014). The use of a mutagenic therapy enhances biochemical components, which are employed to increase economic characteristics (Muthusamy *et.al*, 2003). Because gamma radiation can have both helpful and negative effects on crops, it is necessary to estimate the optimum favourable dose for improving specific crop plant characteristics (Jamil and Khan, 2002). Inducing mutations with ionising radiations can also increase genetic diversity. Mutant line genetic diversity can be investigated utilising morphological, agronomic and molecular characterizations (El-Sherif *et.al*, 2011). Furthermore, the effectiveness of gamma radiation in enhancing seed quality, cooking time, plant growth and physiological processes is inversely proportional to the dosages utilised. (Kionget *et.al*, 2008).

Gamma rays are the most energetic electromagnetic radiation with energies ranging from 10 to hundreds of kilo electron volts (Kev). As a result, they penetrate deeper than other types of radiation like alpha and beta rays (Rahimi and Bahrani, 2011). Nuclear techniques are used in agriculture in a variety of ways. Irradiation of seeds can cause genetic variability in plants, allowing plant breeders to select new genotypes with improved traits like grain yield, maturity, salinity tolerance and superiority (Ashraf, 2003). When trading agricultural products within the same country or from country to country ionising radiations are also utilised to disinfect them in order to extend their shelf life or prevent pathogen proliferation (Borzouei *et.al*, 2010). Grey units are used to measure the quantity of radiation energy

absorbed (or Kilograys, KGy). A joule per kilogramme or 100 Rads is equal to one Gray.

Ionizing radiation is a powerful mutagen altering the biochemistry of bases and generating double-strand breaks in DNA. Increased levels of radiation have caused harm to numerous processes, resulting in decreased photosynthesis, growth inhibition (Bond *et.al*, 1996) and plant productivity drop. Changes in compatible solute levels such as amino acids, polyamines, carbohydrates and others are thought to be an effective stress tolerance mechanism (Galiba, 1994). Because of their direct association with physiological activities including photosynthesis, translocation and respiration changes in carbohydrate content are particularly important (Farrant *et.al*, 1993). The main sugar components are sucrose, glucose and fructose. Sucrose can operate as a water replacement to keep membrane phospholipids in the liquid crystalline phase and to keep soluble proteins from changing structurally (Koster and Leopold, 1988). Mutagens, mutagenic effectiveness and efficiency as well as their dosages are required for mutation induction and usage (Sharma *et.al*, 2005).

Wavelengths of ionising radiation are fewer than 100 nanometers. High-energy particles such as photons and electrons are excited by these radiations. Gamma radiations and X-rays are two forms of ionising radiations (Kovacs and Keresztes, 2002). Gamma rays have a shorter wavelength and thus greater energy than other types of radiation. Cobalt-60 and Cesium-137 are the most common gamma ray sources utilised in mutation induction. When gamma rays interact with atoms or molecules in the cell they form free radicals, which are classified as ionising radiation. These free radicals cause cell harm but they can also change the cells and components (Shahbazi *et.al*, 2008). The amount of radiation that damages or alters cells and components is determined by the quantity of radiation. The anatomy, morphology, physiology and biochemistry of plants are all affected by these radiations (Mohajer *et.al*, 2014). The effect of these rays is dose dependant as they stimulate plant growth even at low doses. As a result, these radiations are critical for crop development

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by changing the plant DNA (Jan *et.al*, 2012; Rahimi and Bahrani, 2011). According to studies, there are approximately 2570 radiation-induced mutants, with gamma rays producing 1023 crop mutants (Hamideldin and Eliva, 2015). Electromagnetic radiations, ionising radiations and a photon of energy that resembles gamma rays are all referred to as X-rays. Although gamma and alpha radiation come from separate sections of the atom they share the same properties. Outside the nucleus, X-rays are emitted, whereas inside the nucleus gamma rays are released.

Future Prospects:

Mutation breeding is currently frequently employed for generating genetic alterations and creating new genetic resources, especially in crops that are difficult to improve via predictable procedures such as hybridization (Mohajer *et.al*, 2014). In recent years, scientists have begun to use mutant breeding in addition to standard plant breeding to develop novel crop varieties. Here is a review of the facts on the use of radiation on various crop species. Mutations are used in crop improvement through two sets of technologies, in vitro culture and molecular method. Induced mutations are not only limited to crop improvement but also used in exploring biology (Brunner, 1995). The physical mutagen gamma irradiation is frequently employed for mutation breeding, food sterilization, and therapeutic therapy. In plant breeding, gamma ray irradiation is a common strategy for producing mutants. Irradiation is a potentially valuable method for assuring the safety of food production and prolonging its shelf life around the world. Mutation breeding shortens the time taken for the development of cultivars via induced mutation compared to those via hybridizations and also creates variability in a crop species (Toker *et al.*, 2007).

Conclusion:

Among various method of breeding in crop plant mutation breeding i.e. induced mutation is one of the preeminent methods of creation of variation/genetic variation. Conventional method of breeding takes long time to improve a crop variety due to a very slow increase in genetic variation. To overcome this induced mutation play a crucial role which helps in creation of genetic

variation in a short period. Over last several year's mutation breeding is getting popular and is adopted by several countries. It improves several qualitative and quantitative characters of crop plant and is successfully applied in several cereal, grain legume, oil seed, vegetable, fruits, medicinal plant, ornamental plants and fodder crops. With the advancement of various plant breeding, genetics, and biotechnological tools mutation breeding contribute toward the increase in global food and agriculture production which ultimately overcome global hunger and improve the nutritional status of the globe.

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Implementation of National Education Policy -2020: Multidisciplinary Education

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A Review on Algae as Biofertilizer

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Abstract

Algae are a diverse group of an aquatic organism which has the potential of conducting the photosynthesis. Algae are single and multi-celled microscopic aquatic plants containing chlorophyll and other photosynthetic pigments. The algae are reported to grow in diverse aquatic environment, including fresh and marine water. Some species are found growing on rocks, plants, soil, etc., with the presence of Carbon, Nitrogen other essential trace elements. Phycology is drawing the attention of human beings as it is the source of various materials, including food, fuel, and nutrients. Several industries, including dairy, food, pharmaceutical, and cosmetics, use algae for several purposes. The algal application in various areas has stimulated the researcher to focus on the research and explore the potential of this tiny organism. The emergence of biofertilizers as potential environmentally friendly inputs for supplementing plant growth has been incredible. They meet the plant nutrient requirement as well as minimize the use of chemical fertilizers. An increased focus on the use of biofertilizers worldwide on the environmental ground is observed in the recent past. These biofertilizers are the organisms that improve the soil quality without any effects on the agriculture system and environment. The primary source of biofertilizers includes blue-green algae, bacteria, and fungi. Research in the field of algal biotechnology, especially biofertilizers, has increased and accelerated in recent years.

Keywords: Algae, biofertilizer, Phycology, sustainable,

Introduction:

The fertilizer application is not based on the soil analysis reports and cropping patterns. Hence, the indiscriminate use of fertilizers results in environmental pollution. Most fertilizers stay back in the soil, enter into the water, and start causing health problems. Over intensive use of fertilizers pollutes the underground water with nitrate, which is toxic to humans and livestock. The nitrogen fertilizers that are not absorbed pollute groundwater increase nutrients and lead to adverse effects on the overall quality of the environment (Glibert et.al., 2006; Howarth 2008). The water containing nitrate can immobilize the haemoglobin of blood. Researchers worldwide have reported that the detrimental agricultural habits and excessive use of the chemicals have allowed the contamination of the food chain and the environment (Wimalawansa and Wimalawansa, 2014).

In the past few years, most farmers have already started limiting their application of synthetic chemicals. The consumers and farmers share a strong desire for agricultural sustainability, increasing anxiety about pollution and damage to the

environment. They also have a strong desire and willingness to engage with new farming technology to produce more nutritious and pollutants free food... It reflects the social trends in the agriculture ecosystem. Sustainable agriculture is defined as a farming practice that meets the current generation's requirements without disturbing posterity's ability to meet their requirements. These practices are economically more viable and do not degrade the environment over the long run.

Algal Biofertilizer : Reliable Alternative to Chemical Pesticides and Fertilizers

Algae are single and multi-celled microscopic aquatic plants containing chlorophyll and other photosynthetic pigments. The Algae are a diverse group of an aquatic organism which has the potential of conducting the photosynthesis. algae are reported to grow in diverse aquatic environment, including fresh and marine water. Some species are found growing on rocks, plants, soil, etc., with the presence of Carbon, Nitrogen other essential trace elements (Zhou, 2014). Phycology is drawing the attention of human beings as it is the source of various materials, including food,

fuel, and nutrients. Several industries, including dairy, food, pharmaceutical, and cosmetics, use algae for several purposes (Pooja, 2014). The algal application in various areas has stimulated the researcher to focus on the research and explore the potential of this tiny organism. The emergence of biofertilizers as potential environmentally friendly inputs for supplementing plant growth has been incredible. They meet the plant nutrient requirement as well as minimize the use of chemical fertilizers (Rana et.al., 2013). An increased focus on the use of biofertilizers worldwide on the environmental ground is observed in the recent past. These biofertilizers are the organisms that improve the soil quality without any effects on the agriculture system and environment. The primary source of biofertilizers includes blue-green algae, bacteria, and fungi (Ghosh, 2004). Research in the field of algal biotechnology, especially biofertilizers, has increased and accelerated in recent years. The essential characteristic of algae is that it can survive in diverse climatic conditions, hence it drew the attention of most of the researchers.

Role of Algae as a Biofertilizer

Algae have been reportedly used in the human and animal diet since the beginning of human civilization. Freshwater algae have a high percentage of nutrients (Wake et. al., 1992). Algae are generally known as macrophytes since they have filamentous form floating masses that are easy to harvest. Algae are known to have a rich source of various elements, which simply can be utilized for multiple uses. Carbohydrates, proteins, enzymes, and fibre are examples of these compounds. Furthermore, algae include vitamins and minerals, including vitamins A, C, B1, B2, B6, niacin, iodine, potassium, iron, magnesium, and calcium. They are a vital food source, particularly in Asian countries such as China, Japan, and Korea. It is now consumed all around the world for its nutritional properties. Algae are also utilised to manufacture food additives. Seaweed is a valuable animal food source and can also be utilised as fertilizer. The power of algae in vegetable oil production is also widely known. Forensic medicine also uses algae because diatoms, microscopic algae, are used in

forensic treatment (Dawange, 2013). The variety of substances excreted by blue-green algal extract influences plant growth and development in various ways. (Ordog, 1999). Algal microorganisms are found to benefit plants by synthesizing growth-enhancing hormones. The nature of these hormones resembles gibberellin and auxin. The increased demand for micro and macronutrients can be met by spraying the biochemical and organic substances on the leaves. Earlier studies have shown that algae can be used to improve seed germination and protein or carbohydrate content in the crops.

Conclusion:

Algae have a rich source of various elements, which can be utilized for multiple uses. The variety of substances excreted by blue-green algal extract influences plant growth and development in various ways. Algal microorganisms are also found to benefit plants by synthesizing growth-enhancing hormones. Algae are found to be growing in the farm ponds in the water-stressed rural areas. The farmers build these farm ponds to make the water available in the summer season. The water stored in the farm ponds favors algal growth. Most of the time, this algal growth in the farm pond creates a nuisance to the farmers as it blocks the pumps and sometimes results in the choking of pipes. Removing the algae from the pond also becomes a difficult task. However, the use of algae as a biofertilizer will eliminate algal growth in the farm pond. The use of algae as a biofertilizer will also reduce the reliance on chemical fertilizers and it will also support the aim of sustainable agriculture.

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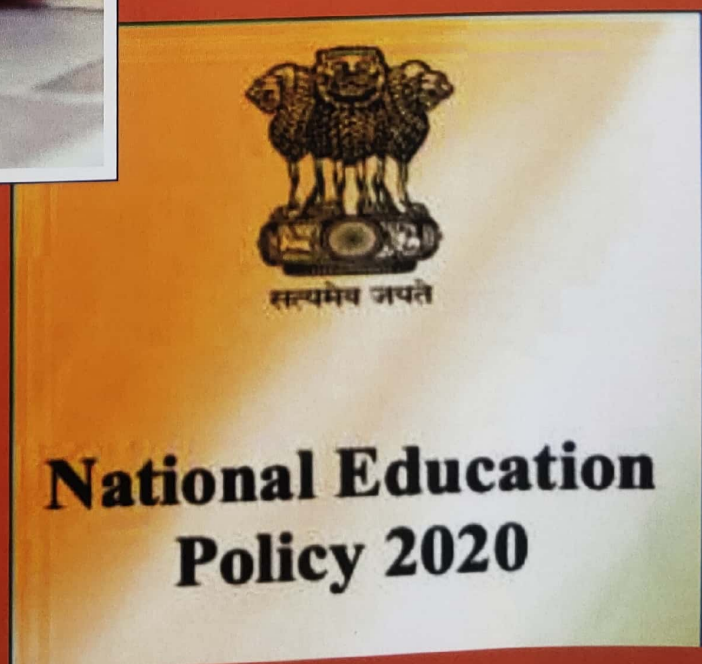
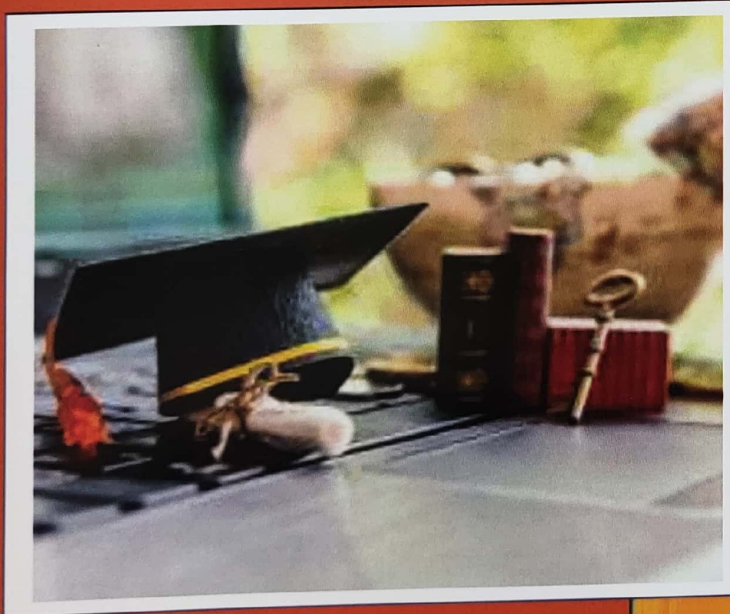
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Volume: I

Sr.No.	Title	Page no.
1	A Review on Algae as Biofertilizer A. A. Aher, A. S. Wabale	1-3
2	A Review of Agricultural Education in National Education Policy 2020 Rajesh M. Thoke, Shinde V. G., Vikhe A.A.	4-6
3	Review on Role of Physical Mutagen in Mutation Breeding M. D. Kakade, R. D. Borse	7-10
4	A Review of Composition and Metabolism of Bioactive Components in Citrus Fruits and Vegetables Vikhe A. S., Kharde H. S., Vikhe P. S., Rohamare S. S.	11-15
5	Academia and Industry - Society: A Paradigm Shift in the NEP -2020 Vidya M. Jirage	16-19
6	Humanistic Pessimism in the major novels of Thomas Hardy Adik Manisha, Amol Sawant	20-22
7	In-Vitro Micropropagation Of Rose (<i>Rosa Hybrida</i> L.) Using Different Growth Hormones. Sabale S. C., Shinde N. G.	23-26
8	National Education Policy 2020: Merits and Demerits in Higher Education Pratibha V. Kanawade, Hari L. Divekar	27-28
9	Synthesis of Nickel Oxide Nanoparticle using different synthetic method and their Applications: A review Kamal K. Chitalkar, Rupali D. Murade, Snehal V. Darandale, Sonali R. Magar, Haribhau R. Aher	29-33
10	Review on Multi-component Synthesis of Biologically Important 2H-indazole[2,1-b]phthalazine-triones derivatives (2017-2021) Dilip Aute, Hrishikesh Nirmal, Vitisha Vikhe, Vaishali Murade, Anil Gadhave	34-38
11	A Review on Biomedical Approaches of Green Synthesized Cerium Oxide Nanostructure Sumaiyya M. Patel, Vaishali D. Murade, Shobha A. Musmade, Dinesh P. Hase, Surekha K. Kadu, Gajanan R. Pandhare	39-43
12	A Review On Bioactivity Of Schiff Base Cobalt And Nickel Metal Complexes Sonali A. Muntode, Shweta B. Dighe, Priyanka A. Tambe, Priyanka A. Gagare, Sonali S. Pardhe, Gajanan R. Pandhare, Haribhau R. Aher	44-47
13	Qualities And Techniques In Sports Coaching For Better Performance Harde.S.M., Kadu .P .A	48-50
14	Implementation Of National Education Policy-2020 Madhuri Sontalki	51-52
15	Review on Different Extraction Techniques Used for Bioanalysis R. J. Galkwad, A. A. Jondhale, V.A.Kadnor	53-55
16	Health risk of local fruit: Pomegranates Amruta K. Mhaske, Bhagwat K. Uphade	56-61
17	Outcome-Based Education (OBE) using Student Centered Learning (SCL) for Commerce faculties Rahul. M. Bhandari	62-65
18	A review on Oxazines: Synthesis and Biological Potentials Amol K. Kharde, Vinod R. Kadu, Somnath S. Gholap	66-72
19	The Airborne Spread of Staphylococcus aureus in various Environmental Conditions - A systematic overview Aarif Khan, Pramod N. Kamble, Nazeer Mohammed	73-83
20	Academic Bank of Credits in Higher Education Institutions Deshmukh Kanchan Samish.	84-86
21	National Education Policy 2020: Reformation in Educational System of India Kanawade Pratibha Vijay	87-88

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

National Education Policy 2020: Merits and Demerits in Higher Education

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Introduction

The National Education Policy 2020 (NEP 2020) is a comprehensive policy framework introduced by the Government of India to reform the Indian education system. It replaces the 34-year-old National Policy on Education that was formulated in 1986. The new policy aims to make education inclusive, accessible, and relevant to the needs of the 21st century. The NEP 2020 emphasizes on Holistic, multidisciplinary, and flexible education, where the focus is not just on memorization of facts, but on critical thinking and problem-solving skills. It aims to move away from rote learning and towards a student-centered, activity-based learning approach. The policy also lays emphasis on mother-tongue/ regional language as a medium of instruction till at least grade 5 and encourages the use of Indian languages in higher education. The NEP 2020 aims to bridge the gap between academia and industry by introducing vocational education at the school level and providing opportunities for apprenticeships and internships. It also includes a National Apprenticeship Promotion Scheme to create job-ready graduates. The policy aims to make education inclusive by providing special attention to marginalized communities and promoting inclusive education. It also includes provisions for differently abled students and students from economically weaker sections of the society. The NEP 2020 aims to make higher education more accessible and relevant by increasing the Gross Enrollment Ratio (GER) to 50% by 2035 and improving the quality of education in colleges and universities. The policy also aims to increase the use of technology in education, promote research and innovation, and introduce multiple entry and exit options in higher education. NEP 2020 is a major step forward in transforming the Indian education system. It aims to provide quality education to all and make India a global leader in the field of education.

Objective of Study

1. To Study the National Education Policy 2020
2. To Study the Merits of National Education Policy 2020 in Higher Education.
3. To study the Demerits of National Education Policy 2020 in Higher Education.

Merits of National Education Policy 2020 in Higher Education

The National Education Policy 2020 in India brings several advantages to higher education, some of which include:

1. **Increased access to higher education:** The policy aims to increase the Gross Enrollment Ratio (GER) in higher education, making it more accessible to a larger number of students.
2. **Improved quality of higher education:** The policy establishes a new regulatory body, the Higher Education Commission of India (HECI), to oversee the quality and standards of higher education, which will lead to an

improvement in the quality of higher education institutions.

3. **Multidisciplinary Education:** The policy promotes multidisciplinary education and encourages students to pursue interdisciplinary and cross-disciplinary programs, providing students with a wider range of knowledge and skills.
4. **Technology Integration:** The policy proposes the integration of technology into higher education, which will enhance the quality of education and make it more accessible to students.
5. **Vocational and Technical Education:** The policy provides more opportunities for vocational and technical education, preparing students for the workforce and meeting the demands of the job market.
6. **Improved Teacher Training:** The policy proposes the establishment of National Professional Standards for Teachers (NPST), which will improve the quality of teacher training programs and

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Pub. Date: 12/02/2023

Volume: I

attract the best talent to the teaching profession.

7. **Critical Thinking and Problem-Solving Skills:** The policy promotes critical thinking and problem-solving skills among students, preparing them for the challenges of the 21st century.

Demerits of National Education policy 2020 in Higher Education

The New Education Policy 2020 in India also brings some demerits and challenges to higher education, some of which include:

1. **Implementation challenges:** The policy's proposals are ambitious and wide-ranging, and their implementation will require significant resources, including financial and human resources, and coordination between various stakeholders, including government, institutions, and students.
2. **Resistance to change:** The policy brings about significant changes to the education system, and there may be resistance from various stakeholders, including institutions, teachers, and students, who may be resistant to change.
3. **Quality concerns:** While the policy aims to improve the quality of higher education, there is a concern that the quality of education may suffer if the proposed changes are not implemented properly or if there are not enough resources to support the changes.
4. **Equity concerns:** While the policy aims to make higher education more accessible and inclusive, there is a concern that the policy may not address the systemic barriers that prevent marginalized and disadvantaged communities from accessing higher education.
5. **Lack of teacher training:** The policy proposes the establishment of National Professional Standards for Teachers (NPST), but there may not be sufficient resources or training programs in place to support the implementation of the NPST.
6. **Financial burden:** The implementation of the policy will require significant financial resources, and there is a concern that the cost of higher education may increase, making it less accessible to students from lower-income families.
7. **Lack of infrastructure:** The policy proposes the integration of technology into higher education, but there may not

be sufficient infrastructure or resources to support the integration of technology in all higher education institutions.

Conclusion

The New Education Policy 2020 has the potential to bring about significant improvements in the quality and accessibility of higher education in India, and to prepare students for the future but, it also presents several challenges that need to be addressed to ensure its successful implementation.

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Implementation of National Education Policy -2020: Multidisciplinary Education

Editor

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**Implementation of National Education Policy -
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ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

Sr.No.	Title	Page no.
1	A Review on Algae as Biofertilizer A. A. Aher, A. S. Wabale	1-3
2	A Review of Agricultural Education in National Education Policy 2020 Rajesh M. Thoke, Shinde V. G., Vikhe A.A.	4-6
3	Review on Role of Physical Mutagen in Mutation Breeding M. D. Kakade, R. D. Borse	7-10
4	A Review of Composition and Metabolism of Bioactive Components in Citrus Fruits and Vegetables Vikhe A. S., Kharde H. S., Vikhe P. S., Rohamare S. S.	11-15
5	Academia and Industry - Society: A Paradigm Shift in the NEP -2020 Vidya M. Jirage	16-19
6	Humanistic Pessimism in the major novels of Thomas Hardy Adik Manisha, Amol Sawant	20-22
7	In-Vitro Micropropagation Of Rose (<i>Rosa Hybrida</i> L.) Using Different Growth Hormones. Sabale S. C., Shinde N. G.	23-26
8	National Education Policy 2020: Merits and Demerits in Higher Education Pratibha V. Kanawade, Hari L. Diyekar	27-28
9	Synthesis of Nickel Oxide Nanoparticle using different synthetic method and their Applications: A review Kamal K. Chitalkar, Rupali D. Murade, Snehal V. Darandale, Sonali R. Magar, Haribhau R. Aher	29-33
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12	A Review On Bioactivity Of Schiff Base Cobalt And Nickel Metal Complexes Sonali A. Muntode, Shweta B. Dighe, Priyanka A. Tambe, Priyanka A. Gagare, Sonali S. Pardhe, Gajanan R. Pandhare, Haribhau R. Aher	44-47
13	Qualities And Techniques In Sports Coaching For Better Performance Harde.S.M., Kadu .P .A	48-50
14	Implementation Of National Education Policy-2020 Madhuri Sontakki	51-52
15	Review on Different Extraction Techniques Used for Bioanalysis R. J. Gaikwad, A. A. Jondhale, V.A.Kadnor	53-55
16	Health risk of local fruit: Pomegranates Amruta K. Mhaske, Bhagwat K. Uphade	56-61
17	Outcome-Based Education (OBE) using Student Centered Learning (SCL) for Commerce faculties Rahul. M. Bhandari	62-65
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**Implementation of National Education Policy -
2020: Multidisciplinary Education**

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

22	NEP: Changes of Education System Shelke Digambar Sakharam	89-91
23	The Importance of Language in National Education Policy 2020 Dhimate Sangita Sunil · Salve Priyanka	92-94
24	Role of NEP 2020 in emerging economy- A study with special reference to Maharashtra Sopan N. Shingote, Jayshree R.Singar	95-97
25	Implementation of National Education Policy (NEP) 2020 in Agricultural Education: - A Theoretical Analysis. D. N. Karle, S. R. Varpe	98-101
26	Stylistic Analysis of <i>Father Returning Home</i> by Dilip Chitre Aher T. V, Patel Mateen Ayyab	102-105
27	Azoles: Biological Activities and Synthetic Pathways Vinod R. Kadu, Amol K. Kharde	106-117
28	National Education Policy-2020: Issues and Challenges S.K. Pulate, S.B.Gholap	118-122
29	भारतातील राष्ट्रीय शैक्षणिक धोरणांचे तुलनात्मक अध्ययन विखे अर्चना अनिल., वैभव किशोर दिघे.	123- 126
30	साहित्य समाज आणि शिक्षण . वडितके शंकर गोरक्ष	127-128
31	नवीन शैक्षणिक धोरण 2020 मध्ये ग्रंथालयाचे महत्व आशिष ए.ठाणेकर	129-132
32	राष्ट्रीय शिक्षा नीति २०२० विमर्श: मानविकी और भाषाएँ जयवीर सिंह	133-136
33	नई शिक्षा नीति भारतीय भाषा की उपयोगिता प्रवीण तुलशीराम तुपे	137-139
34	ब्रिटीश काळातील शैक्षणिक धोरणाची ऐतिहासिक पार्श्वभूमी लवडे अर्चना बाबासाहेब	140-141
35	राष्ट्रीय शैक्षणिक धोरण - 2020 : गरज, तत्वे आणि मुलभूत सिध्दांत विखे ए.ए., पगारे सोनाली दिनकर	142-143
36	Planning And Performance Budgeting – Conceptual Frame Work Dr. Prashant Khoptikar	144-145
37	A Study of Performance and Analysis of Higher Education in India and it Opportunities and Challenges before National Education Policy 2020 Dattatraya Shivaji Thorat	146-152

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: 1

A review on Oxazines: Synthesis and Biological Potentials

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Abstract:

Due to their wide range of pharmacological effects, oxazine derivatives are a prominent class of heterocycle molecules that have attracted a lot of synthetic research. By appropriately substituting nitrogen and oxygen for carbon and hydrogen atoms in benzene and its reduction products, oxazine, a heterocyclic molecule, can be synthesised. Oxazine derivatives have emerged as attractive synthetic intermediates in recent years, as well as having significant biological properties like sedative, analgesic, antipyretic, anticonvulsant, antitubercular, antitumor, antimalarial, and antibacterial effects. The progress of drug resistance is currently a major challenge, and in order to address it, it is necessary to synthesise new classes of chemicals. The aim of the article's is to evaluate the generalisation of the information gathered regarding the synthesis of oxazine derivatives and their activity. For researchers interested in oxazine derivatives, we anticipate that this endeavour will be of particular interest.

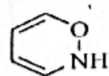
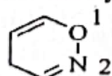
Keywords: Oxazine, Biological activities, antibacterial.

Introduction:

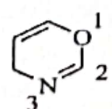
At least 50% of organic chemistry research is done on heterocyclic compounds. Numerous biologically active compounds with heterocyclic rings have been shown to have a variety of biological functions and to play significant roles in the drug discovery process.¹ Oxazine is important scaffold in biologically active compounds.² Depending upon the position of oxygen and nitrogen atom, oxazines are classified as 1,2-, 1,3- and 1,4-oxazine.³ 1,2-Oxazines are effective building blocks for the production of the novel physiologically active compounds.⁴ Due to broad range of biological activities and synthetic convenience 1,3-Oxazines moiety has gained great attention from many

organic and pharmaceutical chemists.⁵ 1,3-oxazine derivatives shows biological active properties like antifungal⁶, antibacterial⁷, antibacterial⁸, antiulcer⁹, antitumor¹⁰, anticancer¹¹, and anti-microbial.¹² 1,4-oxazines also having a wide range of biological application because of their vital bioactive nature.¹³

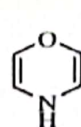
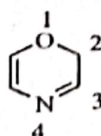
Over the past three decades, oxazines have attracted interest, but little research has been done on these molecules. One nitrogen and one oxygen are found in heterocyclic molecules called oxazines. Depending on the relative positions of the heteroatoms and double bonds, there are three different isomers 1, 2-, 1, 3-, and 1, 4-oxazines.



1,2-oxazine



1,3-oxazine



1,4-oxazine

The first 1,3-oxazine derivative was synthesised by Cope and Holly in 1944 via Mannich reaction.¹⁴ Only few reports are available regarding the antimicrobial activity of 1,3-oxazines.

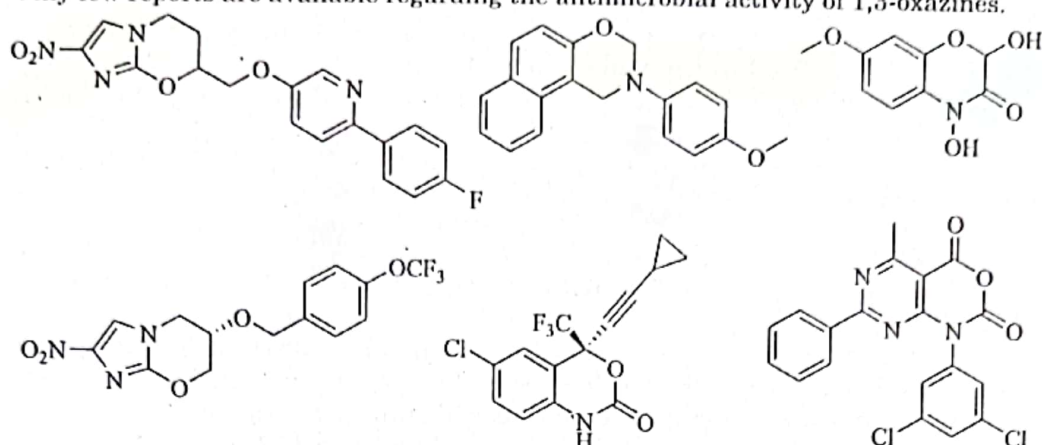
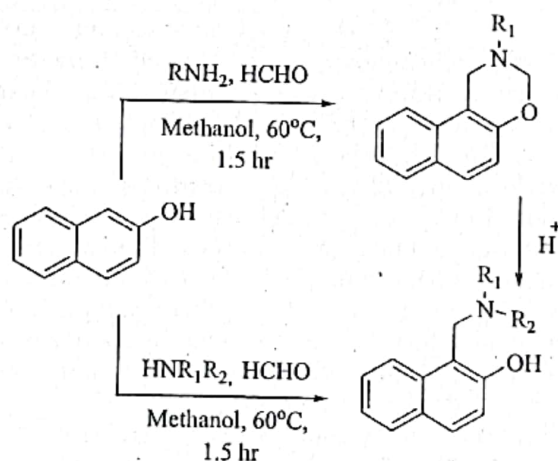


Figure 1. Some biologically active oxazine derivatives.

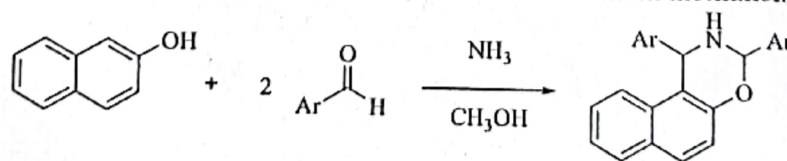
Oxazine heterocycles show useful biological activities. Its increasing importance in pharmaceutical and biological field, through this review article, we are planned to collect synthesis of some oxazine derivatives. Hence there is enough scope to explore new oxazine derivatives for their antibacterial & antifungal activity.

Shen and co-workers prepare a series of oxazine and 1-alkylaminomethylnaphthol analogues by addition reactions of phenol, formaldehyde, and alkylamines in methanol as a solvent at 60°C. (Scheme 1)¹⁵



Scheme 1. Synthesis of oxazine and 1-alkylaminomethylnaphthol derivatives.

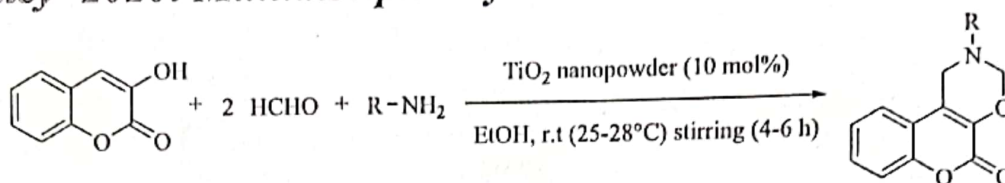
Turgut and co-workers developed 1,3-oxazines derivatives by ring closure reaction of naphthols, substituted aryl- and heteroaryl aldehydes and ammonia in methanol. (Scheme 2)¹⁶



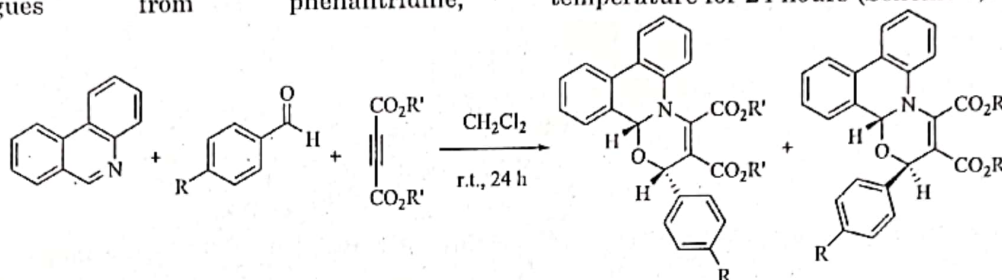
Scheme 2. Synthesis of 1,3-disubstituted-2,3-dihydro-1H-naphth[1,2-e][1,3]oxazines.

Mukhopadhyay and co-workers prepare coumarin-based 1,3-oxazine derivatives by the addition reaction of 3-hydroxycoumarin, primary amines, and

formaldehyde at 25–28°C for 4–6 hrs using TiO₂ nanoparticles as a catalyst with remarkable reusability. (Scheme 3)¹⁷



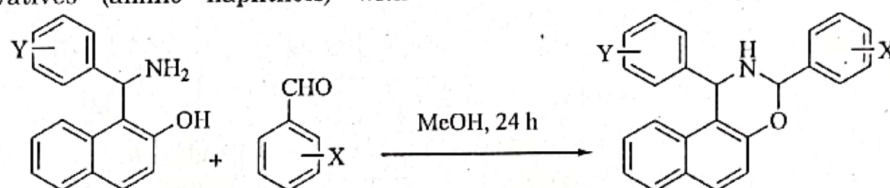
Scheme 3. Synthesis of coumarin based 1,3-oxazine derivatives catalyzed by TiO_2 nanoparticle. Mehrabi and co-workers have developed the preparation of 1,3-oxazine analogues from phenanthridine, dialkylacetylenedicarboxylates (DAADs) and aromatic aldehydes in DCM at ambient temperature for 24 hours (Scheme 4).¹⁸



Scheme 4. Synthesis of 1,3-oxazine derivatives.

Fulop and co-workers have developed a Mannich-type aminoalkylation reaction of appropriate reactants to synthesize Betti base derivatives (amino naphthols) with

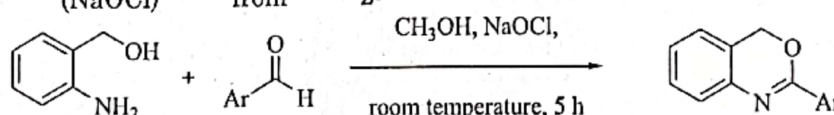
various substituted benzaldehydes, which are three-component isomeric mixtures in CDCl_3 at room temperature and further give 1,3-oxazine derivatives (Scheme 5).¹⁹



Scheme 5. Synthesis of oxazine analogues from Betti bases.

Reddy and co-workers synthesize 1,3-oxazines derivatives using sodium hypochlorite (NaOCl) from 2-

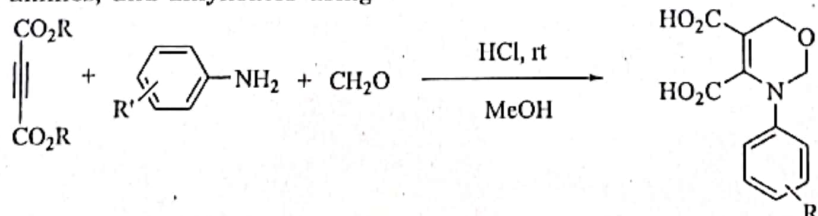
aminobenzylamine, various aldehydes in methanol as solvent (Scheme 6).²⁰



Scheme 6. Synthesis of 4H-benzo[d]-[1,3]oxazines.

Jiang and co-workers develop a novel methodology for the preparation of 1,3-oxazine analogues by promotion of Bronsted acids such as hydrochloric acid from formaldehyde, amines, and alkynoates using

an easy, experimentally developed protocol, and the final products were obtained in excellent yields under normal reaction conditions (Scheme 7).²¹



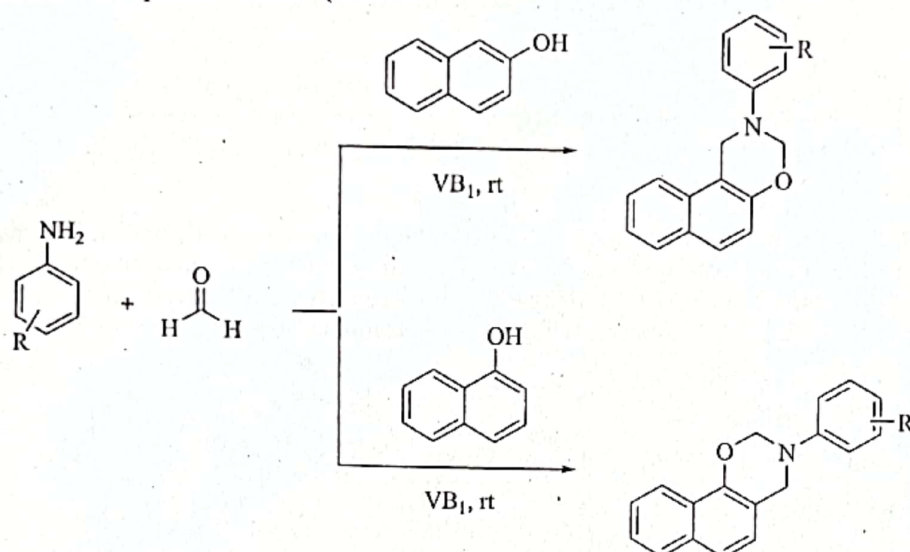
Scheme 7. 3,4,5-trisubstituted-1,3-oxazine synthesis catalyzed by Bronsted acid.

Bandgar and co-workers developed a multi-component, one-pot reaction of anilines, formaldehyde and α - or β -naphthol

as an efficient and suitable process for the production of a diverse of 1,3-oxazine analogues using innovative thiamine

hydrochloride (VB1) as a biodegradable and greener catalyst in aqueous media (Scheme

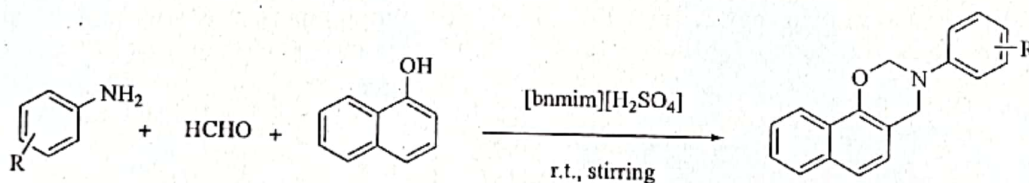
8).²²



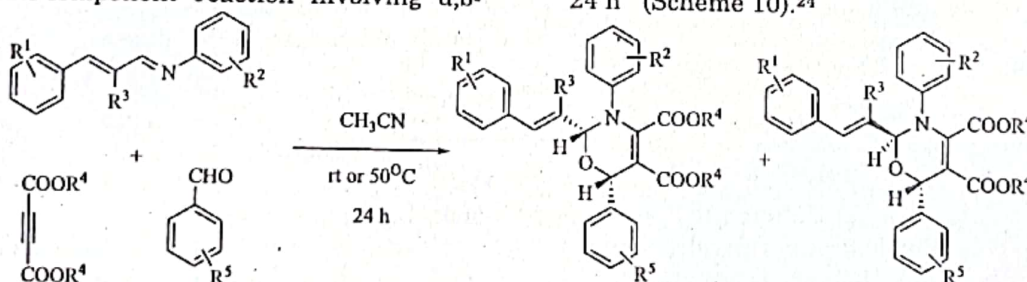
Scheme 8. Thiamine hydrochloride (VB1) catalysed synthesis of 1,3-oxazine analogues.

Shingare and *co-workers* have developed the one-pot procedure for the synthesis of 1,3-oxazine analogues using

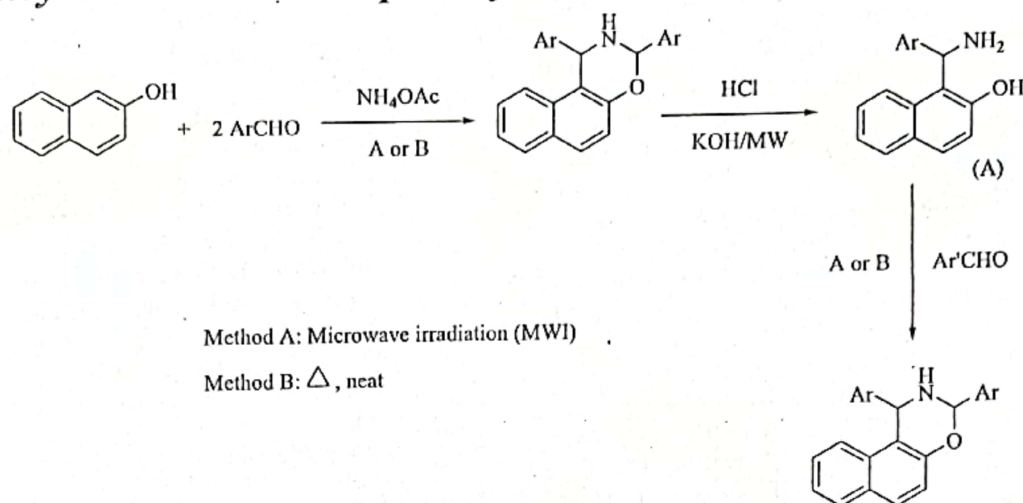
novel [bnmim] [HSO₄] as an ionic liquid at room temperature and stirring (Scheme 9).²³



Scheme 9. Synthesis of 3,4-dihydro-3-substituted-2H-naphtho[2,1-e][1,3]oxazine analogues. Lei and *co-workers* have synthesized structurally diversified 1,3-oxazine analogues by multi-component reaction involving α,β -unsaturated imines, acetylenedicarboxylate and benzaldehyde in acetonitrile at 50°C for 24 h (Scheme 10).²⁴



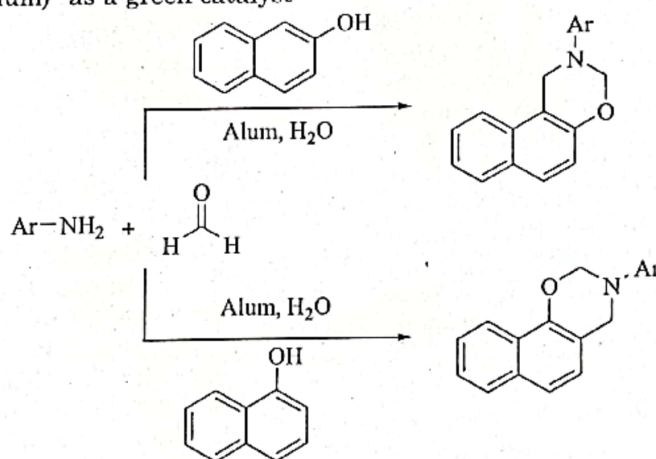
Scheme 10. Synthesis of structurally diversified 1,3-oxazine analogues. Sapkal and *co-workers* have developed a solvent-free protocol for the preparation of 1,3-oxazine derivatives using "ammonium acetate" as a catalyst in microwave irradiation. They have highlighted the reaction's progress for the formation of Betti bases (A) (Scheme 11).²³



Scheme 11. Synthesis of 1,3-oxazine derivatives.

Shingare and co-workers have developed 1,3-oxazine derivatives by using "KAl(SO₄)₂·12H₂O (alum)" as a green catalyst

by reaction of α - or β -naphthol, various amines and formaldehydes. (Scheme 12).²⁵



Scheme 12. Synthesis of various oxazine derivatives.

Conclusions:

Oxazine and related heterocyclic compounds have antimycobacterial, antibacterial, antifungal, anticoagulant, anticancer, antioxidant, and cytotoxic activities. It has been found that oxazine derivatives can be synthesized in a number of ways. So, this review article can extend the synthetic utility of new heterocyclic oxazine derivatives. Therefore, biological significance of oxazine compounds could be utilized for the development of new chemical entities to various diseases. We can therefore draw the conclusion that numerous more oxazine derivatives can be produced and are likely to exhibit strong pharmacological activity. We believe that our succinct review will help everyone who is interested in this exciting

family of heterocyclic compounds make decisions regarding the selection of targets and objectives for more research.

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Implementation of National Education Policy -2020: Multidisciplinary Education

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Volume: I

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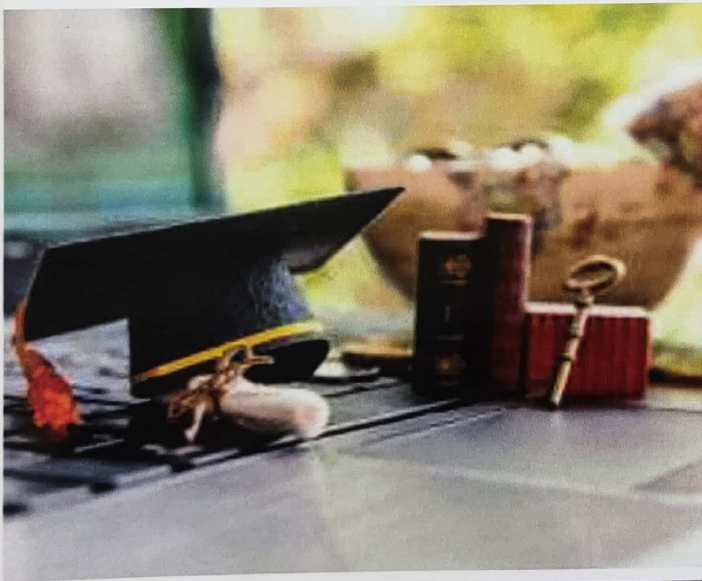
Volume: I

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**Implementation of National Education Policy -
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ISBN: 978-93-94819-23-8
Pub. Date: 12/02/2023
Volume: I

Sr.No.	Title	Page no.
1	A Review on Algae as Biofertilizer A. A. Aher, A. S. Wabale	1-3
2	A Review of Agricultural Education in National Education Policy 2020 Rajesh M. Thoke, Shinde V. G., Vikhe A.A.	4-6
3	Review on Role of Physical Mutagen in Mutation Breeding M. D. Kakade, R. D. Borse	7-10
4	A Review of Composition and Metabolism of Bioactive Components in Citrus Fruits and Vegetables Vikhe A. S., Kharde H. S., Vikhe P. S., Rohamare S. S.	11-15
5	Academia and Industry - Society: A Paradigm Shift in the NEP -2020 Vidya M. Jirage	16-19
6	Humanistic Pessimism in the major novels of Thomas Hardy Adik Manisha, Amol Sawant	20-22
7	In-Vitro Micropropagation Of Rose (<i>Rosa Hybrida</i> L.) Using Different Growth Hormones. Sabale S. C., Shinde N. G.	23-26
8	National Education Policy 2020: Merits and Demerits in Higher Education Pratibha V. Kanawade, Hari L. Divekar	27-28
9	Synthesis of Nickel Oxide Nanoparticle using different synthetic method and their Applications: A review Kamal K. Chitalkar, Rupali D. Murade, Snehal V. Darandale, Sonali R. Magar, Haribhau R. Aher	29-33
10	Review on Multi-component Synthesis of Biologically Important 2H-indazole[2,1-b]phthalazine-triones derivatives (2017-2021) Dilip Aute, Hirshikesh Nirmal, Vitisha Vikhe, Vaishali Murade, Anil Gadhave	34-38
11	A Review on Biomedical Approaches of Green Synthesized Cerium Oxide Nanostructure Sumaiyya M. Patel, Vaishali D. Murade, Shobha A. Musmade, Dinesh P. Hase, Surekha K. Kadu, Gajanan R. Pandhare	39-43
12	A Review On Bioactivity Of Schiff Base Cobalt And Nickel Metal Complexs Sonali A. Muntode, Shweta B. Dighe, Priyanka A. Tambe, Priyanka A. Gagare, Sonali S. Pardhe, Gajanan R. Pandhare, Haribhau R. Aher	44-47
13	Qualities And Techniques In Sports Coaching For Better Performance Harde.S.M., Kadu .P .A	48-50
14	Implementation Of National Education Policy-2020 Madhuri Sontakki	51-52
15	Review on Different Extraction Techniques Used for Bioanalysis R. J. Gaikwad, A. A. Jondhale, V.A.Kadnor	53-55
16	Health risk of local fruit: Pomegranates Amruta K. Mhaske, Bhagwat K. Uphade	56-61
17	Outcome-Based Education (OBE) using Student Centered Learning (SCL) for Commerce faculties Rahul. M. Bhandari	62-65
18	A review on Oxazines: Synthesis and Biological Potentials Amol K. Kharde, Vinod R. Kadu, Somnath S. Gholap	66-72
19	The Airborne Spread of Staphylococcus aureus in various Environmental Conditions - A systematic overview Aarif Khan, Pramod N. Kamble, Nazeer Mohammed	73-83
20	Academic Bank of Credits in Higher Education Institutions Deshmukh Kanchan Samish.	84-86
21	National Education Policy 2020: Reformation in Educational System of India Kanawade Pratibha Vijay	87-88

**Implementation of National Education Policy -
2020: Multidisciplinary Education**

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

22	NEP: Changes of Education System Shelke Digambar Sakharam	89-91
23	The Importance of Language in National Education Policy 2020 Dhimate Sangita Sunil · Salve Priyanka	92-94
24	Role of NEP 2020 in emerging economy- A study with special reference to Maharashtra Sopan N. Shingote, Jaysree R.Singar	95-97
25	Implementation of National Education Policy (NEP) 2020 in Agricultural Education: - A Theoretical Analysis. D. N. Karle, S. R. Varpe	98-101
26	Stylistic Analysis of <i>Father Returning Home</i> by Dilip Chitre Aher T. V, Patel Mateen Ayyab	102-105
27	Azoles: Biological Activities and Synthetic Pathways Vinod R. Kadu, Amol K. Kharde	106-117
28	National Education Policy-2020: Issues and Challenges S.K. Pulate, S.B.Gholap	118-122
29	भारतातील राष्ट्रीय शैक्षणिक धोरणांचे तुलनात्मक अध्ययन विखे अर्चना अनिल., वैभव किशोर दिघे.	123- 126
30	साहित्य समाज आणि शिक्षण . वडितके शंकर गोरक्ष	127-128
31	नवीन शैक्षणिक धोरण 2020 मध्ये ग्रंथालयाचे महत्व आशिष ए.ठाणेकर	129-132
32	राष्ट्रीय शिक्षा नीति २०२० विमर्श: मानविकी और भाषाएँ जयवीर सिंह	133-136
33	नई शिक्षा नीति भारतीय भाषा की उपयोगिता प्रवीण तुलशीराम तुपे	137-139
34	ब्रिटीश काळातील शैक्षणिक धोरणाची ऐतिहासिक पार्श्वभूमी लबडे अर्चना बाबासाहेब	140-141
35	राष्ट्रीय शैक्षणिक धोरण - 2020 : गरज, तत्वे आणि मुलभूत सिध्दांत विखे ए.ए., पगारे सोनाली दिनकर	142-143
36	Planning And Performance Budgeting – Conceptual Frame Work Dr. Prashant Khoptikar	144-145
37	A Study of Performance and Analysis of Higher Education in India and it Opportunities and Challenges before National Education Policy 2020 Dattatraya Shivaji Thorat	146-152

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

Azoles: Biological Activities and Synthetic Pathways

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Abstract:

With an increase in patients with suppressed immune system during the past few years, the danger of human fungal infections has significantly grown. There has been a rapid progress in the field of fungal infection treatment. It was discovered that combining already available azoles with additional antifungals is probably going to increase their efficacy. Azole derivatives has variations in pharmacology, pharmacokinetics, spectrum of activity, safety, toxicity, and potential medication interactions. The azoles are sufficiently diverse in terms of their pharmacology, pharmacokinetics, spectrum of activity, safety, toxicity, and potential drug interactions.

Keywords: immune system, fungal infections, pharmacology, pharmacokinetics etc.

Introduction:

Azoles are more diverse category of compounds. They have at least one atom other than carbon, such as nitrogen, sulphur, or oxygen, and are composed of five-membered heterocyclic rings¹. Typically, they are cut off from natural resources. They are linked to extraordinary biological potential. Therefore, their research had broadened the perspectives of current organic chemists. More specifically, azole analogues have several biological applications, including analgesic, diuretic, antibacterial, anti-convulsive, and anti-inflammatory effects²⁻⁸. A common class of antifungal drugs called azoles works by preventing the ergosterol, an essential part of the fungus cell membrane, from being produced. The two main subclasses of azoles are the triazoles, which are more recent agents having a wide range of applications, and the imidazoles, which are older compounds often only employed for topical applications. The therapy of various disorders is advised for different class members. Hepatotoxicity, GI distress, heart

problems, and neurotoxicity are just a few of the serious side effects that could occur. Azoles interact with the Cytochrome P450 system, which can lead to serious drug-to-drug interactions with a wide range of other drugs and potentially limit their utility in patients with complicated medical conditions.

Classification of azoles:

Azoles are classified on the source of existence, number and position of heteroatom in five membered ring. Azoles includes following types of heterocyclic rings.

- Pyrole- Includes only one heteroatom i.e. nitrogen
- Oxazole and Isoxazole- Including one nitrogen atom and one oxygen atom as heteroatoms.
- Thiazole and isothiazole- Includes one nitrogen atom and one sulfur atom as heteroatom.
- Pyrazole, imidazole, triazole, tetrazole, pentazole- Including two or more nitrogen atoms (Figure 1).

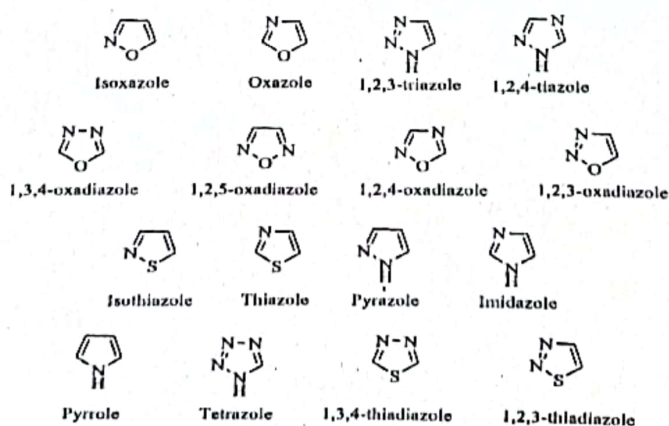


Figure 1. Classification of azoles on the basis of presence, number and position of heteroatom.

Biological Potential of azole derivatives:
Alam *et al* has been studied the synthesis of oyrazole analogues Celecoxib

(38) and Antipyrine (39) also oxazole moiety Oxaprozin (40) acts as COX-2 inhibitors (Figure 2).⁹

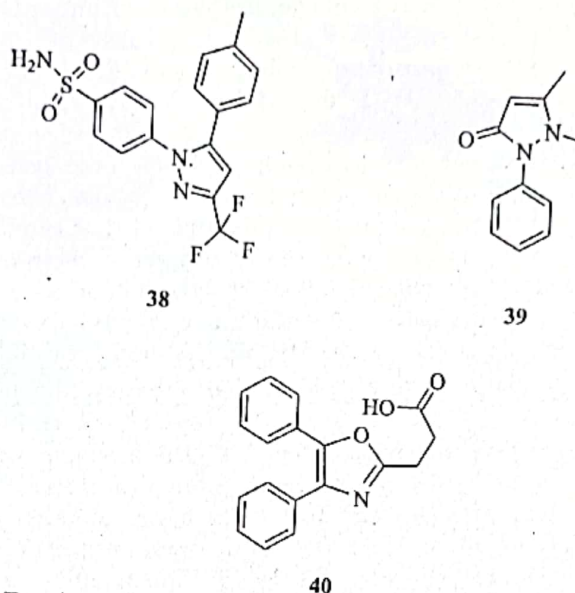


Figure 2. Biologically active azole analogues.

Chen *et al* has been observed effects of Celecoxib (38) as anti-cancer COX-2 inhibitor and examine the correlation between COX-2 inhibitors and angiogenesis, metastasis in SGC7901 cancer xenografts¹⁰. Masferrer *et al* reported probable effect mechanisms of the antiangiogenic and anticancer of celecoxib (38) (Figure 13)¹¹. Celecoxib inhibits cyclooxygenase-2 (COX-2) enzyme which is expressed many human cancers as interruption in the tumour growth, metastasis in xenograft tumour and suppression of basic fibroblast growth factor 2 (FGF-2). Grover *et al* reported a novel antineoplastic agent Carboxyamidotriazole (CAI) (41) in clinical improvement with

partial oral bioavailability with significant gastrointestinal and neurotoxicity properties. Also CAI was converted to CAI-orotate (42) which was found to go through the bloodstream more rapidly and attained higher plasma concentrations (Figure 3)¹².

Beule *et al* has been reported Itraconazole (43) exhibiting antifungal activity (Figure 15).¹³ Wu *et al* has been synthesised and evaluated of new class of 2-alkylbenzimidazoles possessing a N-phenylpyrrole core act as AT1 antagonists receptor. Among these derivatives (44) and (45) exhibits binding resemblance to AT1 receptor and potentially inhibited response by oral administration (Figure 4).¹⁴

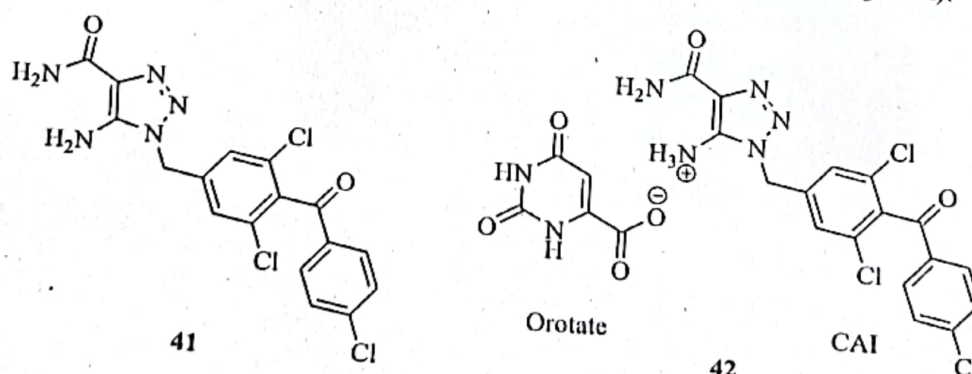
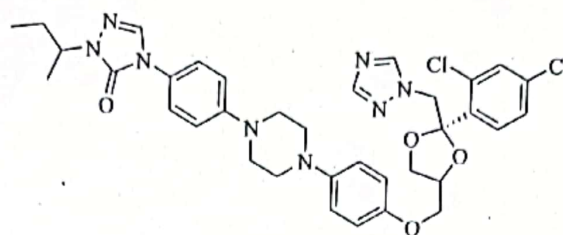
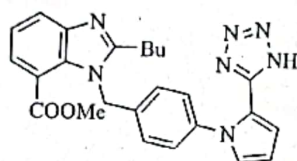


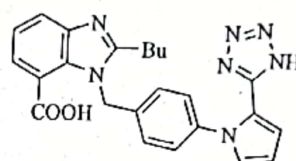
Figure 3. Possible structure of CAI and CAI-erotate.



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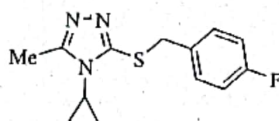


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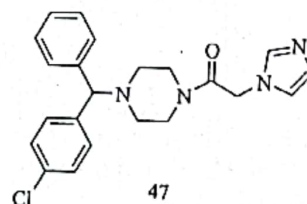
Figure 4. Biologically active triazole and benzimidazole analogues.

Liu *et al* has been developed innovative compound (46) showing outstanding KARI (ketol-acid reductoisomerase) inhibitory activity (Figure 5).¹⁵

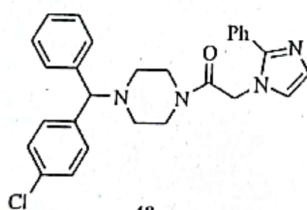
Zhou *et al* has been designed, synthesised and investigated antibacterial, antifungal and cytotoxic activities of a series of azole analogues (47-49) (Figure 5).¹⁶



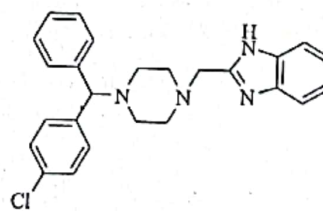
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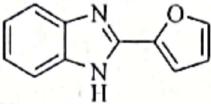
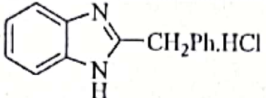
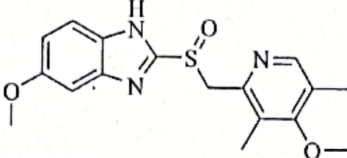
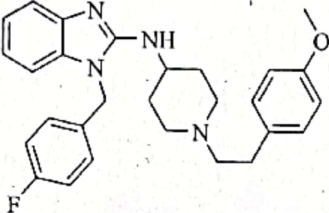
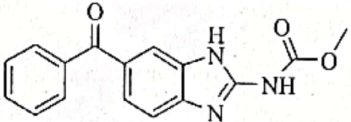
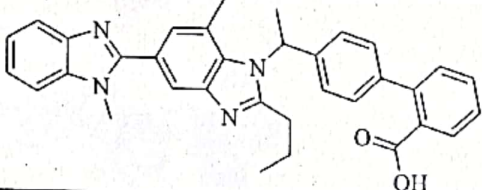
Figure 5. Some potentially active azole analogues.

It has been observed that the introduction of benzimidazole core in several drugs exhibits remarkable pharmacological

potential. The biological importance of these benzimidazole analogues were cited in Table 1.

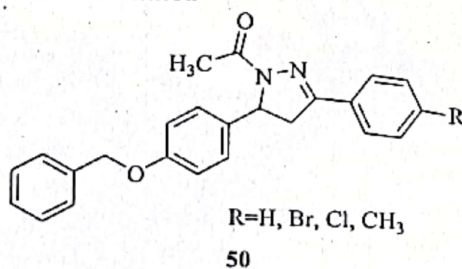
Table 1. Some benzimidazole containing drugs with their pharmacological activities

Sr. No.	Name of Drug	Structure	Pharmacological activities
1.	Enviroxime		Antiviral agent ¹⁷

2.	Fuberidazole		Fungicide ¹⁸
3.	Diabazole		Hypotensive properties ¹⁹
4.	Omeprazole		Anti-ulcer agent ²⁰
5.	Astemizole		Anti-allergic properties ²¹
6.	Mebendazole		Anthelmintic agent ²²
7.	Telmisartan		Antihypertensive properties ²³

Other azole derivatives possessing pyrazole as main core unit are also known for their enormous biological activities. These include N-acetylpyrazole derivatives (50) which were synthesised and evaluated for its antiviral activity.²⁴ These are also associated

with anti-inflammatory (51-53)²⁵, antimicrobial (54)³⁶, anticancer (55-56)^{27,28}, antidepressant (57)²⁹, anti-tubercular (58)³⁰, anti-convulsant (59)³¹ etc (Figure 6).



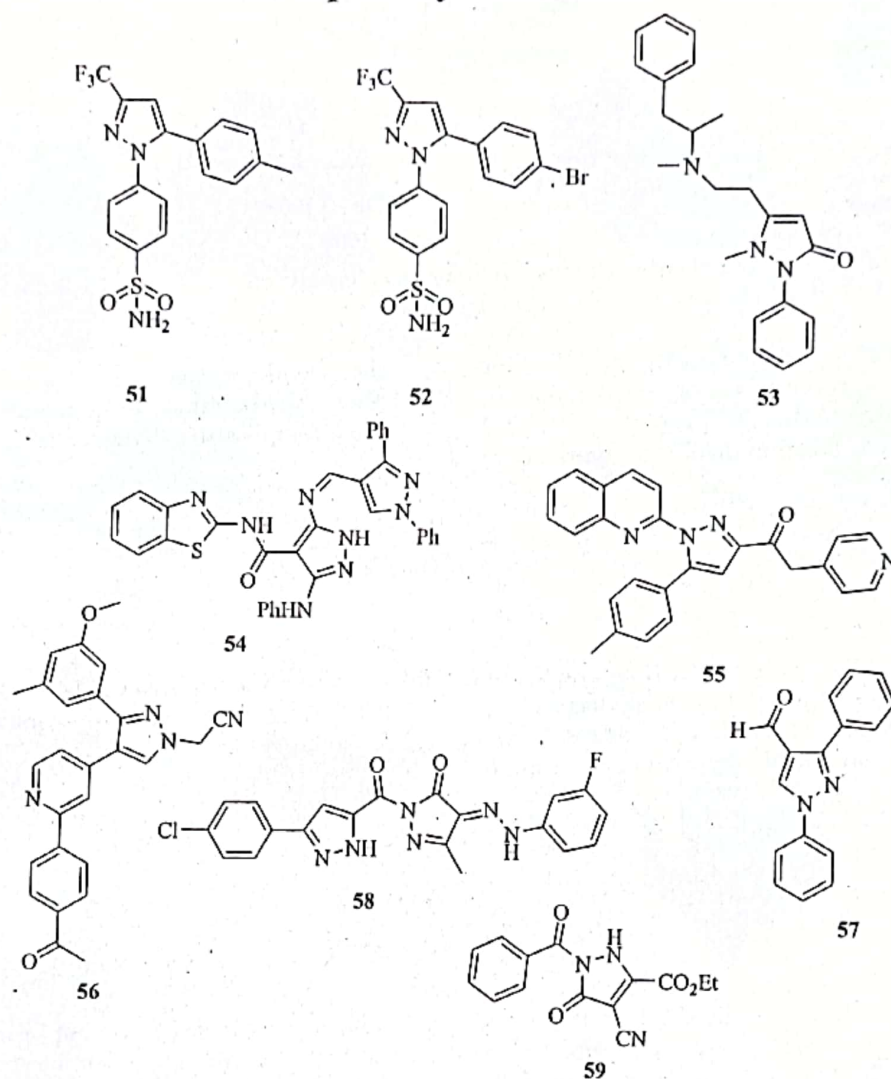


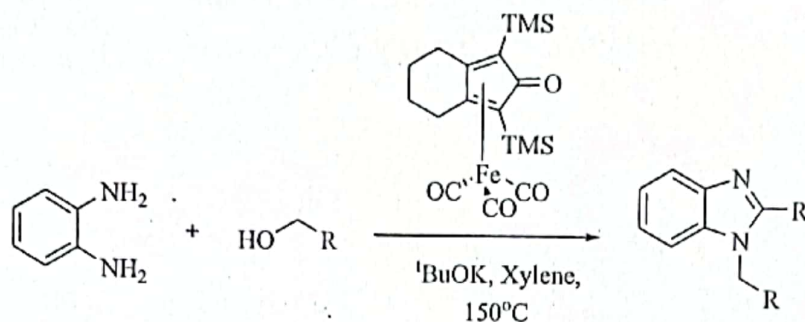
Figure 6. Pyrazole derivatives with wide range of biological activities.

Synthesis of azole derivatives:

There are numerous articles reporting the synthesis of benzimidazole that include metal catalyzed, metal-free catalysis or reagent based reactions and green synthesis. The metal catalyzed reactions for synthesis of benzimidazole such as $\text{In}(\text{OTf})_3^{32}$, Cu_2O^{33} , $\text{Ca}(\text{OH})_2$ or CaO^{34} , $\text{Fe}(\text{NO}_3)_3^{35}$, CuBr_2^{36} , CuI^{37} etc. are reported. Also various metal-free or reagent based reactions for the synthesis of benzimidazole such as AcOH catalyzed thermal or microwave irradiation³⁸, Hexamethyldisilane (HMDS)³⁹, base as $\text{K}_2\text{CO}_3^{40}$ or NaOH^{41} are reported. Reports

also considers several green protocols for the synthesis of benzimidazole such as lactic acid/ethyl lactate⁴², PEG-400⁴³, $\text{NH}_4\text{Cl}^{44}$, boric acid⁴⁵, ceric ammonium nitrate (CAN)⁴⁶ etc.

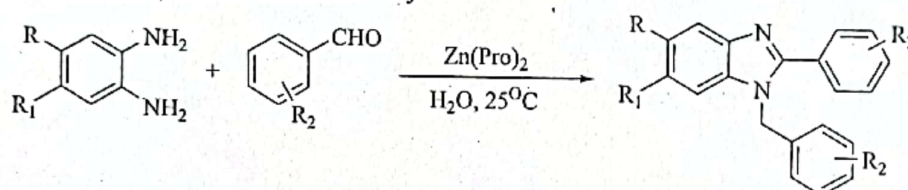
Hong *et al* has been reported the preparation of 1,2-disubstituted benzimidazoles using tricarbonyl (η^4 -cyclopentadienone) iron complex as a catalyst via multicomponent reaction of primary alcohol and aromatic amines in xylene catalyzed by trimethylamine *N*-oxide (TMAO) at 100°C (Scheme 1)⁴⁷.



Scheme 1. Tricarbonyl (η^4 -cyclopentadienone) iron catalyzed synthesis of 1,2-disubstituted benzimidazoles.

Rao *et al* has been demonstrated novel water-soluble Zn-proline as a environmental friendly catalyst in the preparation of 1,2-disubstituted benzimidazole derivatives by

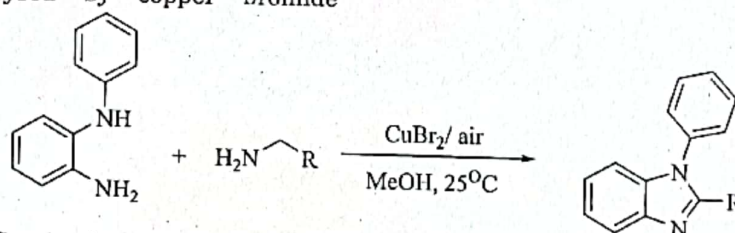
the condensation of aldehydes and o-phenylenediamines in aqueous medium at room temperature (Scheme 2)⁴⁸.



Scheme 2. Novel Zn-proline 1,2-disubstituted benzimidazoles.

Largeron *et al* has been focused on the preparation of N-phenyl benzimidazole analogues catalysed by copper bromide

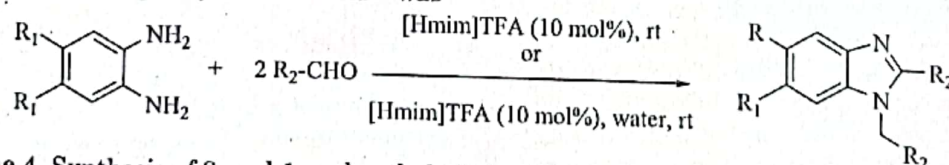
(CuBr₂) in methanol at ambient temperature (Scheme 3)⁴⁹.



Scheme 3. Synthesis of 1,2-disubstituted benzimidazoles catalyzed by copper bromide.

Dabiri *et al* has been developed an environmentally benign preparation of 2-aryl-1-arylmethyl-1H-1,3-benzimidazole derivatives assisted by ionic liquid 1-methylimidazolium trifluoroacetate ([Hmim]TFA). The condensation of aromatic

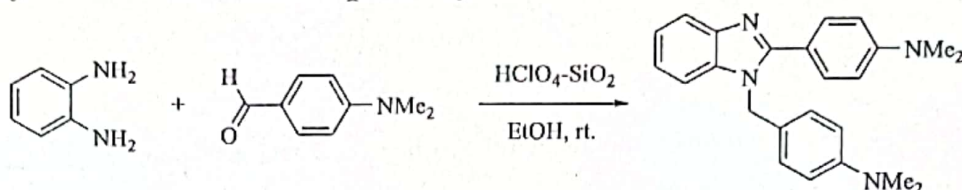
aldehydes and o-phenylenediamines was conducted at ambient temperature gave the desired products. The recyclability and reusability nature of the ionic liquid makes the methodology more reliable for the preparation of benzimidazole analogues (Scheme 4)⁵⁰.



Scheme 4. Synthesis of 2-aryl-1-arylmethyl-1H-1,3-benzimidazole derivatives catalyzed by ionic liquid.

Chakraborti *et al* have been utilize the solid supported protic acids catalyzed synthesis of 1,2-disubstituted benzimidazole analogues. This methodology involves the condensation of o-phenylenediamine and aldehydes in the

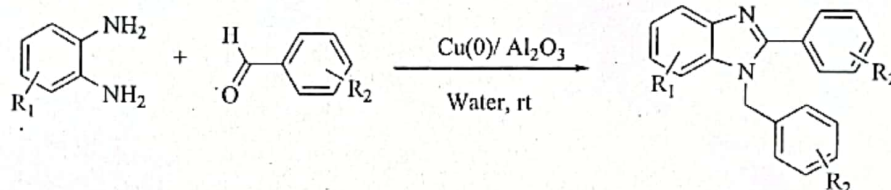
presence of silica-gel (HClO₄-SiO₂) adsorbed by perchloric acid as efficient catalyst in ethanol as solvent at ambient temperature (Scheme 5)⁵¹.



Scheme 5. HClO₄-SiO₂ catalyzed synthesis of 1,2-disubstituted benzimidazole derivatives.

Pogula *et al* has been reported heterogeneous catalyst like Cu-Al hydrotalcite which is derived from copper nanoparticles on aluminium oxide for the preparation of 1,2-disubstituted benzimidazole analogues using

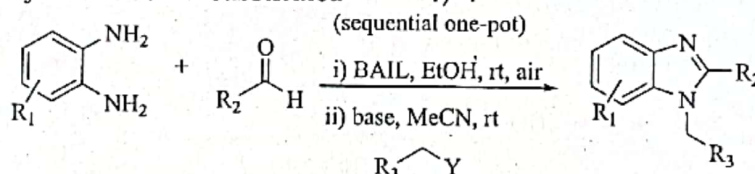
α -bromo ketones or aldehydes and substituted o-phenylenediamines and aldehydes or in aqueous medium and at ambient temperature (Scheme 6)⁵².



Scheme 6. Cu-Al hydrotalcite catalyzed 1,2-disubstituted benzimidazole derivatives.

Sirion *et al* has been developed dodecylimidazolium hydrogen sulfate ([DodecIm][HSO₄]) (BAIL-based-alkylimidazonium cation) as a reusable catalyst for the synthesis of 2-substituted

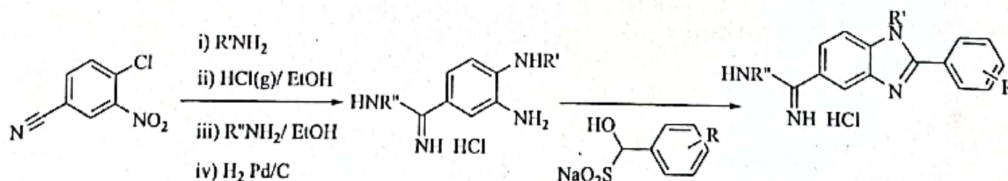
benzimidazole derivatives. The condensation of o-phenylenediamines with different aliphatic, aromatic aldehydes gave the preferred products in good yields (Scheme 7)⁵³.



Scheme 7. BAIL- based-alkylimidazonium cation catalyzed synthesis of 2-substituted benzimidazole derivatives.

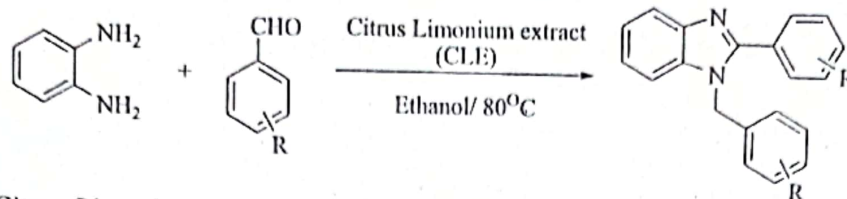
Goker *et al* has been synthesized a sequence of N-alkylated-1,2-disubstituted-1H-benzimidazole-5-carboxamides by reaction of 4-chloro-3-nitrobenzonitrile with

amines and Na₂S₂O₅ adduct of appropriate benzaldehydes. Further they have studied their in-vitro antibacterial potential (Scheme 8)⁵⁴.



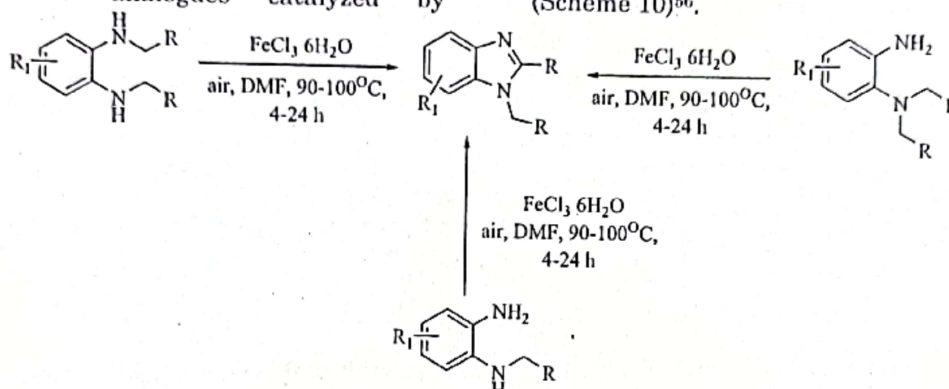
Scheme 8. Synthesis of 1,2-disubstituted-1H-benzimidazole-N-alkylated-5-carboxamides. Patil *et al* has been reported the use *Citrus Limonium* extract as Bronsted acid type bio-surfactant as a catalyst for the preparation of 2-aryl-1-arylmethyl-1H-benzimidazole

analogues by condensation of o-phenylenediamine and aromatic aldehydes at 80°C (Scheme 9)⁵⁵.



Scheme 9. Citrus Limonium extract mediated synthesis of 2-aryl-1-arylmethyl-1H-benzimidazole derivatives.

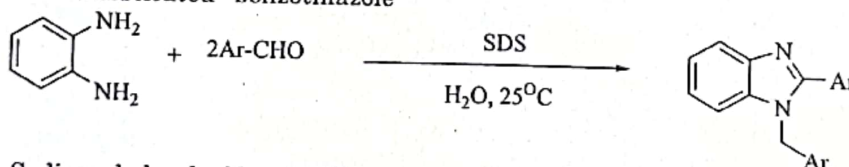
Foss *et al* has been reported the preparation of 1,2-disubstituted benzimidazole analogues catalyzed by $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$ and O_2 using disubstituted ortho-phenylenediamines (OPD) at 90-100°C (Scheme 10)⁵⁶.



Scheme 10. The synthesis of 1,2-disubstituted benzimidazole derivatives catalyzed by iron trichloride.

Bahrami *et al* reported suitable and practical synthetic process for the easy production of 2-substituted benzimidazole derivatives, 1,2-disubstituted benzimidazole analogues and 2-substituted benzothiazole

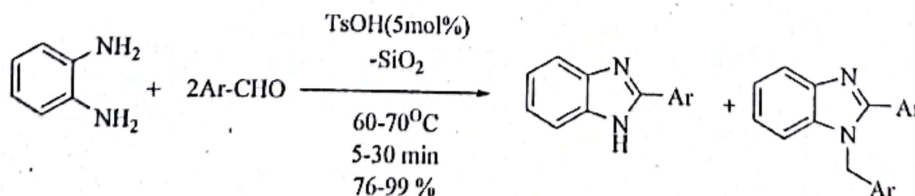
derivatives using sodium dodecylsulfate (SDS), a surfactant catalyst in water (Scheme 15)⁵⁷.



Scheme 15. Sodium dodecylsulfate (SDS) catalysed synthesis of 1,2-disubstituted benzimidazole derivatives

Chakrabarty *et al* developed economical and environmentally pleasant catalyst- toluenesulphonic acid on silica gel for the preparation of 2-Substituted and 1,2-

disubstituted benzimidazole derivatives from aryl aldehydes and o-phenylenediamines (Scheme 16)⁵⁸.

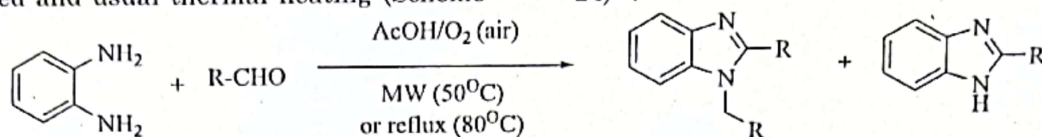


Scheme 16. Toluenesulphonic acid-on-silica gel catalysed synthesis of 1,2-disubstituted benzimidazole derivatives.

Azarifar *et al* reported glacial acetic acid as an efficient medium for straightforward methodology in the preparation of 2-aryl-1-(arylmethyl)-1H-

benzimidazole analogues by condensation reaction of aromatic aldehydes with o-phenylenediamine by both microwave

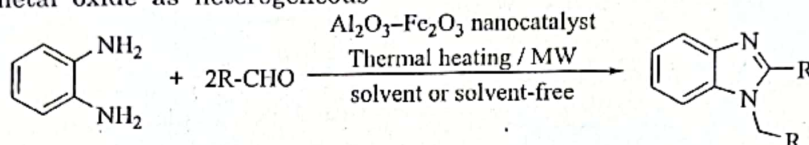
assisted and usual thermal heating (Scheme 24)⁵⁹.



Scheme 24. Synthesis of 2-aryl-1-(arylmethyl)-1H-benzimidazole derivatives.

Kaushik *et al* has been developed solvent free and microwave assisted with exploit of mesoporous nanocrystals of Al_2O_3 - Fe_2O_3 mixed metal oxide as heterogeneous

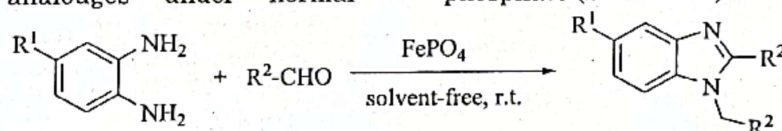
catalysts for the production of 1,2-disubstituted benzimidazole analogues using OPD and aldehydes (Scheme 33)⁶⁰.



Scheme 33. Solvent free and microwave assisted synthesis of 1,2-disubstituted benzimidazole derivatives

Behbahani *et al* has been discovered solvent free preparation of 1,2-Disubstituted benzimidazole analogues under normal

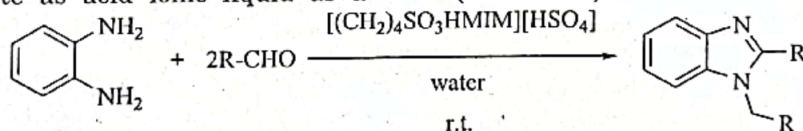
condition by phenylenediamine derivatives with aldehydes catalysed by iron(III) phosphate (Scheme 34)⁶¹.



Scheme 34. Solvent free synthesis of 1,2-Disubstituted benzimidazoles.

Beheshtiha *et al* has been reported 1-(4-Sulfonic acid)butyl-3-methylimidazolium hydrogen sulfate as acid ionic liquid as a

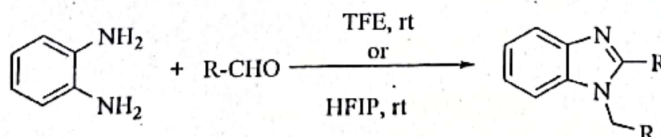
catalyst in water for the preparation of 1,2-disubstituted benzimidazole analogues (Scheme 35)⁶².



Scheme 35. Ionic liquid as a catalyst for the synthesis of 1,2-disubstituted benzimidazole derivatives.

Chakraborti *et al* has been reported preparation of 1,2-disubstituted benzimidazole analogues using from aldehydes and o-phenylenediamine in

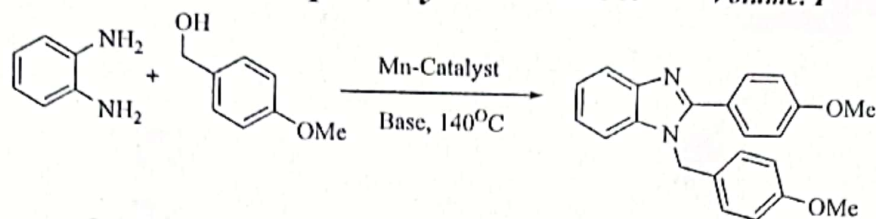
trifluoroethanol (TFE) or hexafluoro-2-propanol (HFIP) at ambient temperature (Scheme 36)⁶³.



Scheme 36. Synthesis of 1,2-disubstituted benzimidazole derivatives.

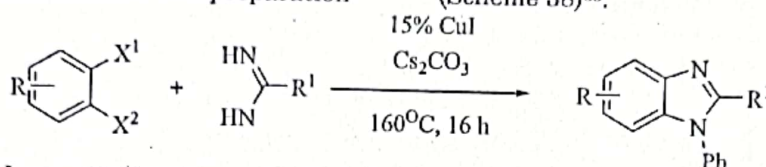
Srimani *et al* has been evaluated a novel tridentate ligand-based manganese(I) complex catalysed process for the preparation

of 1,2-disubstituted benzimidazole analogues from aromatic diamine with primary alcohols (Scheme 37)⁶⁴.



Scheme 37. Synthesis of 1,2-disubstituted benzimidazoles.

Deng *et al* has been demonstrated of 1,2 disubstituted benzimidazole condensation 1,2-differentiated di-derivatives at 160°C catalyzed by CuI haloarenes and amidines for the preparation (Scheme 38)⁶⁵.



Scheme 38. Synthesis of 1,2 disubstituted benzimidazole derivatives.

Conclusions:

The antimycobacterial, antibacterial, antifungal, anticoagulant, anticancer, antioxidant, and cytotoxic properties of azole and related heterocyclic compounds are well known. As a result, the biological importance of azole compounds could be used to design novel chemical entities to treat a variety of disease. As a result, we can infer that a great deal more azole derivatives can be created and are probably going to have a lot of pharmacological action. It has been discovered that there are several techniques to synthesis azole derivatives. The synthetic utility of novel heterocyclic Azole derivatives can thus be increased. This concise overview will assist with an interest in this fascinating family of heterocyclic compounds in making judgements regarding the choice of targets and goals for further investigation.

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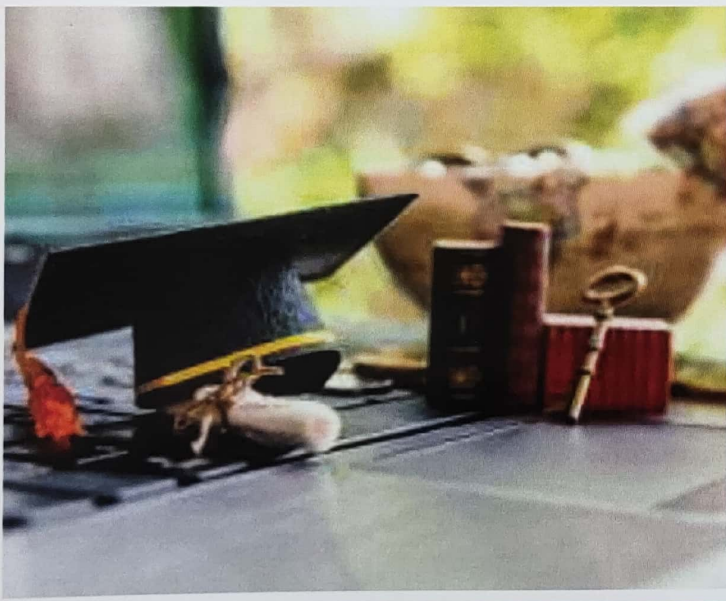
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Volume: I

22	NEP: Changes of Education System Shelke Digambar Sakharan	89-91
23	The Importance of Language in National Education Policy 2020 Dhimate Sangita Sunil · Salve Priyanka	92-94
24	Role of NEP 2020 in emerging economy- A study with special reference to Maharashtra Sopan N. Shingote, Jayshree R.Singar	95-97
25	Implementation of National Education Policy (NEP) 2020 in Agricultural Education: - A Theoretical Analysis. D. N. Karle, S. R. Varpe	98-101
26	Stylistic Analysis of <i>Father Returning Home</i> by Dilip Chitre Aher T. V, Patel Mateen Ayyab	102-105
27	Azoles: Biological Activities and Synthetic Pathways Vinod R. Kadu, Amol K. Kharde	106-117
28	National Education Policy-2020: Issues and Challenges S.K. Pulate, S.B.Gholap	118-122
29	भारतातील राष्ट्रीय शैक्षणिक धोरणांचे तुलनात्मक अध्ययन विखे अर्चना अनिल., वैभव किशोर दिघे.	123- 126
30	साहित्य समाज आणि शिक्षण . वडितके शंकर गोरक्ष	127-128
31	नवीन शैक्षणिक धोरण 2020 मध्ये ग्रंथालयाचे महत्व आशिष ए.ठाणेकर	129-132
32	राष्ट्रीय शिक्षा नीति २०२० विमर्श: मानविकी और भाषाएँ जयवीर सिंह	133-136
33	नई शिक्षा नीति भारतीय भाषा की उपयोगिता प्रवीण तुलशीराम तुपे	137-139
34	ब्रिटिश काळातील शैक्षणिक धोरणाची ऐतिहासिक पार्श्वभूमी लबडे अर्चना बाबासाहेब	140-141
35	राष्ट्रीय शैक्षणिक धोरण - 2020 : गरज, तत्वे आणि मुलभूत सिद्धांत विखे ए.ए., पगारे सोनाली दिनकर	142-143
36	Planning And Performance Budgeting – Conceptual Frame Work Dr. Prashant Khoptikar	144-145
37	A Study of Performance and Analysis of Higher Education in India and it Opportunities and Challenges before National Education Policy 2020 Dattatraya Shivaji Thorat	146-152

Implementation of National Education Policy -2020: Multidisciplinary Education

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The Importance of Language in National Education Policy 2020

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Abstract:

National Education Policy 2020 focuses on providing high-quality educational opportunities to the youngsters in India. The focal point is multidisciplinary education. It also includes preservation of Indian heritage, culture and philosophy with the introduction of the local or regional language in curriculum. The holistic, multidisciplinary, multilingual development of the students is desirable. It also aims at technical knowledge-based education in mother-tongue as it is easily comprehensible. Literature in any language could build the national ethos considering social and cultural aspects. The spirit of nationality and unity in diversity is experienced through Indian literature in translation.

Keywords: NEP-2020, multidisciplinary education, language and literature.

Introduction:

"Educating the mind without educating the heart is no education at all!" as put by Aristotle is aptly applied to National Education Policy 2020. It is designed for India by the Ministry of Education to provide high-quality educational opportunities to the young generation of India. Not only to gain knowledge, but also to liberate self is the aim of this multidisciplinary platform of education policy. The age-old knowledge system of India with the heritage from culture and philosophy would be enhanced, enriched and exemplified through this new policy. The sharp-witted and dedicated teachers should be encouraged to enter in the teaching field to give the best learning opportunities to the students to ensure their overall development. The earlier education policies only tried to make education accessible to each learner. But the NEP-2020 aims to develop good human beings, contributing to the building of an equitable, inclusive and plural society. For this, every education institute should create safe and stimulating ambience. Each student should experience holistic, multidisciplinary, multilingual and technical knowledge-based education. The vision of NEP-2020 is to make India a global knowledge superpower and enlighten Indians with patriotism.

The Paper:

The infants grasp the language they listen and speak it well. In modern India,

children may grow in multi-lingual families, where the languages spoken by their parents may be different, but the youngsters pick both the languages and communicate fluently. Sometimes, their home language may alter to the local language spoken by the community around them. But the medium of instruction in school is far away from this mother tongue or regional language. So the medium of instruction should be local language, as stated in NEP-2020. It is easy to comprehend for the pupils and so the teachers should use bilingual teaching-learning approach. It is advisable to use bilingual methods, materials and medium of instruction. Section 29(f) of Chapter V under Right to Education Act, 2009 clearly states that, "medium of instructions shall, as far as practicable, be in child's mother tongue". The home/local language should be continued to be taught in the curricular as a language wherever possible. The NIPUN Bharat Mission of the Government of India suggests that teaching learning process and development of teaching learning material should be done in mother tongue, through its Mission Implementation Guidelines.

Children pick languages very quickly in early ages upto 8 years as they enjoy learning it. So teachers should try to develop interactive conversations as well as reading skills. The three-language formula would be continued to promote national unity. However, flexibility in this matter is given to states according to NEP-2020. So no

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Volume: I

language could be imposed on any state. Even the textbooks could be prepared as high-quality bilingual ones. This would help the students to understand it quickly. They can choose the language which is easily comprehensible. In NEP-2020, the subjects like science and mathematics are proposed to be taught in mother tongue. This is suggested to make it more comprehensive for the learners. Many of the learners are afraid of these two subjects. Majority of pupils get less marks in them as they could not grasp it. If these subjects are taught in the daily-routine language, i.e., in regional language, then it would be helpful. It would enable the students to think and speak about these two subjects without any hesitation or fear. The same may be applied to the other subjects also. The main objective of education is to gain knowledge. So no language could be barrier in this process. The students are free to read, learn and understand in the language they are comfortable in. They are at liberty to choose the language to study their desired subjects.

Under NEP 2020, Sanskrit will be offered at all levels and foreign languages from secondary school level. But no language would be imposed on students. The government clarified that the language policy is a broad guideline and could be implemented as per the needs of the states, institutions and schools. India has a rich heritage of multiple languages in each state, district and taluka. Sanskrit is considered as base of all languages. Many of Indian languages are evolved from Sanskrit. They derive various words from Sanskrit. For instance, the original Sanskrit word for father is *Pitru* or *pita*. The same word is used in Hindi with the suffix *ji* - *Pitaji*. It is also used in Marathi, to mean the same. In this way, Sanskrit is embedded in all the roots of various Indian languages. It is very easy to learn and grasp at the earlier childhood. It also improves the phonetics and pronunciation of students. It is having rhyming short poems of two or four lines, known as *Shlokas*. They are learned by heart with less efforts, only with repetition technique. Thus, Sanskrit is an important and enriching option for students, in the three-language formula. So it is highly appreciable to include Simple Standard Sanskrit (SSS) in the curriculum. In addition

to Sanskrit, India also has an extremely rich literature in other classical languages like Tamil, Telugu, Kannada, Malayalam, etc. Along with these classical languages, the works of literature in Pali, Persian, and Prakrit could also be preserved for their richness, pleasure and enrichment of posterity. As India becomes a fully developed country, the next generation will want to partake in and be enriched by India's extensive and beautiful classical literature. For the enrichment of the new generation children, and for the preservation of the rich languages and the artistic treasures created in them, all students in all schools, may it be public or private, will have the option of learning at least two years of a classical language of India. These languages through its associated literature could be easily learned, understood and enjoyed by them. The experiential and innovative approaches could be used, including the integration of technology, for better comprehension.

If children get education in their regional language, the culture and traditions are easily understood by the pupils. The concepts not only in education, but also in social and technological advancements are comprehensible in local language. The cultural enrichment as well as national integrity is well reflected in the ancient as well as modern literature in Indian languages. The prose as well as poetry is very expressive and is mirror of the Indian society. The literature reflects sociocultural ethos. The literature is full of variety of themes, mixture of various languages and traditions in that particular area. The festivals and tales related to them are in tune with the ambience and environment of that locale. The local colour is completely a guiding principle to the customs and traditions of Indian Society. The Indian society is multilingual and multicultural. The students can better understand it if they read, discuss and critically appreciate it. The other way of knowing the literature in another language which is not understood by us, is translation. If texts are translated from one Indian language into another, it could be understood better. As the Indian society follows similar norms, they are easily captured by the reader. The ancient literature of India was basically in Sanskrit, but as it was translated into several Indian languages, it is known to all.



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Volume: I

For instance, Ramayana and Mahabharata are the great epics of India. They are well-known in the world due to its translation in various Indian as well as foreign languages. Indian languages are considered as most expressive, richest, scientific and beautiful in the world. As it is so, anything written in it is easy to understand. So it is advisable in the NEP-2020, to use local or regional language as a medium of instruction.

Conclusion:

National Education Policy 2020 is basically designed to introduce and implement traditional knowledge-based Indian education to make good human beings. To provide multidisciplinary education is its major aspect. The use of local or regional language to instruct the pupils is a point welcomed by majority of educationalist, critics, teachers, students and parents. The bilingual method of teaching and learning would surely be beneficial to the stakeholders. The use of mother tongue would clarify difficult technical terms. Multidisciplinary education is the need of the Indian society which is considered by UGC and Ministry of education. The Prime Minister, Narendra Modi tweeted that he wholeheartedly welcomed the policy and he called it a long due and much awaited reform in the education sector.

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Stylistic Analysis of *Father Returning Home* by Dilip Chitre

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Abstract:

The purpose of this research is to analyze a poem *Father Returning Home* by Dilip Chitre from a stylistic point of view. Stylistic analysis is done at semantic and phonological level. At the phonological level alliteration, consonance, assonance, etc. are used to depict the importance of the words in the poem. While at the semantic level of language, metaphor, symbols, and imagery are used to show the poem's meaning. Stylistic analysis is used to discover the various language features that create the meaning which is constructed by analyzing the language employed. Such analysis throws light on the basic difference between common language employed in comparison to the literary poetic language. It helps to determine the differences in style and the impact of this variation on the reader.

Keywords : stylistics, linguistics, exile, alienation, figurative, metaphor, epithet

Introduction :

Stylistics, a branch of applied linguistics, is the study and interpretation of texts of all types and/or spoken language in regard to their linguistic and tonal style, where style is the particular variety of language used by different individuals and/or in different situations or settings.¹ Stylistics is the study of literary style. It is the study of use of language in a literary text. Stylistics is analysis of the poet's selection of words, structuring of sentences, use of poetic devices, etc. Stylistics is the study which explores how readers do interaction with the use of language especially in a literary text. It is a science which covers all main aspects of the language. However the main purpose of stylistics is not to focus on the formal features of a literary text but to focus on interpretation of texts.

Dilip Purushottam Chitre was a bilingual writer and one of the significant Indian poet. He is noted for his variegated career. He received the prestigious Sahitya Akademi Award, both for poetry as well as for his well-known translation work 'Says Tuka'. Exile, alienation, self-disintegration and death are observed to be the major themes of his works. Alienation, exile, existential angst and death are the major themes of Chitre's poetry and the poem

Lines 1-12

Father Returning Home manifests the themes subscribing itself to the Modernist Movement. The poem was published in his book of English poems *Travelling in a Cage*.

In *Father Returning Home* Dilip Chitre portrays an assiduous father and a suburban commuter. It depicts his dull, monotonous, exhausting and equally pitiable daily routine. He strives hard to fulfill his domestic responsibilities. However he fails to understand the swift passage of time. His labour goes unwarranted as generation gap takes his toll as he is entirely alienated and left isolated from his family. The father in the poem symbolizes gradual exclusion of a generation and puts forth how relationships gradually change over time.

Father Returning Home by Dilip Chitre is about the alienation, complete exile of father from his own family. The poet in narrating the heartbreak of the father reveals the pain of the child as well. This simple poem thus is an account of the pain endured on both sides due to the generational gap. *There is not a more repulsive spectacle than an old man who will not forsake the world, which has already forsaken him.* -T. S. Eliot

*My father travels on the late evening train
Standing among silent commuters in the yellow light.....
.....enters the lane,*

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Volume: I

His chappals are sticky with mud, but he hurries onward.

The poem commences with introduction to the father, and the details provided are so effective that his pathetic condition is quickly brought out. His late journey, the silence, the yellow light falling, and the dimmed eyes make the plight of father evident. The words *among silent commuters* and *unseeing eyes* brings out the overall unwillingness of commuters to communicate. They are all lonesome figures who have forgotten all joy in company of others. It makes the alienation universal as well as brings out the subdued atmosphere prevalent in the poem.

The depiction of the father on the train with a *black raincoat* and *stained raincoat* imply not only that his job requires a lot of hard work but also manages to create morose visual. His bag is *stuffed with books* and is *falling apart*, showcases that no element of his current state is in good condition. The *yellow traffic light* reveals the need to slow down or that the person feels trapped and lacks control over his life. From Line 9, poet provides a first-hand account which somewhat creates a cinematic effect on the reader. The poet sees his father doing different actions once he leaves the train. The swiftness generated in returning home
Lines 13-19

*Home again, I see him drinking weak tea,
Eating a stale chapati,.....
..... over his brown hands,
A few droplets cling to the greying hairs on his wrists.*

This series of lines too continues with the first-hand account of father's activities after returning home. A list of activities the father partakes like *drinking weak tea*, *eating a stale chapati*, *reading a book* and *contemplates in toilet* leaves the father with no hope of retreat from isolation. All the above activities mentioned support the idea that the "father" feels unhappy and alienated from the world around him. His family fails to even cater to his basic needs. His estrangement points out at the paradox of man's existence as we choose to be social and toil each day for our loved ones. However with the flow of time we are estranged from the world which is so dear to us. This completes *Man's estrangement from a man-made world*. This very painful

is notable within next five lines. However the rush is not due to affection and comfort waiting at home. But because the father has been crammed on the train and the relief from congestion in the train, with the urge to move away from damp weather, rather than excitement to reach home, is the real reason for hurry. The selection of words *fade*, *eyes dimmed by age*, *humid night*, *grey platform* and *sticky chappals* all add to the themes introduced before and leave further no scope to believe that father is eager for his homecoming.

Figurative analysis shows the title of the poem itself is a metaphor, which is followed by alliterations in line 1 and 3. The clothes he wears with the use of images and simile in a *word dropped from a long sentence* metaphorically bring out the sorry state of situation which the father is going through. Further the use of Transferred Epithet in *humid night* deepens the atmosphere of gloom and despair.

Thus it can be said that the poet in stanza 1 successfully manages to depict a father who is a classic example of the modern man caught in the clutches of a meaningless existence and deprived of all joys.

loneliness is a symbol of man's isolation from the materialistic man-made world.

He himself *trembles at the sink*, despite providing stability to his near ones. Even the *cold water*, which he must have paid for, gives him no warmth or comfort and the concluding image of *greying hairs on his wrists* implies that greying must be result of strain and monotonous life. The poet uses alliteration to present the father's massive disconnection from the society and Chitra also uses the phrase *man-made* to capture the irony that older generations are excluded from the modernity despite their *man-made* work. The synecdoche in *stale chapatti* and *man-made world* with transferred epithet in *weak tea* brings forth the alienation of the father well.

Lines 20-25

*His sullen children have often refused to share
Jokes and secrets with him.....*

*..... and grandchildren, thinking
Of nomads entering a subcontinent through a narrow pass.*

The longing of the father to be a part of happenings and sharing secrets of his *sullen children* seems heartbreaking. The discontent of the father outside home and the mundane life he lives makes his life miserable. His going to sleep with *static on the radio* and *dreaming of his ancestors and grandchildren* reveals there is no affection left for him. The poem concludes with irony, as the father extends beyond his present state to *his ancestors and grandchildren* and finds affinity with them to combat his feeling of isolation i.e. he finds consolation in imagining that he is a small speck in his family's history, just as his ancestors were

and his grandchildren will be. However it would be an overstatement to say that his children do not love him. The poem on minute observation and analysis seems to be a statement on classic disconnect between generations. The disconnect which is expressed from the perspective of a child through observations of a father. The recollection of events concludes with feelings of sympathy for the father, which point out at the sense of guilt which children share as grownups now. The poem states and ends on the note that both sides of this generational gap suffer.

Adjective	Adverb	Conjunction	Determiner	Noun	Verb	Preposition
evening silent unseeing soggy black stained stuffed falling dimmed humid monsoon long grey weak stale man-made coming cold brown graying sullen narrow	late apart homeward now off again often	and but	my his the a a few him	train commuters suburbs eyes shirt pants raincoat bag night sentence platform chappals mud tea drinking eating reading toilet contemplate estrangement sink droplets hair wrists children jokes secrets listening static radio dreaming ancestors grandchildren thinking nomads entering subcontinent pass	travels slide fade see dropped hurries crosses enters goes trembles cling refused go	on among in by from with into out at over through

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conclusion:

The subject of this poem is a father figure who can be equated to any man today. His routine can be paralleled to any human being living a meaningless life. The poem is as much a depiction of the mid-life existential crisis of a hardworking father, as it is a comment on the modern man's dilemma over his meaningless life. The poem depicts a modern man leading a life without any spiritual or emotional fulfillment which drains out all his zest and zeal to enjoy life.

Through the choice of nouns and descriptive words the poet has managed to depict such a modern pathetic man before the reader. The action words used help to portray a man who acts passively as there is no love and affection needed behind passionate deeds.

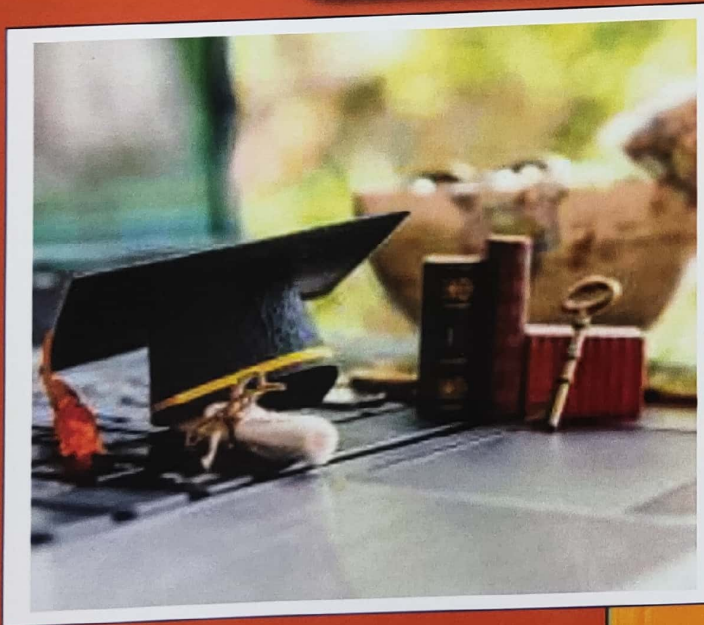
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30	साहित्य समाज आणि शिक्षण . वडितके शंकर गोरक्ष	127-128
31	नवीन शैक्षणिक धोरण 2020 मध्ये ग्रंथालयाचे महत्व आशिष ए.ठाणेकर	129-132
32	राष्ट्रीय शिक्षा नीति २०२० विमर्श: मानविकी और भाषाएँ जयवीर सिंह	133-136
33	नई शिक्षा नीति भारतीय भाषा की उपयोगिता प्रवीण तुलशीराम तुपे	137-139
34	ब्रिटिश काळातील शैक्षणिक धोरणाची ऐतिहासिक पार्श्वभूमी लवडे अर्चना बाबासाहेब	140-141
35	राष्ट्रीय शैक्षणिक धोरण - 2020 : गरज, तत्वे आणि मुलभूत सिध्दांत विखे ए.ए., पगारे सोनाली दिनकर	142-143
36	Planning And Performance Budgeting – Conceptual Frame Work Dr. Prashant Khoptikar	144-145
37	A Study of Performance and Analysis of Higher Education in India and it Opportunities and Challenges before National Education Policy 2020 Dattatraya Shivaji Thorat	146-152

नई शिक्षा नीति भारतीय भाषा की उपयोगिता

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भारत स्वतंत्रता के कई वर्ष बाद भारतीय भाषाओं के प्रति महत्वपूर्ण निर्णय लिया गया। स्वतंत्रता प्राप्ति के बाद यह पहला प्रयास है, जिसमें भारतीय भाषाओं पर समग्रता से विचार किया गया। कई वर्षों में भाषाओं के प्रति यथोचित ध्यान नहीं दिया गया। यदि जनगणना के आंकड़ों के आधार पर पिछले कई वर्षों में बड़ी भाषाओं के बोलने वालों की संख्या क्रमशः कम हुई है, जबकि देश की आवादी तेजी से बढ़ रही है। ऐसी स्थिति में यह उचित है, की आठवीं अनुसूची सहित सभी भाषाओं में शिक्षा एवं अध्ययन की भाषाओं के रूप में विकसित किए जाने के प्रावधान इस शिक्षा नीति में देखे जा सकते हैं। शिक्षा नीति के अंतर्गत वरिष्ठ गुणवत्ता की मुद्रण सामग्री के निर्माण के साथ पत्र पत्रिकाएं, उपन्यास, नाटक, कविता, कहानी, वीडियो निर्माण सामग्री आदि के प्रचार-प्रसार पर जोर दिया गया। शब्द संपदा को विस्तृत करने हेतु प्रयास किए गए। जिससे हमारी भाषा दुनिया की भाषाएं अंग्रेजी, फ्रेंच, जर्मन, कोरिया, जापान भाषा की तुलना में खड़ी हो सके। साथ ही प्राथमिक स्तर पर शिक्षा की व्यवस्था की परिकल्पना की गई है। बच्चों में समझ विकसित करने एवं आगे की शिक्षा के लिए क्षमता विकसित की बात को विशेष ध्यान दिया गया। भाषाई संवर्धन की दृष्टि से मातृभाषा में कक्षा पांचवी की पढ़ाई का प्रस्ताव भी रखा गया। इसे राष्ट्रीय शिक्षा नीति में भली-भांति स्वीकार किया है।

हमारे देश में अनेक भाषाएं हैं। प्रारम्भ में संविधान की 8वीं अनुसूची में 14 भाषाएं थीं वह बढ़कर अभी 22 हो गयी हैं। इसके अतिरिक्त बोलियों को मिलाकर वर्ष 2011 की जनगणना के अनुसार 1369 भाषाएं हैं जिसमें 121 भाषाएं बोली जाती हैं। भारत की नयी राष्ट्रीय शिक्षा नीति, 2020 में इस बात पर चिंता व्यक्त करते हुए कहा गया है कि दुर्भाग्य से भारतीय भाषाओं को समुचित ध्यान और देखभाल नहीं मिल पायी है, जिसके तहत देश ने विगत 50 वर्षों में 220 भाषाओं को खो दिया है। युनेस्को ने 197 भारतीय भाषाओं को 'लुप्तप्राय घोषित कर दिया है। अनेक लुप्त प्राय होने की कगार पर हैं। एक भाषा मरने से उस भाषा को बोलने वालों की सभ्यता, संस्कृति आदि समाप्त हो जाते हैं। किसी भी भाषा के लुप्त होने या उसके संकटाग्रस्त श्रेणी में आ जाने के परिणाम बहुत दूरगामी होते हैं। इसलिए भाषा लुप्त होते ही संस्कृति पर खतरा मंडराने लगता है। संस्कृति और उस भाषा के संचित ज्ञान को बचाने के लिए भाषा के संरक्षण की बहुत आवश्यकता है। भाषा का एक-एक शब्द महत्वपूर्ण होता है। ऐसी परिस्थिति में भाषा का महत्व और बढ़ जाता है। इसे राष्ट्रीय शिक्षा नीति में भली-भांति स्वीकार किया है। इस दृष्टि से नीति में लिखा है- "संस्कृति के संरक्षण, संवर्धन और प्रसार के लिए, हमें उस संस्कृति की भाषाओं का संरक्षण और संवर्धन करना होगा।" प्रत्येक शब्द अपने पीछे संस्कृति की एक लंबी परंपरा को लेकर चलता है। देश में इन समृद्ध भाषाओं/संस्कृति की अभिव्यक्ति को संरक्षित या उन्हें रिकार्ड करने के लिए कोई ठोस नीति अभी तक नहीं थी। नयी राष्ट्रीय शिक्षा नीति में सभी भारतीय भाषाओं विशेषकर मातृभाषाओं या स्थानीय भाषाओं को

प्राथमिक स्तर पर अनिवार्य शिक्षा का माध्यम और उसके आगे यथासंभव भारतीय भाषाओं को शिक्षा का माध्यम बनाए जाने की बात कही गयी है। भारतीय भाषाओं के संरक्षण के लिए यह एक बहुत बड़ा कदम है। इस कार्य के लिए अनेक अकादमी व संस्थान भी खोले जाने की घोषणा की गयी है। इन नीति में भारत की सभी भाषाओं के साथ संतुलन बनाने की कोशिश की गयी है। इस नीति में यह भी कहा गया है कि दुनिया भर के विकसित देशों में अपनी भाषा, संस्कृति और परंपराओं में शिक्षित होना कोई बाधा नहीं है और इसका भरपूर लाभ उन्हें मिलता है, जबकि भारत में अभी भी यह बहुत मुश्किल कार्य है। दुनिया भर के भाषाविद और शिक्षाविद इस बात पर निर्विवाद रूप से एकमत हैं कि "मातृभाषा के माध्यम से शिक्षा प्रदान करने से बालक की मौलिक रचनात्मक प्रतिभा को विकसित करने में निश्चय ही मदद मिलती है। मातृभाषा में शिक्षा से बच्चों की कल्पनाशीलता और सृजनशीलता को बचाया जा सकता है।" भाषाविदों का मानना है कि जो बच्चे अपनी मातृभाषा में जितनी ज्यादा पकड़ रखते हैं, वे उतने ही रचनात्मक और तार्किक होते हैं। इससे मस्तिष्क पर अनावश्यक बोझ नहीं पड़ता है। वर्तमान में भारत में मातृभाषा के माध्यम से शिक्षा प्रदान करने वाले स्कूलों की स्थिति और उनकी संख्या लगातार घटती जा रही है। वहीं अंग्रेजी माध्यम के स्कूल स्थानीय भाषाओं के माध्यम से शिक्षा प्रदान करने वाले स्कूलों को निगलते जा रहे हैं। भारतीय भाषाओं के बहुत से स्कूल अंग्रेजी माध्यम में बदलते जा रहे हैं। इस दिशा में सरकारी स्तर पर कार्य हो रहे हैं। उत्तर प्रदेश, मध्य प्रदेश, छत्तीसगढ़, आंध्र प्रदेश और महाराष्ट्र के तमाम सरकारी स्कूलों को चरणबद्ध तरीके से अंग्रेजी माध्यम में

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बढ़ता जा रहा है। पूर्व राष्ट्रीय शिक्षा नीतियों की भांति नयी नीति में भी बहुभाषावाद और राष्ट्रीय एकता को बढ़ावा देने की जरूरत को ध्यान में रखते हुए विभाषा सूत्र को लागू किए जाने की बात कही गयी है। इसके लिए किसी राज्य पर कोई भाषा थोपी नहीं जाने का प्रावधान किया गया है। यह कदम सभी भारतीय भाषाओं में संतुलन बनाने के उद्देश्य से उठाया गया है।

भारतीय संस्कृति में गुरु-शिष्य परंपरा और गुरुकुल पद्धति का एक स्वर्णिम दौर रहा है। मानव के सम्यक विकास, मन की कल्पना को मूर्त रूप प्रदान करने, स्वस्थ समाज और समृद्धिशाली व शक्तिसंपन्न राष्ट्र के निर्माण में शिक्षा का महत्व निर्विवाद रूप से सर्वाधिक है। भारत दुनिया को हजारों वर्षों से ज्ञान के प्रकाश से आलोकित करता रहा है। भारत की महान ज्ञान परंपरा और शिक्षा व्यवस्था ने आर्यभट्ट, बाराहमिहिर, चरक, सुश्रुत, पाणिनि, नागार्जुन, गौतम, मैत्रेयी, गार्गी जैसे अनेक महान विद्वानों को जन्म दिया है। जिस देश में कभी तक्षशिला, नालंदा, विक्रमशिला विश्वविद्यालय जैसे विश्वस्तरीय शिक्षा संस्थान हुआ करते थे, आज उसके विश्वविद्यालय दुनिया भर में शीर्ष 300 में स्थान बनाने के लिए संघर्षरत हैं। इसके अनेक ऐतिहासिक व राजनीतिक कारण रहे हैं। गुलाम भारत में यहाँ की गौरवशाली शिक्षा प्रणाली को नष्ट किया गया। प्राचीन शिक्षा प्रणाली नष्ट होने से ज्ञान के सभी क्षेत्रों में क्षरण होना शुरू हो गया। स्वतंत्र भारत में राष्ट्र निर्माण के लिए स्पष्ट और सुविचारित शिक्षा नीति की आवश्यकता महसूस की गयी। इसके लिए पहली राष्ट्रीय शिक्षा नीति वर्ष 1968 में तैयार की गयी। इसके अंतर्गत अल्पसंख्यकों, दिव्यांगों, महिलाओं, अनुसूचित जातियों/जनजातियों को पढ़ाई के लिए प्रोत्साहन, छात्रवृत्तियों में वृद्धि, ऑपरेशन ब्लैंक बोर्ड आदि प्रमुख बिंदुओं में से थे। इस नीति में जीडीपी का कुल 6% शिक्षा पर खर्च करने की सिफारिश की गयी थी। इसमें 1992 में कुछ संशोधन भी किए गए थे। इस शिक्षा नीति में भी शिक्षा के माध्यम के रूप में क्षेत्रीय भाषाओं की वकालत की गयी थी। अंग्रेजी व अन्य विदेशी भाषाओं के अध्ययन की सुविधा उपलब्ध कराने पर बल दिया गया था। साथ ही हिंदी को संपर्क भाषा के तौर पर विकसित करने की आवश्यकता जताई गई थी।

वर्ष 2020 में लागू की गयी नयी राष्ट्रीय शिक्षा नीति में भी अन्य महत्वपूर्ण नीतियों के साथ ही भाषाओं विशेषकर मातृभाषा और स्थानीय भाषा में शिक्षा पर बहुत बल दिया गया है। अब तक लागू की गयी तीनों ही राष्ट्रीय शिक्षा नीतियों में शिक्षा माध्यम के रूप में मातृभाषा या स्थानीय भाषा को सुझाया गया है। इसके साथ ही अंग्रेजी व संस्कृत के अध्ययन पर बल दिया गया है। इससे पता चलता

है कि शिक्षा नीति के द्वारा देश की भाषा नीति को भी निर्धारित करने के प्रयास किए गए हैं।

भारतीय भाषाओं की उन्नति और प्रगति तभी संभव है, जब उसे प्रत्यक्ष तौर पर रोजगार से जोड़ा जाएगा। भारतीय भाषाओं को रोजगार की दृष्टि से अभी भी अंग्रेजी वाला स्थान प्राप्त नहीं है। इस बात को राष्ट्रीय शिक्षा नीति में समझा गया है और बहुत ही स्पष्ट रूप से कहा गया है कि "भारतीय भाषाओं में प्रवीणता को रोजगार के मानदंडों की अर्हता में शामिल किया जाएगा"। भारतीय भाषाओं की प्रतिष्ठा बढ़ाने में यह बहुत महत्वपूर्ण कदम साबित होगा। भारत में अंग्रेजी को रोजगार दिलाने में सहायक भाषा के रूप में जाना जाता है। इसलिए केवल इस भाषा में प्रवीणता प्राप्त करने को ही सफलता की कुंजी मान लिया जाता है। जब यह गौरव अन्य भारतीय भाषाओं को मिलेगा तब स्वतः ही भारतीय भाषाओं के समक्ष उत्पन्न संकट दूर हो जाएगा।

नयी राष्ट्रीय शिक्षा नीति, विविध तरीकों से भारतीय भाषाओं को प्रोत्साहित, संरक्षित और संवर्धित करना इसके प्रमुख उद्देश्यों में से है। सभी महत्वपूर्ण भारतीय भाषाओं के लिए अकादमी, इंस्टीट्यूट ऑफ ट्रांसलेशन एंड इंटरप्रिटेशन, भाषा संस्थान, शास्त्रीय भाषाओं के लिए विश्वविद्यालयों में विभाग तथा पालि, प्राकृत व फारसी के लिए राष्ट्रीय संस्थान की स्थापना, संस्कृत के अध्ययन का विस्तार, लुप्त प्राय भाषाओं के संरक्षण के लिए नीति, छात्रवृत्ति व पुरस्कारों की स्थापना, रोजगार के मानदंडों में भारतीय भाषाओं में प्रवीणता को अर्हता के रूप में शामिल करना कुछ ऐसे कदम हैं जो भारत में आने वाले दिनों में भारतीय भाषाओं की दशा, दिशा और भविष्य सब कुछ बदल कर रख देंगे। बशर्ते कि राष्ट्रीय शिक्षा नीति, 2020 के इन प्रावधानों को उसी भावना से लागू किया जाए जिस भावना से नीति निर्माताओं ने इन्हें शामिल किया है।

निष्कर्ष:

नई शिक्षा नीति को भविष्योन्मुखी होने के साथ-साथ आने वाली शिक्षा की चुनौतियों के अनुरूप है। नई शिक्षा नीति 21वीं सदी में भारत की मूल्य व्यवस्था और नागरिकों में विश्व कल्याण की भावना को भरने का उद्देश्य रखता है। केन्द्र सरकार के शिक्षा मंत्रालय द्वारा संचालित केन्द्रीय विद्यालय, नवोदय विद्यालय, राष्ट्रीय मुक्त विद्यालय के पाठ्यक्रम आदि स्तर पर कक्षा 8 तक की पढ़ाई अनिवार्य रूप से मातृभाषा में होनी चाहिए। राज्य सरकारों को भी इसी दिशा में कदम बढ़ाना होगा। उच्च शिक्षा के सभी संस्थानों, विश्वविद्यालयों आदि के पाठ्यक्रमों को द्विभाषी करने की तैयारी प्रारंभ करनी होगी। इसके अलावा सरकारी विद्यालयों में जहाँ भी प्राथमिक स्तर पर अंग्रेजी माध्यम है वहाँ परिवर्तन करके मातृभाषा का माध्यम लागू करना

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

चाहिए। परंतु इस दिशा में केन्द्र सरकार, राज्यों की सरकारें, विभिन्न शैक्षिक संस्थाओं एवं सामाजिक स्तर पर राष्ट्रीय शिक्षा नीति का भाषा की दृष्टि से क्रियान्वयन हेतु बहुत कुछ करने की आवश्यकता है। शिक्षा के सभी स्तर के पाठ्यक्रमों में भारतीय भाषा का विकल्प एक निश्चित समय में देने हेतु योजना पर शीघ्रता से कार्य होना चाहिए। इस नीति में अनेक विषयों के क्रियान्वयन हेतु समय-सीमा सुनिश्चित की गई है। जिस देश के नागरिकों में अपनी भाषा का स्वाभिमान नहीं होता है उनको विश्व में कहीं सम्मान नहीं मिल सकता। इस हेतु सामाजिक संस्थाओं, संगठनों एवं विशेष करके शिक्षा जगत के लोगों का प्रमुख दायित्व बनता है कि इस दिशा में देशव्यापी जन जागरण अभियान चलाकर अपनी भाषाओं का स्वाभिमान जगाने हेतु संकल्पबद्ध हों। राष्ट्रीय शिक्षा नीति, 2020 के इन प्रावधानों को उसी भावना से लागू किया जाए जिस भावना से नीति निर्माताओं ने इन्हें शामिल किया है।

संदर्भ सूची :

1. राष्ट्रीय शिक्षा नीति 2020
2. अतुल कोठारी, नई शिक्षा नीति एवं भारतीय भाषाएं लोकनीति केंद्र, 21 Feb, 2022
3. दिलीप कुमार सिंह, नयी शिक्षा नीति में भारतीय भाषाओं का स्थान, कुंडुखटाइम्स 2022

Implementation of National Education Policy -2020: Multidisciplinary Education

Editor

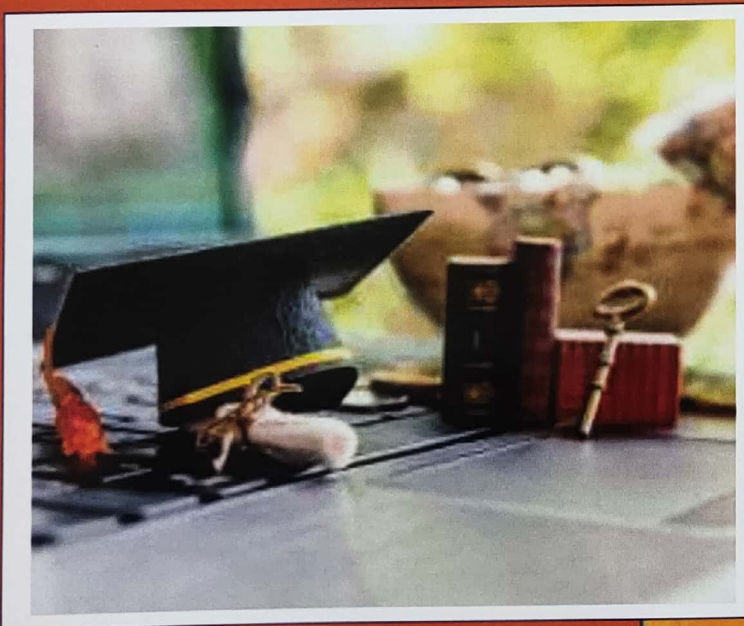
Dr. H. R. Aher,

Dr. A. A. Vikhe

Dr. S. N. Shingote

Dr. A. A. Aher

Dr. V. R. Kadu



**National Education
Policy 2020**

Implementation of National Education Policy - 2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

Sr.No.	Title	Page no.
1	A Review on Algae as Biofertilizer A. A. Aher, A. S. Wabale	1-3
2	A Review of Agricultural Education in National Education Policy 2020 Rajesh M. Thoke, Shinde V. G., Vikhe A.A.	4-6
3	Review on Role of Physical Mutagen in Mutation Breeding M. D. Kakade, R. D. Borse	7-10
4	A Review of Composition and Metabolism of Bioactive Components in Citrus Fruits and Vegetables Vikhe A. S., Kharde H. S., Vikhe P. S., Rohamare S. S.	11-15
5	Academia and Industry - Society: A Paradigm Shift in the NEP -2020 Vidya M. Jirage	16-19
6	Humanistic Pessimism in the major novels of Thomas Hardy Adik Manisha, Amol Sawant	20-22
7	In-Vitro Micropropagation Of Rose (<i>Rosa Hybrida</i> L.) Using Different Growth Hormones. Sabale S. C., Shinde N. G.	23-26
8	National Education Policy 2020: Merits and Demerits in Higher Education Pratibha V. Kanawade, Hari L. Divekar	27-28
9	Synthesis of Nickel Oxide Nanoparticle using different synthetic method and their Applications: A review Kamal K. Chitalkar, Rupali D. Murade, Snehal V. Darandale, Sonali R. Magar, Haribhau R. Aher	29-33
10	Review on Multi-component Synthesis of Biologically Important 2H-indazole[2,1-b]phthalazine-triones derivatives (2017-2021) Dilip Aute, Hrishikesh Nirmal, Vitisha Vikhe, Vaishali Murade, Anil Gadhave	34-38
11	A Review on Biomedical Approaches of Green Synthesized Cerium Oxide Nanostructure Sumaiyya M. Patel, Vaishali D. Murade, Shobha A. Musmade, Dinesh P. Hase, Surekha K. Kadu, Gajanan R. Pandhare	39-43
12	A Review On Bioactivity Of Schiff Base Cobalt And Nickel Metal Complexs Sonali A. Muntode, Shweta B. Dighe, Priyanka A. Tambe, Priyanka A. Gagare, Sonali S. Pardhe, Gajanan R. Pandhare, Haribhau R. Aher	44-47
13	Qualities And Techniques In Sports Coaching For Better Performance Hardc.S.M., Kadu .P .A	48-50
14	Implementation Of National Education Policy-2020 Madhuri Sontakki	51-52
15	Review on Different Extraction Techniques Used for Bioanalysis R. J. Gaikwad, A. A. Jondhale, V.A.Kadnor	53-55
16	Health risk of local fruit: Pomegranates Amruta K. Mhaske, Bhagwat K. Uphade	56-61
17	Outcome-Based Education (OBE) using Student Centered Learning (SCL) for Commerce faculties Rahul. M. Bhandari	62-65
18	A review on Oxazines: Synthesis and Biological Potentials Amol K. Kharde, Vinod R. Kadu, Somnath S. Gholap	66-72
19	The Airborne Spread of Staphylococcus aureus in various Environmental Conditions - A systematic overview Aarif Khan, Pramod N. Kamble, Nazeer Mohammed	73-83
20	Academic Bank of Credits in Higher Education Institutions Deshmukh Kanchan Samish.	84-86
21	National Education Policy 2020: Reformation in Educational System of India Kanawade Pratibha Vijay	87-88

**Implementation of National Education Policy -
2020: Multidisciplinary Education**

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

22	NEP: Changes of Education System Shelke Digambar Sakharam	89-91
23	The Importance of Language in National Education Policy 2020 Dhimate Sangita Sunil · Salve Priyanka	92-94
24	Role of NEP 2020 in emerging economy- A study with special reference to Maharashtra Sopan N. Shingote, Jaysree R.Singar	95-97
25	Implementation of National Education Policy (NEP) 2020 in Agricultural Education: - A Theoretical Analysis. D. N. Karle, S. R. Varpe	98-101
26	Stylistic Analysis of <i>Father Returning Home</i> by Dilip Chitre Aher T. V, Patil Mateen Ayyab	102-105
27	Azoles: Biological Activities and Synthetic Pathways Vinod R. Kadu, Amol K. Kharde	106-117
28	National Education Policy-2020: Issues and Challenges S.K. Pulate, S.B.Gholap	118-122
29	भारतातील राष्ट्रीय शैक्षणिक धोरणाचे तुलनात्मक अध्ययन विखे अर्चना अनिल, वैभव किशोर दिघे.	123- 126
30	साहित्य समाज आणि शिक्षण . वडितके शंकर गोरक्ष	127-128
31	नवीन शैक्षणिक धोरण 2020 मध्ये ग्रंथालयाचे महत्व आशिष ए.ठाणेकर	129-132
32	राष्ट्रीय शिक्षा नीति २०२० विमर्श: मानविकी और भाषाएँ जयवीर सिंह	133-136
33	नई शिक्षा नीति भारतीय भाषा की उपयोगिता प्रवीण तुलशीराम तुपे	137-139
34	ब्रिटिश काळातील शैक्षणिक धोरणाची ऐतिहासिक पार्श्वभूमी सबडे अर्चना बाबासाहेब	140-141
35	राष्ट्रीय शैक्षणिक धोरण – 2020 : गरज, तत्वे आणि मुलभूत सिध्दांत विखे ए.ए., पगारे सोनाली दिनकर	142-143
36	Planning And Performance Budgeting – Conceptual Frame Work Dr. Prashant Khoptikar	144-145
37	A Study of Performance and Analysis of Higher Education in India and it Opportunities and Challenges before National Education Policy 2020 Dattatraya Shivaji Thorat	146-152

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

National Education Policy-2020: Issues and Challenges

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ABSTRACT- The year 2020 has been an incomparable year for countries across the world. In India, apart from Covid19, one of the important changes that took place was the development of the New Education Policy (NEP) 2020. Well defined and innovative education policy is necessary for a country at school and college levels due to the cause that education leads to economic and social growth. Different countries agree to different education systems by bearing in mind the tradition and culture and adopt different stages during their life cycle at school and college education levels to make it efficient. The National Education Policy 2020 (NEP 2020), which was permitted by the Union Cabinet of India on 29 July 2020, outlines the vision of India's new education system. The new policy replaces the preceding National Policy on Education, 1986. The policy is a all-inclusive framework for basic education to higher education as well as occupational training in both rural and urban India. The policy aims to convert India's education system by 2021. Shortly after the release of the policy, the government clarified that no one will be obligatory to study any particular language and that the medium of coaching will not be shifted from English to any regional language. The language policy in NEP is a broad guideline and recommended in nature; and it is up to the states, institutions, and schools to decide on the accomplishment. Education in India is a simultaneous list subject. Himachal Pradesh has become the first state to execute New Education Policy 2020. The national educational policy should be implemented in all schools over India by 2022.

Keywords: Higher Education, National Education Policy 2020, NEP-2020, Overview & Analysis, Implementation Strategies, Approaches, Challenges, Opportunities of NEP 2020.

I. Introduction

The National Education Policy 2020 is a welcome and unwavering re-imagination of India's education system into a modern, progressive and fair one. booming execution of this policy calls for impressive simplification of decision-making structures and re-prioritization of budgetary resources in months and years to come. Given that there are around 350 million Indians today in school-going or college-going age groups, the NEP calls for a large-scale execution of a extent never before attempted wherever in the world. This presents extensive execution challenges, both quantitative and qualitative. Major facial appearance of NEP-2020 The concern for enhancement of education has

been at the top of India's development (Saxena and Anu, 2019). The New Education Policy seeks to absolutely upgrade the current education system. It is bundled with some very innovative and modern proposals. The policy foresees a model of all-inclusive learning that is immersive, dependable and likable. NEP-2020 seeks to execute both informal and formal education models. Recognized learning in the classroom is through the teacher's directions and books. The new policy behavior to take learning beyond the classroom and motivate students to learn from practical experience. From the beginning stages of education, students will be uncovered to multilingualism that will have a great cognitive benefit.

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

Education Policy Timeline	Prime Ministers	Education Policy Reforms
1968	Indira Gandhi	Promote higher education between rural and urban
1986	Rajiv Gandhi	Adult education and the empowerment of minorities
1992	PV Narasimha Rao	Common entrance examination for professional and technical education
2005	Manmohan Singh	Common minimum program
2016	Narendra Modi	Addressing the gender bias, configuration of the educational tribunal, the common curriculum for Science, Mathematics, Environmental Studies, and English
2020	Narendra Modi	Reimagining vocational education Catalyzing quality academic research in all fields by introducing the dogmatic mechanism Curbing commercialization of education Effective supremacy and leadership for higher education Internationalization of professional education support of Indian languages, arts, and culture

A concerted effort will be put in to promote modern subjects such as Data Analytics, Artificial Intelligence and Machine Learning which are being touted as the vocation of the future. A student-centric approach will be developed to put back the current teacher-centric approach, in which the students will have the choice to select the subjects they want to learn. Observance in view the standing of the rich culture and languages of India Sanskrit can be obtainable at all levels of school and higher education. Rather than compartmentalization of humanities, art and sciences and stuck between academic and vocation: education, which is really a ground-breaking shift. The significant recommendations of NEP 2020 are:

1. The multi-disciplinary system in which subject from dissimilar streams i.e., Science, Humanities and Commerce can be selected which will for on innovativeness, imagination and ingenuity students.
2. The policy emphasizes skill development mostly of vocational crafts and life skills guidance.
3. Elasticity to choose learning trajectory. Importance is given to subjects from the

whole stream so that students can decide subjects as per their ability and interest.

4. Comprehensive & fair Education System by 2030.
5. Board Exams to test core concepts and application of facts.
6. Each Child will come out of School adept in at least one Skill.
7. Common values of Learning in Public & Private Schools.

Some critical issues in accomplishment of NEP-2020

- Skill Development
- Obligation of Trained Teachers
- Change Management
- Legal Complexities
- Inter- disciplinary Higher Education
- Learning or certificate/degree
- Digital connectivity
- Re-thinking appraisal

Skill Development

One of the major things to see of the policy is skill development, particularly life skills and occupational training. The life skills training get ready children to be specialist in social behavior, making children socially flexible and are moderately easier to put into practice.

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

The major challenge, however, is in imparting vocational preparation as there is a danger of attributing confident vocations to certain specific communities who have been usually dependent on certain occupations for many generations. The planned vocational training should be based on the recognized ability of the students.

Obligation of Trained Teachers

Implementing this policy will need trained teachers, facilitators and support staff supplemented by a pool of inspiring mentors. Learning needs to be made an engaging and enjoyable activity rather than a monotonous routine mental work in which eventually produces unemployable youth. Hence, the policy will have to develop a learning regime that takes into account the cultural and geographical diversity of our great nation as well as the different learning pace of each pupil. The upcoming breed of technology savvy teachers will act as mentors to students in guiding their students about new technologies and will be the main motivators and initiators of the IT implementation at schools.

Change Management NEP 2020

Endeavors not only to improve the cognitive skills in students wherein developing high order opinion skill and critical thinking along with building the foundation of literacy but also life skills which will prepare the students for the varied challenges in their adult life. Hence the change in the curriculum and teaching methods is the need of the hour so that maximum benefit can be incurred from the new policy. NEP demands a value-based education system along with pedagogical and curriculum changes. Hence, new methods need to be improvised and innovated for the successful application of the policy.

Legal Complexities

To implement any policy, it must be in consistency. With various laws and acts.

There is a legal complication. In implementing this policy as per The Right Education Act, 2009 with respect to age. Certain necessities such as the age of starting school will need to be clarified, to resolve any problem between the Act and the newly introduced policy in the long run.

Inter-disciplinary Higher Education

An inter-disciplinary educational authority is a great initiative that will provide flexibility to the students to study the subjects of their choice. For ages, Indian universities have developed in a very compartmentalized manner, scholars and professors have remained fiercely protective of their subject specialty turf. This culture is deep-rooted with very few exceptions and the new policy calls for changing the same. To implement an interdisciplinary higher education model the teaching faculty need not only to be a subject expert but also lean on into other disciplines, which is not an easy task to accomplish. In order to make the system successful, there is a need to have a disruptive cultural shift over the next decade or so.

Learning or certificate/degree

Though flexibility in the higher education model through the concept of multiple exits is a significant step for dipping the number of dropouts, a question still arises on the value of such certifications and diplomas. The Indian consciousness closely links jobs with the degrees acquired. Hence, to implement the new system, we first have to take to pieces the old thinking that only with a degree can one productively secure a job. This is a dangerous paradigm which undermines and discourages other inborn talents of an individual.

Digital connectivity

We require internet penetration in remote areas because e-learning is the way ahead, as witnessed during the pandemic. Digital transportation for this reason will include

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

digital classrooms, expertise-driven online teaching models, AR/VR technologies to conquer gaps in physical teaching and lab communications, consistent assessment schemes across schools, career counseling sessions and teacher training to become adept at new-age technologies. This will continue to be a major challenge in the next decade.

Re-thinking appraisal

The boards that conduct school leaving examinations will have to sort out their assessment parameters for students and also recognize the appropriate learning contented rubric. School textbooks will have to be for that reason realigned. Determining assessment is almost absent. How do we adapt and put into practice it seamlessly? As majority of K-12 learners in India are enrolled in schools with annual tuition fee below Rs 12,000; the future changes will have to be expediently cascaded across different tiers of schools.

Curriculum and Content

The NEP seeks to initiate a move from 10+2 structure to 5+3+3+4 structure, where early childhood education will be a part of formal education. In calculation, the NEP 2020 focuses on dipping the set of courses content to make space for serious thinking and in turn, develop those with 21st-century skills instilled in them. Hence, all aspects of the curriculum and pedagogy need to be efficient to reach these goals. The challenges in productively implementing these changes include modifying the program in accordance with the National Curriculum structure. Also, educators need to rethink the learning content rubric and modify the textbooks consequently.

Examination Structure

The NEP focuses on determining assessment for learning to a certain extent than collective assessment. The primary reason of altering the assessment structure is to promote

continuous tracking of learning outcomes. However, unbroken assessment requires schools and teachers to use innovative assessment approaches and assignments. These approaches demand technological meddling and active participation of teachers and students. According to a study, out of the 1.5 million schools in India, 75 per cent are run by the government. Of the remaining 400,000 private schools, nearly 80 per cent schools are 'budget private schools'. Hence, deploying a continuous assessment framework is a demanding task in these schools.

II. Conclusion Nep 2020

Is an highly developed administration that will make easy value-based education and scientific learning. It will substitute the older system of 'curriculum' which is inflexible and unnamenable to change with changing time dues to the awkward technical system to change it. The NEP 2020 lays pressure on making the education system holistic, flexible ad allied to the needs of 21st-century education. However, in order to achieve all these goals, we must overcome all the realization challenges in a invariable manner for years to come. The drafting committee of NEP 2020 has finished a inclusive attempt to design a policy that considers varied viewpoints, worldwide best practices in education, ground experience and stakeholders' feedback. The mission is encouraging but the accomplishment roadmap will make a decision if this will truly further an all-inclusive education that makes learners industry and prospect ready.

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Volume: I

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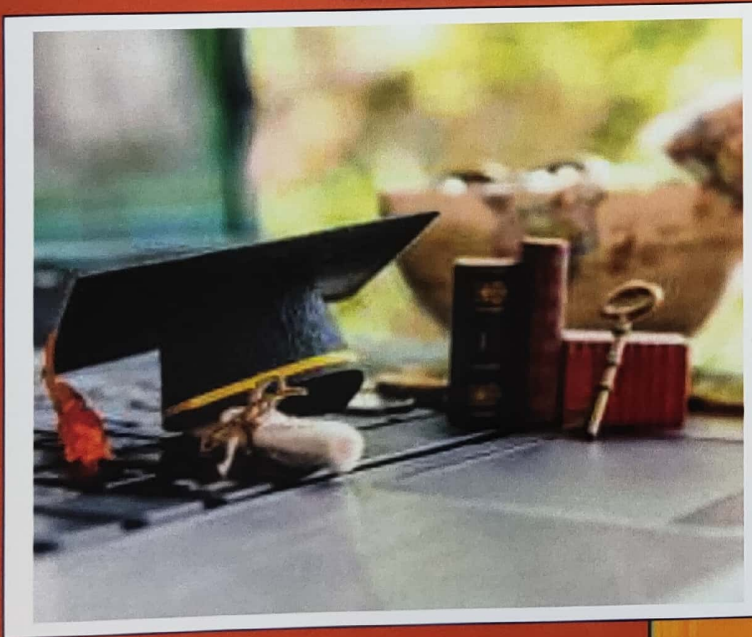
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Implementation of National Education Policy -2020: Multidisciplinary Education

Editor

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**National Education
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Implementation of National Education Policy - 2020: Multidisciplinary Education

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Volume: I

✓ 22	NEP: Changes of Education System Shelke Digambar Sakhararam	89-91
23	The Importance of Language in National Education Policy 2020 Dhimate Sangita Sunil · Salve Priyanka	92-94
24	Role of NEP 2020 in emerging economy- A study with special reference to Maharashtra Sopan N. Shingote, Jayshree R. Singar	95-97
25	Implementation of National Education Policy (NEP) 2020 in Agricultural Education - A Theoretical Analysis. D. N. Karle, S. R. Varpe	98-101
26	Scholarly Analysis of <i>Father Returning Home</i> by Dilip Chitre Aher T. V, Patel Mateen Ayyab	102-105
27	Articles: Biological Activities and Synthetic Pathways Vinod R. Kadu, Amol K. Kharde	106-117
28	National Education Policy-2020: Issues and Challenges S.K. Pulate, S.B.Gholap	118-122
✓ 29	भारतातील राष्ट्रीय शैक्षणिक धोरणांचे तुलनात्मक अध्ययन विखे अर्चना अनिल, वैभव किशोर दिखे.	123- 126
30	साहित्य समाज आणि शिक्षण . वडितके शंकर गोरक्ष	127-128
31	नवीन शैक्षणिक धोरण 2020 मध्ये ग्रंथालयाचे महत्व आशिष ए.ठाणेकर	129-132
32	राष्ट्रीय शिक्षा नीति २०२० विमर्श: मानविकी और भाषाएँ जयवीर सिंह	133-136
33	नई शिक्षा नीति भारतीय भाषा की उपयोगिता प्रवीण तुलशीराम तुपे	137-139
34	ब्रिटीश काळातील शैक्षणिक धोरणाची ऐतिहासिक पार्श्वभूमी लबडे अर्चना बाबासाहेब	140-141
✓ 35	राष्ट्रीय शैक्षणिक धोरण - 2020 : गरज, तत्वे आणि मुलभूत सिध्दांत विखे ए.ए., पगारे सोनाली दिनकर	142-143
36	Planning And Performance Budgeting – Conceptual Frame Work Dr. Prashant Khoptikar	144-145
37	A Study of Performance and Analysis of Higher Education in India and it Opportunities and Challenges before National Education Policy 2020 Dattatraya Shivaji Thorat	146-152

Implementation of National Education Policy -2020: Multidisciplinary Education

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Volume: I

NEP: Changes of Education System

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Abstract -

The National Education Policy (NEP) is a comprehensive framework for education reform in India that guides the country's education system. The NEP 2020, the latest revision of the policy, proposes several reforms aimed at transforming the education system to make it more learner-centric, multidisciplinary, and flexible. The policy emphasizes the importance of early childhood education and care, promotes multilingualism, and advocates the use of technology in education. It proposes changes in the curriculum, teaching-learning processes, teacher education, and higher education, and aims to create a robust education system that prepares students for the challenges of the 21st century. The implementation of the NEP 2020 will require significant resources and the support of all stakeholders, including the government, educators, students, and parents. The policy is aimed at creating a strong foundation for the future of India by empowering its youth through quality education.

Key Word – National Education Policy (NEP), policy, education system, teacher education, Higher Education.

Introduction -

The National Education Policy (NEP) is a comprehensive framework for education reform in India that guides the country's education system. The policy was first introduced in 1968 and underwent several revisions, with the latest revision being in 2020. The NEP 2020 is a landmark reform in the education sector that aims to transform the education system to make it more holistic, multidisciplinary, and flexible. The policy emphasizes the need for a learner-centric education system that focuses on the overall development of students.

The NEP 2020 proposes several reforms in the education system, including changes in the curriculum, teaching-learning processes, teacher education, and higher education. The policy aims to promote multilingualism, provide universal access to the internet and digital devices, and promote the use of technology in education. It also emphasizes the importance of early childhood education and care, and the need for a multidisciplinary approach in higher education.

The NEP 2020 is expected to have a significant impact on the education sector in India. The implementation of the policy will require the support of all stakeholders, including the government, educators, students, and parents. The policy is aimed at creating a robust education system that is responsive to the changing needs of society

and prepares students for the challenges of the 21st century.

Objectives:

- Provide an overview of the NEP 2020 and its key features
- Analyze the implications and challenges of the NEP 2020
- Discuss the implications of the policy for different stakeholders, including students, teachers, education institutions, and policymakers

Methodology:

The analysis is based on a review of existing literature, policy documents, and interviews with education experts. The paper uses a qualitative research approach and employs a critical policy analysis framework.

NEP 2020 features -

The National Education Policy (NEP) is a comprehensive framework for education reform in India, which was recently revised in 2020. The NEP 2020 aims to transform the education system in India to make it more holistic, multidisciplinary, and flexible. It emphasizes the need for a learner-centric education system that focuses on the overall development of students.

1. **Early Childhood Care and Education (ECCE)** - The NEP emphasizes the importance of early childhood education and care. It aims to provide a strong foundation for children by ensuring that

Implementation of National Education Policy -2020: Multidisciplinary Education

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Volume: I

access to quality education and care in the early years.

2. **5+3+3+4 Curriculum Structure** - The NEP proposes a new curriculum structure that is divided into four stages - Foundational (ages 3-8), Preparatory (ages 8-11), Middle (ages 11-14), and Secondary (ages 14-18). This structure is designed to promote holistic learning and reduce the focus on rote learning.
3. **Multilingualism** - The NEP promotes multilingualism and aims to provide education in regional languages alongside English. This is expected to promote better learning outcomes and preserve the country's rich cultural heritage.
4. **Technology-enabled Learning** - The NEP recognizes the importance of technology in education and promotes the use of digital resources and online learning. It also aims to provide universal access to the internet and digital devices.
5. **Teacher Education** - The NEP proposes several reforms in teacher education, including a four-year integrated teacher education program, continuous professional development, and performance-based incentives for teachers.
6. **Higher Education** - The NEP proposes several reforms in higher education, including a multidisciplinary approach, flexible curriculum, and emphasis on research and innovation.

The NEP 2020 is a comprehensive framework for education reform in India. It aims to transform the education system to make it more learner-centric, multidisciplinary, and flexible. The implementation of the NEP will require significant resources and the support of all stakeholders, including the government, educators, students, and parents.

Drawback of National Education Policy

While the National Education Policy (NEP) 2020 has several positive features, there are also some drawbacks and challenges that need to be addressed.

1. **Implementation Challenges** - The successful implementation of the NEP will require significant resources, coordination, and collaboration among various stakeholders. The policy's ambitious goals may be difficult to

achieve without a clear roadmap for implementation.

2. **Regional Disparities** - The NEP emphasizes the need for education in regional languages alongside English. However, this may create regional disparities in access to quality education and resources, as some languages may not have the same availability of learning materials or teachers as others.
3. **Examination System** - The NEP proposes changes in the examination system, such as introducing exams only in grades 3, 5, and 8, and replacing the 10+2 structure with a 5+3+3+4 structure. However, these changes may take time to implement and could create confusion and uncertainty among students, parents, and educators.
4. **Privatization** - The NEP proposes a greater role for private players in the education system. However, this could lead to the exclusion of marginalized communities who cannot afford to pay for private education, leading to greater inequality in access to education.
5. **Funding** - The NEP proposes significant changes in the education system, but funding for these changes is not clearly outlined. There may be challenges in finding adequate funding to support the policy's ambitious goals.

Conclusion -

The National Education Policy (NEP) 2020 is a comprehensive reform framework for the education system in India. The policy aims to create a learner-centric, multidisciplinary, and flexible education system that prepares students for the challenges of the 21st century. The NEP proposes several changes in the curriculum, teaching-learning processes, teacher education, and higher education, and emphasizes the importance of early childhood education and care, multilingualism, and the use of technology in education.

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Implementation of National Education Policy -2020: Multidisciplinary Education

Editor

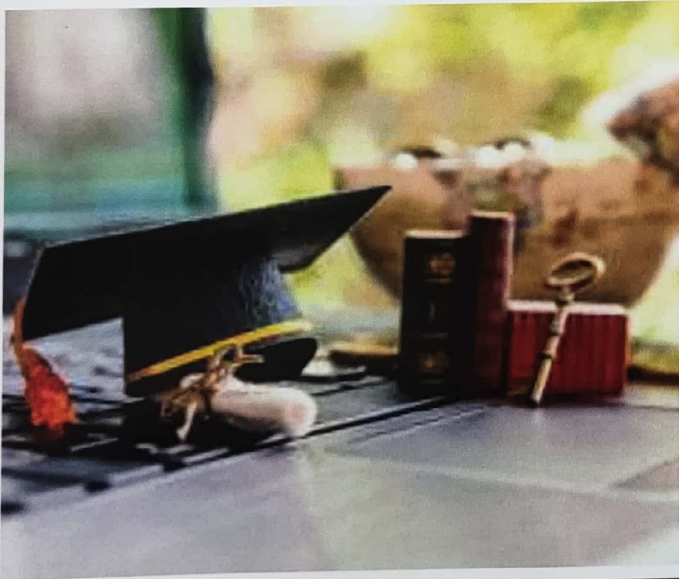
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Volume: I

22	NEP: Changes of Education System Shelke Digambar Sakharan	89-91
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26	Stylistic Analysis of <i>Father Returning Home</i> by Dilip Chitre Aher T. V, Patel Mateen Ayyab	102-105
27	Azoles: Biological Activities and Synthetic Pathways Vinod R. Kadu, Amol K. Kharde	106-117
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30	साहित्य समाज आणि शिक्षण . वडितके शंकर गोरक्ष	127-128
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33	नई शिक्षा नीति भारतीय भाषा की उपयोगिता प्रवीण तुलशीराम तुपे	137-139
34	ब्रिटीश काळातील शैक्षणिक धोरणाची ऐतिहासिक पार्श्वभूमी लबडे अर्चना बाबासाहेब	140-141
35	राष्ट्रीय शैक्षणिक धोरण - 2020 : गरज, तत्वे आणि मुलभूत सिद्धांत विखे ए.ए., पगारे सोनाली दिनकर	142-143
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Implementation of National Education Policy -2020: Multidisciplinary Education

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Volume: I

ब्रिटीश काळातील शैक्षणिक धोरणाची ऐतिहासिक पार्श्वभूमी

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प्रस्तावना-

भारताला स्वातंत्र्य मिळण्याच्या अगोदर अनेक आयोग ब्रिटीश सरकारने भारतातील शिक्षण पद्धती सुधारण्यासाठी केले. यात 1854 चा वूड्सचा अहवाल, 1882 चा हंटर आयोग, 1902 चा रॅली आयोग, त्यानंतर राधाकृष्णन आयोग, कोटारी आयोग या सारखे आयोगाने शिक्षण व्यवस्थेत नेहमी कोणते बदल आवश्यक आहे. या बदल या धोरणामध्ये आवश्यक वाढी तयार केल्या.

ब्रिटीश काळातील शिक्षण विषयक धोरणे:-

१) चार्ल्स वूडचा शिक्षणविषयक खलिता:-

भारतातील शिक्षण पद्धती सुधारण्यासाठी चार्ल्स वूड याच्या अध्यक्षतेखाली हिंदूस्थानातील शैक्षणिक धोरण ठरवण्यासाठी एक समिती ठरवण्यात आली. या योजनेच्या वूड चा खलिता असे म्हणतात. या धोरणामध्ये प्राथमिक शिक्षणास प्रोत्साहन घ्यावे. त्याचप्रमाणे सर्व प्रकारच्या शैक्षणिक संस्थांना शिक्षकांची गरज भासणार होती. या शिक्षकांना प्रशिक्षित करण्यासाठी प्रशिक्षण महाविद्यालयाची स्थापना करावी अशा प्रकारच्या शिफारशी या आयोगाने सुचित केल्या होत्या.

२) हंटर आयोग:-

भारतातील शिक्षण विषयक प्रगतीचा आढावा घेण्यासाठी इ. स. 1882 मध्ये विल्यम हंटर यांच्या नेतृत्वाखाली एक समिती नेमण्यात आली. या समितीने काही शिफारशी सुचवल्या त्यामध्ये महाविद्यालयासाठी सर्वसाधारण अनुदान व खास अनुदान अशा प्रकारची पद्धती स्वीकारावी. तसेच प्राथमिक व माध्यमिक शाळाकडे अधिक लक्ष द्यावे. हंटर कमिशनने विद्यार्थ्यांच्या शारीरिक आणि नैतिक शिक्षणावर भर देण्यात यावा असे सुचवले.

३) लॉर्ड कर्झनचा विद्यापीठ कायदा (१९०४)-

लॉर्ड कर्झनने १९०४ चा विद्यापीठ कायदा केला. भारतातील उच्च शिक्षण क्षेत्रात गुणवत्ता वाढली पाहिजे. यासाठी हा कायदा करण्यात आला होता.

४) सॅडलर विद्यापीठ आयोग-

इंग्लंड मधील लीड्स विद्यापीठाचे कुलगुरू डॉ. मायकेल सॅडलर यांच्या अध्यक्षतेखाली एक आयोग नियुक्त केला. त्याला सॅडलर आयोग असे म्हणतात. सॅडलर आयोगाने भारतातील प्राथमिक शिक्षणापासून तर विद्यापीठ शिक्षणापर्यंतच्या शिक्षण व्यवस्थेचा अभ्यास करून भारतातील माध्यमिक शिक्षणाचा दर्जा उंचावला, तर विद्यापीठ स्तरावरील शिक्षणाचा दर्जा सुधारेल असा निष्कर्ष सॅडलर आयोगाने काढला.

५) हर्टाग समिती- (इ. स. १९२९)

भारतात शिक्षण घेणाऱ्यांची संख्या या काळात वाढल्या, परंतु त्यामुळे शिक्षणाचा दर्जा घसरला. त्यामुळे समाजात असंतोष निर्माण झाला. म्हणून १९२९ मध्ये

हर्टाग समिती नेमण्यात आली. त्यानुसार प्राथमिक शिक्षणाचा विकास अधिक झाला पाहिजे. असे सुचविण्यात आले.

६) सार्जंट आयोग- (इ. स. १९४४)

सर जॉन सार्जंट यांनी ही योजना तयार केली. या योजनेमध्ये असे सांगितले कि, सरकारने प्राथमिक व माध्यमिक विद्यालये उघडावीत अशी शिक्षण व्यवस्था सुधारणासाठी शिफारशी सुचवण्यात आल्या.

७) राधाकृष्णन आयोग - (इ.स. १९४८-४९)

भारताला स्वातंत्र्य मिळाल्यानंतर पूर्वीच्या शिक्षण पद्धतीचा पूर्वविचार करणे गरजेचे 0.वाटल्याने सरकारने 4 नोव्हेंबर 1948 रोजी डॉ. राधाकृष्णन सर्वपल्ली यांच्या अध्यक्षतेखाली विद्यापीठीय शिक्षणासंबंधी शिफारशी करण्यासाठी एक आयोग स्थापन केला. या आयोगाने इ.स. 1949 रोजी आपल्या विद्यापीठ शिक्षणासंबंधी शिफारशी करणारा अहवाल भारत सरकारला मादर केला. शिक्षणाचा दर्जा वाढविण्यासाठी शिक्षण हा विषय समवर्ती सुचित टाकण्यात यावा असे सुचवण्यात आले. त्याचप्रमाणे विद्यापीठीय शिक्षणावर देखरेख ठेवण्यासाठी विद्यापीठ अनुदान आयोगाची स्थापना करावी.

८) राधाकृष्णन आयोग:- (इ. स. १९४८ - ४९)

डॉ. राधाकृष्णन यांच्या अध्यक्षतेखाली एक आयोग नियुक्त केला. विद्यापीठ शिक्षणासंबंधी अहवाल देऊन आयोगाला सुधारणा घडवून आणण्यासाठी शिफारशी करावयाच्या होत्या. या आयोगाच्या शिफारशीनुसार विद्यापीठ देखरेख ठेवण्यासाठी एक विद्यापीठ अनुदान आयोग असावे. त्यानुसार याची अंमलबजावणीसाठी 1९९३ मध्ये विद्यापीठ अनुदान आयोगाची स्थापना करण्यात आली.

९) कोटारी आयोग:- (इ.स. १९६४-६९)

डॉ. डी. एस. कोटारी यांच्या अध्यक्षतेखाली या आयोगाची स्थापना करण्यात आली. शिक्षकांची धोरणे, रूपरेषा, शिक्षणाच्या सुधारणा याबाबत सुधारणा करावयाच्या होत्या. या आयोगातील धोरणातून त्या शाळांमधील शिक्षकांची गुणवत्ता व प्रशिक्षणाची विशेष

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8
Pub. Date: 12/02/2023
Volume: I

प्रयत्न करणे जसे सुचवण्यात आले. नैतिक शिक्षणावर व सामाजिक जबाबदारी भावना निर्माण होण्यावर भर दिना आता. माध्यमिक शिक्षण व्यावसायिक स्वरूपाचे केले जाणे.

या शिफारशीवर आधारित १९६८ मध्ये शिक्षण विषयक राष्ट्रीय धोरण ठरवण्यात आले.

१०) १९८६ चे नवे शैक्षणिक धोरण-

इ.स. १९८६ च्या नवीन शैक्षणिक धोरणानुसार प्राथमिक शिक्षणाचे सार्वजनिककरण करणे, त्याचप्रमाणे उच्च व माध्यमिक शिक्षणाला व्यावसायिक बनवणे, देशाचे ऐक्य, अंतरराष्ट्रीय जाणीव, राष्ट्रीय परंपरेविषयी अभिमान या सर्व गोष्टींना महत्त्व देण्यात आले.

वरील आयोगानुसार शिक्षांचा दर्जा सुधारण्यासाठी प्रयत्न करण्यात आले. त्यानुसार घटनेतील कायदेशीर तरतूदही सांस्कृतिक वारसा, लोकशाही, सर्व धर्मसमभाव, स्त्री-पुरुष समानता या सर्व बाबींना महत्त्व देण्यात आले. त्यामुळे शिक्षण ही अत्यंत महत्त्वाची प्रक्रिया आहे. म्हणून शिक्षण डे समज परिवर्तनाचे एक महत्त्वाचे साधन आहे. व्यक्तीचा कर्तव्य दक्ष बनवण्याबरोबरच, व्यक्तीच्या सुप्त गुणांचा विकास करते. त्यातूनच व्यक्तीच्या बौद्धिक शारीरिक, मानसिक विकास घडवण्यासाठी शिक्षण अतिशय महत्त्वाचे आहे.

११) नवीन राष्ट्रीय शैक्षणिक धोरण २०२०-

नवीन राष्ट्रीय शैक्षणिक धोरण हे विद्यार्थ्यांना एकांगी शिक्षणाकडून बहुमुखी शिक्षणाकडे नेणारे आहे. वेगाने बदलत असणारी जागतिक आर्थिक रचना व त्यातून निर्माण होणाऱ्या संधी यांना प्रतिसाद देणार हे धोरण असल्याने त्यांच्याकडे वेगळ्या दृष्टीकोनातून बघितले पाहिजे. कारण या शैक्षणिक धोरणामध्ये विद्यार्थ्यांच्या तंत्रज्ञानात्मक प्रगतीबरोबरच त्यांच्या बौद्धिक, सामाजिक, भावनिक प्रगतीचा देखील विचार नवीन धोरणात करण्यात आलेला आहे. 5+3+3+4 या वर्ष सूत्रानुसार 3 ते 8 वर्ष, 8 ते 11 वर्ष, 11 ते 14 वर्ष व 14 ते 18 वर्ष असे चार टप्पे करण्यात आलेले आहे. 16 ते 99 वर्षे 99 ते १४ टप्पे करण्यात प्राथमिक शिक्षण मातृभाषेतून देण्यावर भर नवीन राष्ट्रीय शैक्षणिक धोरणात दिलेला आहे. सर्व आह्वानात्मक परिस्थितीत विद्यार्थी घडावे असे परिपूर्ण शिक्षण देण्याचा प्रयत्न या धोरणात केलेला आहे. यानुसार बहुशाखीय शिक्षण महाविद्यालयीन स्तरावरील शिक्षण रचनेचे हे काम करू शकणारे वैशिष्ट्य आहे. शिक्षण वाघिणीचे दूध आहे, जो घेतो तो डरकाळी फोडतोच. शिक्षण हि अखंड चालणारी बदलत जाणारी प्रक्रिया आहे. यासाठी या शिक्षण हे योग्य पातळीवरचे मिळायला हवे ही काळाची गरज आहे.

त्यामुळे नवीन शैक्षणिक धोरण २०२० अंतर्गत शालेय उच्च शिक्षणाच्या रचनेत आमूलाग्र बदल करण्यात आले आहेत. शिक्षण अभ्यासक्रमांना वेगवेगळ्या शाखांच्या चौकटीतून बाहेर काढून आंतरशाखीय आणि समन्वयी करण्यात आले आहे. शाश्वत विकासाची ध्येय प्राप्त करणे शक्य होईल. अशी समर्थ सशक्त शैक्षणिक व्यवस्था उभारणे

हे या धोरणाचे उद्दिष्ट आहे. या धोरणानुसार विद्यार्थ्यांच्या नैतिकतेचा विकास करणे यावर विशेष लक्ष दिले आहे. संदर्भ-

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Implementation of National Education Policy -2020: Multidisciplinary Education

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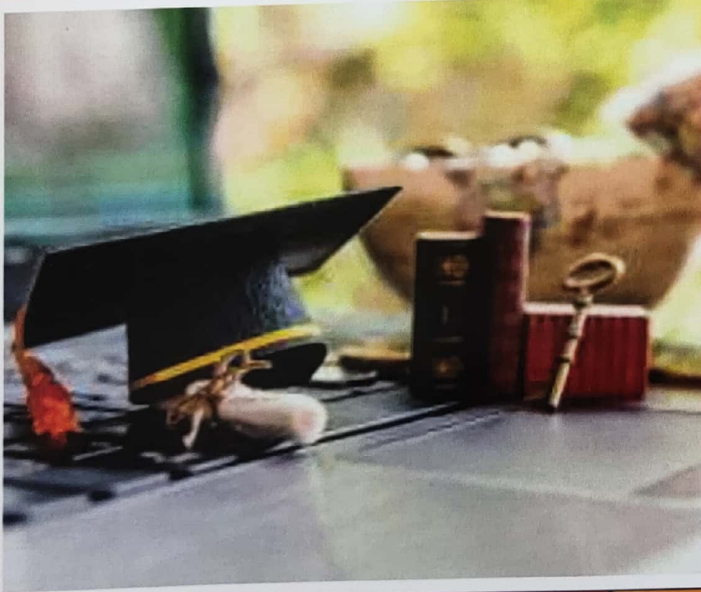
Dr. H. R. Aher,

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**National Education
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**Implementation of National Education Policy -
2020: Multidisciplinary Education**

ISBN: 978-93-94819-23-9
Pub. Date: 12/02/2023
Volume: I

22	NEP: Changes of Education System Shelke Digambar Sakharani	89-91
23	The Importance of Language in National Education Policy 2020 Dhimate Sangita Sunil - Salve Priyanka	91-94
24	Role of NEP 2020 in emerging economy- A study with special reference to Maharashtra Sopan N. Shingote, Jayshree R. Singar	95-97
25	Implementation of National Education Policy (NEP) 2020 in Agricultural Education: - A Theoretical Analysis. D. N. Karle, S. R. Varpe	98-101
26	Stylistic Analysis of <i>Father Returning Home</i> by Dilip Chitre Aher T. V, Patel Mateen Ayyab	102-105
27	Azoles: Biological Activities and Synthetic Pathways Vinod R. Kadu, Amol K. Kharde	106-117
28	National Education Policy-2020: Issues and Challenges S.K. Pulate, S.B.Gholap	118-122
29	भारतातील राष्ट्रीय शैक्षणिक धोरणांचे तुलनात्मक अध्ययन विद्ये अर्चना यनिस, वैभव किर्लोस्कर दिवे.	123- 126
30	साहित्य समाज आणि शिक्षण . प्रदितके शंकर मोरख	127-128
31	नवीन शैक्षणिक धोरण 2020 मध्ये संवाजणाचे महत्व आशिष ए.कायेकर	129-131
32	राष्ट्रीय शिक्षा नीति २०२० विमर्श: मानविकी और भाषाएँ जयवीर सिंह	133-136
33	नई शिक्षा नीति भारतीय भाषा की उपयोगिता प्रवीण सुखशीराम तुपे	137-139
34	ब्रिटीश काळातील शैक्षणिक धोरणांची ऐतिहासिक पार्श्वभूमी सचदे अर्चना बाबासाहेब	140-141
35	राष्ट्रीय शैक्षणिक धोरण - 2020 : सरळ, तत्वे आणि मुलभूत सिध्दांत विद्ये ए.ए., पगारे सोमाली दिनकर	141-143
36	Planning And Performance Budgeting - Conceptual Frame Work Dr. Prashant Khoptikar	144-145
37	A Study of Performance and Analysis of Higher Education in India and it Opportunities and Challenges before National Education Policy 2020 Dattatraya Shivaji Thorat	146-152

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

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Volume: I

Role of NEP 2020 in emerging economy- A study with special reference to Maharashtra

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Abstract

Implementation of any education policy is a complex, continuous and ever growing process that involves different stakeholders and can result disrupt generations if not implemented assiduously. It is therefore necessary to understand it, analyze and have constructive discussion on its determinants and explore ways in which it can be more transparent and effective. The ever-increasing importance of knowledge creates challenges as well as opportunities for the developing economies. It is a challenge in the sense that to become competitive globally, nations have to take part efficiently in knowledge driven chains and markets which have dominated the worldwide economy. Such chains form the links in the knowledge process. However, for those who are prepared to face this challenge head on can supplement and act accordingly for the purpose of promoting the economic growth and social development along with reduction of poverty in India.

Keywords: Education policy, Knowledge based economy, SWOT analysis, modernize curriculum.

Introduction

In all the states, there are various departments and ministries taking care of primary education, women education, continuous education and professional education. The school education ministry takes care of the primary, middle and higher education through state control boards. Indian professionals are worldwide anonymously preferred due to their proficiency and cost proposition. We can affirm that this trait of intrinsic strength is result of the functioning of Indian education system. Knowledge and innovation play an increasingly vital role in technological advances and the transformation of society. They are both means of sustaining survival, growth and competitiveness. As business environment becomes global and highly complex, organizations have to develop cumbersome and intensive processes to successfully face knowledge and innovation choices. A whole new era arises characterizing its transition towards a knowledge based economy.

SWOT analysis of Higher Education in India:

Every system and process has inherent Strengths as well as Weaknesses. No system is said to be perfect in all the aspects. Strengths and weaknesses are considered as internal factors which can be

controlled. Likewise, with strengths and weaknesses, there are opportunities and threats for each concept. On analyzing higher education in India with SWOT analysis, we realize that our higher education boasts of many strengths as well as many weaknesses. Alongside, opportunities there are impending threats.

The Strengths of higher education in India:

1. India prides itself in being one of the largest education systems of the world. With astounding number of schools and colleges, there are new avenues opening in every field when we think of higher education. Number of graduates and post-graduates have increased in last few decades.
2. It may be attributed largely to factors like- large number of English speaking population, abundant supply of professionally qualified and skilled manpower to name a few.
3. New avenues are being explored due to application of ICT. Technology has changed the face of higher education and how it is offered even to remote inaccessible places of India.

Weaknesses:

There are some weaknesses in our system.

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

1. Ranks of Indian higher education institutes are depleting down year by year. Sadly enough no Indian University ranks among top 200 in the world.
2. Lack of accreditation agencies with global standards. We seem to be satisfied with Indian regulatory agencies like- AICTE, UGC etc.
3. More emphasis on quantity rather than quality. The government is establishing more IIMs and IITs thereby increasing the numbers.
4. Discrepancy between real practice and theoretical knowledge. In Indian education system the major emphasis is on theoretical inputs while the examination pattern is old fashioned.
5. Professional orientation is less; entrepreneurship oriented education is even lesser. Education system promotes more of the job seekers; less of job creators.

Opportunities:

1. The Government has started allocating more funds for education sector which was ignored before. It seems that in future education sector will show more prosperity.
2. Awareness among masses about significance of literacy is growing.
3. With increasing population, the policies can be made as such to make it an asset rather than a liability. India can enrase upon a concept what many economists call it 'demographic dividend'.
4. Private sector offers opportunities in the form of Public-Private-Partnership in basic education as well as higher education.
5. When industry people are called upon for the purpose of designing the curriculum of professional courses, outputs will be more fruitful.

Threats:

1. Lack of proper implementation of ambitious plans formulated by the Governments at central as well as state level. There are many plans which are good, but fall prey to bureaucracy and corruption.
2. Currently, there are many students who move to foreign countries for pursuing graduation and post-graduation program after paying high fees. It shows that they

often do not find Indian institutions appropriate.

3. Foreign Universities are major threats. When such Global Universities will compete locally, the scenario will be altogether different. Indian higher education system may succumb to such a threat.

Implementation of New Education Policy in India

India has a long and varied history of implementing educational policies at the local, state, and national levels. Over the centuries, the country has seen many changes and developments in its educational system, with the aim of providing access to quality education for all its citizens. Education is one of the fundamental rights of any individual; it helps individuals to become responsible and productive members of the society. It fosters critical thinking, develops skills and knowledge, and makes a person more responsible towards the society as they contribute to the economy of the nation and participate fully in civic life. It plays a very crucial role in promoting personal and social development. It helps to build strong communities and a strong democracy, and it is essential for the ongoing development of our nation.

In ancient India, education was considered a privilege of the elite classes, with only a small portion of the population having access to formal education. The Vedic period saw the emergence of Gurukuls, or residential schools, where students were taught by Gurus (teachers) traditionally and holistically. In the medieval period, the Mughal and British rulers introduced new forms of education, such as madrasas for Islamic studies and Western-style schools for English language and literature.

With the advent of the modern Indian state, the focus shifted to providing universal access to education. The Constitution of India which was adopted in 1950, recognized education as a fundamental right and laid down the principle of free and compulsory education for all children between the ages of 6 and 14. The government also initiated various measures to improve the quality of education and make it more inclusive, such as the establishment of the Central Board of Secondary Education (CBSE) and the National Council of Educational Research

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Volume: I

and Training (NCERT) to standardize and modernize the curriculum.

In recent years, the Indian government has implemented several new educational policies aimed at further improving the education system. Some of the key policies and initiatives include the following:

1. The Right to Education (RTE) Act, passed in 2009, mandates that every child between the age of 6 and 14 has the right to free and compulsory education in neighborhood schools. The Act also makes it mandatory for all private schools to reserve 25% of their seats for students from economically weaker sections.
2. The Sarva Shiksha Abhiyan (SSA) is a national program launched in 2001 to provide universal access to education for all children, particularly girls and children from disadvantaged backgrounds. The program focuses on improving the infrastructure and quality of schools, increasing the enrollment and retention of students, and promoting gender equality and inclusive education.
3. The Rashtriya Madhyamik Shiksha Abhiyan (RMSA) is a scheme launched in 2009 to improve the quality of secondary education in India. The program focuses on providing adequate infrastructure, trained teachers, and quality learning materials in schools, as well as promoting vocational education and skill development.
4. The National Curriculum Framework (NCF), revised in 2005, emphasizes the need for a learner-centric and inclusive education system. It stresses the importance of critical thinking, creativity, and problem-solving skills, and encourages the use of diverse teaching methods and local resources.
5. The National Education Policy (NEP) 2020 is a comprehensive policy framework that aims to reform and revitalize the education system in India. The NEP emphasizes the importance of equitable and inclusive education and focuses on providing quality education to all, regardless of their socio-economic background or location. It also promotes the use of technology, innovation, and education research.

6. The implementation of these policies has led to significant progress in the field of education in India.

Conclusion

National Education Policy is a comprehensive set of guidelines and recommendations for the Indian education system. It aims to make education more inclusive, relevant, and engaging for all students, and to foster the development of critical thinking and problem-solving skills. By implementing these recommendations, the NEP aims to ensure that all students have the opportunity to receive a high-quality education and reach their full potential. In conclusion, the New Education Policy represents a major shift in the way education is delivered in India, and it has the potential to bring significant benefits to the education system.

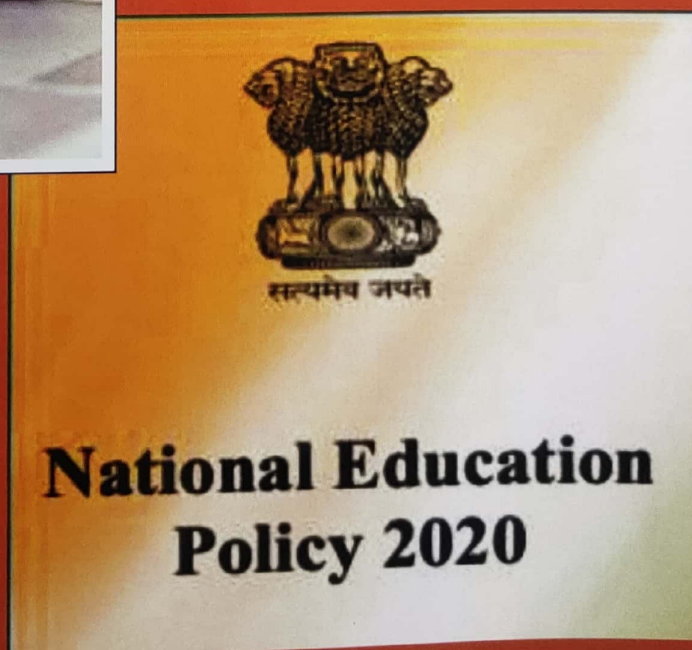
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Implementation of National Education Policy -2020: Multidisciplinary Education

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Volume: I

Sr.No.	Title	Page no.
1	A Review on Algae as Biofertilizer A. A. Aher, A. S. Wabale	1-3
2	A Review of Agricultural Education in National Education Policy 2020 Rajesh M. Thoke, Shinde V. G., Vikhe A.A.	4-6
3	Review on Role of Physical Mutagen in Mutation Breeding M. D. Kakade, R. D. Borse	7-10
4	A Review of Composition and Metabolism of Bioactive Components in Citrus Fruits and Vegetables Vikhe A. S., Kharde H. S., Vikhe P. S., Rohamare S. S.	11-15
5	Academia and Industry - Society: A Paradigm Shift in the NEP -2020 Vidya M. Jirage	16-19
6	Humanistic Pessimism in the major novels of Thomas Hardy Adik Manisha, Amol Sawant	20-22
7	In-Vitro Micropropagation Of Rose (<i>Rosa Hybrid</i> L.) Using Different Growth Hormones. Sabale S. C., Shinde N. G.	23-26
8	National Education Policy 2020: Merits and Demerits in Higher Education Pratibha V. Kanawade, Hari L. Divekar	27-28
9	Synthesis of Nickel Oxide Nanoparticle using different synthetic method and their Applications: A review Kamal K. Chitalkar, Rupali D. Murade, Snehal V. Darandale, Sonali R. Magar, Haribhau R. Aher	29-33
10	Review on Multi-component Synthesis of Biologically Important 2H-indazolo[2,1-b]phthalazine-triones derivatives (2017-2021) Dilip Aute, Hrishikesh Nirmal, Vitisha Vikhe, Vaishali Murade, Anil Gadhave	34-38
11	A Review on Biomedical Approaches of Green Synthesized Cerium Oxide Nanostructure" Sumaiyya M. Patel, Vaishali D. Murade, Shobha A. Musmade, Dinesh P. Hase, Surekha K. Kadu, Gajanan R. Pandhare	39-43
12	A Review On Bioactivity Of Schiff Base Cobalt And Nickel Metal Complexs Sonali A. Muntode, Shweta B. Dighe, Priyanka A. Tambe, Priyanka A. Gagare, Sonali S. Pardhe, Gajanan R. Pandhare, Haribhau R. Aher	44-47
13	Qualities And Techniques In Sports Coaching For Better Performance Harde.S.M., Kadu .P .A	48-50
14	Implementation Of National Education Policy-2020 Madhuri Sontakki	51-52
15	Review on Different Extraction Techniques Used for Bioanalysis R. J. Gaikwad, A. A. Jondhale, V.A.Kadnor	53-55
16	Health risk of local fruit: Pomegranates Amruta K. Mhaske, Bhagwat K. Uplade	56-61
17	Outcome-Based Education (OBE) using Student Centered Learning (SCL) for Commerce faculties Rahul. M. Bhandari	62-65
18	A review on Oxazines: Synthesis and Biological Potentials Amol K. Kharde, Vinod R. Kadu, Somnath S. Gholap	66-72
19	The Airborne Spread of Staphylococcus aureus in various Environmental Conditions - A systematicoverview Aarif Khan, Pramod N. Kamble, Nazeer Mohammed	73-83
20	Academic Bank of Credits in Higher Education Institutions Deshmukh Kanchan Samish.	84-86
21	National Education Policy 2020: Reformation in Educational System of India Kanawade Pratibha Vijay	87-88

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

"A Review of Agricultural Education in National Education Policy 2020"

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Abstract:

India's first National Agricultural Education Policy will bring academic credit banks and degree programs with multiple entry-exit alternatives to the 74 universities focussed on crop sciences, fisheries, veterinary and dairy preparing and research. The multiple entry and exit will allow the students to earn a diploma or an advanced diploma with a choice to re-enter as and when they are able to resume their studies and earn a full college degree. The process for formulating the National Agricultural Education Policy was started two months ago, after the release of the National Education Policy (NEP) 2020. The National Agricultural Education Policy is in tune with the NEP and will strengthen the agricultural education system in the country.

Keywords: Agriculture Education in National Education Policy various issues and Challenges, development of agriculture sector

Introduction:

Since the establishment of first agricultural university at Pantnagar in Uttarakhand in 1960, agricultural education in the country has made huge expansion both quantitatively as well as qualitatively. The educational system in the country has been based on the National Education Policy of 1986. The NEP 1986 was reviewed to have a more comprehensive, holistic, sustainable and an inclusive roadmap for a paradigm shift in the country's educational system. Thus came the New Education Policy NEP 2020 with sweeping reforms in the basic structure of education, curriculum, pedagogy and teaching learning process. Blending education with technology, incorporating traditional knowledge and culture and leveraging it with skills and employability through vocational education and an evaluation (both formative and summative), NEP 2020 is all expected to bring about a quality transformation in the education sector by making it internationally competitive, well defined regulatory and governance structure and an accreditation mechanism. Coming 34 years after the last education policy of 1986, NEP 2020 is the first education policy of the 21st Century's in India emphasizing on the creative potential of each and every student. The NEP rests on the basic principles of flexibility, no hard separations between subjects, curricular and extra-curricular activities, Multi-disciplinary education, conceptual understanding, critical thinking, Ethical Values, teachers as the

heart of the learning process, the strong public education system in India. It will require structural changes in the present system of teaching and learning. Keeping in mind the broad mandate of NEP 2020 to focus more on multidisciplinary and holistic education, the structure of institutions imparting higher education in agriculture have to be revisited. This is necessary to meet the requirements of large multidisciplinary universities imparting holistic education. These Higher Education Institutes (HEIs) have to reorient their curriculum, introduce multiple entry and exit levels, go for digital interventions to accommodate Academic Bank of Credits, forge strong partnerships with other HEIs to enable them to transfer credits earned by students from one institute to other.

At the same time the teaching and learning have to be made more technology enabled, skill oriented and culturally integrated to make it more inclusive and equity oriented. At the entry level in HEIs, vocational education has to be included. All the reorientation is to give the students flexibility in shifting from one subject to other, to get higher education in the form of certificates/diplomas/degrees and at the same time giving them an opportunity at a later stage of their life to convert their certificates and diploma into degrees. Students will be at liberty to complete their education both in terms of the length of the time as well as choice of courses. The teaching learning process in the HEIs in the agriculture and

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Volume: I

allied sectors have to be enabled with a blend of appropriate technologies to remove the distance and time lag. The necessary steps should be taken to avail the existing e-learning platforms such as Study Web of Active-Learning for Young Aspiring Minds (SWAYAM), Digital Infrastructure for Knowledge Sharing (DIKSHA), SWAYAM-Prabha (an initiative of Ministry of Education to provide 34 high quality educational channels through Direct to Home (DTH) across length and breadth of the country. Agriculture and allied sector universities can develop their own short term e-courses for youth, farmers and farm women who are outside the physical reach of the universities. MANAGE, Hyderabad is already running various MOOC programmes. Necessary technology and tools for two-way video and audio interface for holding online classes have also to be strengthened. This technology enabled learning proved its potential at the times of COVID-19 Pandemic. Academic Bank of Credit is another innovation of the NEP 2020. It gives the students to store the credit earned by them for certain years for their subsequent use in later years when they join back in case they have taken a break from studies. It also gives them the flexibility to shift their institutes also. Agriculture is facing a peculiar 20:80 problem meaning only twenty percent of the candidates graduating from universities get placements whereas eighty percent remain underemployed/misplaced employed/unemployed. One of the reasons for this situation is because of separation of education from training. This results in a huge pool of qualified graduates who unfortunately do not have the necessary skills so that they can at least set up their income generating units. Skill development through trainings has to be made an inalienable part of the teaching and learning process. Agriculture education has to be leveraged with the necessary skills and competencies to enable youths to set up their own ventures.

Objective:

1. To Study the Agriculture Education condition in India.
2. To Study the various issues and Challenges in Agriculture Education in India.

3. To Study the development of agriculture sector in India

4. To Study conclusion and measure of Agriculture Education in National Education Policy in India

1. Agriculture Education condition in India

2. Agricultural education in the country will be revamped in line with the National Education Policy (NEP) with emphasis on skill development, Stressing the importance of analytical tools in social science research, "It is essential to have a solid understanding of modern statistical, econometric and time series methods to make proper inferences in social sciences research," she observed. Sponsored by the Agricultural Education Division of the ICAR, Winter School aims at providing an opportunity to social science researchers to update their analytical skills and make them more familiar with advanced analytical tools and software.

3. Issues and Challenges in Agriculture Education in India

Since this project is India's first-ever agricultural education-based project, there are various challenges and issues with which the authorities will have to deal with. The option for entry and exit modules shall be a bit complex to manage. The Universities will have to come up with measures such that the entire education and experiential methodology both are adapted while completing the education of each student. Agricultural universities have been modelled on the land grant pattern, with a focus on research and extension, and deep community connections, driven by the philosophy that farmers need holistic solutions to their problems. Once the policy is widely accepted, students may have better opportunities to learn and excel in agricultural awareness. This will build a better future for the field of Indian agriculture, which is one of the biggest sectors in our country.

4. Development of agriculture sector in India

India has a particularly large agricultural sector. While the sector's share of GDP has halved in the past 30 years to around 15 per cent, it still employs around half of India's workforce and accounts for much

Implementation of National Education Policy -2020: Multidisciplinary Education

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Volume: I

of the volatility in Indian GDP. India has the second largest area of arable land in the world and is a major producer of a number of agricultural products. Around the turn of the century, India overtook the United States as the world's largest producer of milk and is also a major producer of pulses, such as chickpeas and lentils, which are major sources of protein in vegetarian diets.

Conclusion:

Agriculture is an enterprise which provides a lot of opportunities for setting up off employment generation ventures. It should be made mandatory for the students to undergo skill trainings for a fixed no. of day during their degree programme. NEP 2020 talks of experiential education and the fact is that, it is already being incorporated in agriculture education since 2016. Experiential education is a teaching method in which educators purposefully engage with learners in direct experience and focused reflection in order to increase knowledge, develop skills, clarify values, and develop people's capacity to contribute to their communities. In this regard, the student READY (Rural Entrepreneurship Awareness Development Yojana) programmes requires all students to undertake a six-month internship, usually in their fourth year, to gain hands-on training, rural awareness, industry experience, research expertise and entrepreneurship skills. The country has a robust Agricultural Education System comprising of 75 agricultural universities. Still the curriculum has not been updated in tune with the various issues with which agriculture sector is confronted with. The SAUs are also facing a number of challenges.

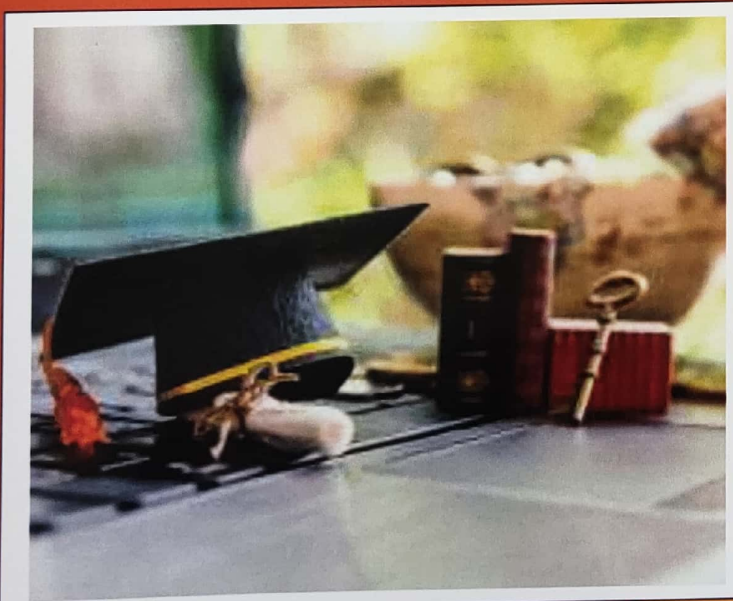
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Editor

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Volume: I

भारतातील राष्ट्रीय शैक्षणिक धोरणांचे तुलनात्मक अध्ययन

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प्रस्तावना:

भारतीय राज्यघटनेच्या राज्य धोरणाची दिशादर्शक तत्त्वे (DPSP) च्या भाग 4, कलम 45 आणि 39 (F मध्ये, राज्य मान्य आणि सर्वांना न्याय्य व प्रवेश-योग्य शिक्षणाची तरतूद आहे. १९७६ च्या ४२ व्या घटनादुरुस्ती कायद्याने शिक्षणास राज्य यादीतून समवर्ती यादीमध्ये स्थानांतरित केले गेले. 2002 मधील 86 व्या घटनादुरुस्तीने मूलभूत अधिकारांच्या कलम 21-A अंतर्गत शिक्षणाला अंमलबजावणीचा हक्क बनविला.

६ ते १४ वयोगटातील सर्व मुलांना प्राथमिक शिक्षण देण्यासाठी राईट टू एज्युकेशन (आरटीई), २००९ लागू करण्यात आले. या अधिनियमात सर्व शिक्षा अभियान, मध्यान्ह भोजन योजना, नवोदय विद्यालय, केंद्रीय विद्यालय यासारख्या सरकारी उपक्रमांत समाजातील वंचित घटकांसाठी 25% आरक्षण देण्यात आले.

मानव संसाधन विकास या विषयाशी संबंधित एक महत्वाचा घटक म्हणून शैक्षणिक धोरण महत्वाचे आहे. भारतातील शैक्षणिक धोरण यांची माहिती आधुनिक शिक्षण पद्धतीत सर्वात महत्वाची भूमिका पार पाडत आहेत. यात 1986, 1968 आणि 2020 च्या शैक्षणिक धोरणाचा समावेश येतो. 34 वर्षांनंतर आणि 21 व्या शतकातील पहिली शैक्षणिक सुधारणा 2020 मध्ये करण्यात आली. २९ जुलै २०२० रोजी विद्यमान भारतीय शिक्षण पद्धतीत अनेक बदल घडवून आणण्याच्या उद्देशाने मंत्रिमंडळाने नवीन राष्ट्रीय शैक्षणिक धोरणाला मान्यता दिली. 1968 मध्ये देशाचे पहिले शैक्षणिक धोरण इंदिरा गांधी सरकार मध्ये मांडण्यात आले. हे शैक्षणिक धोरण 1964 च्या कोठारी आयोगाच्या शिफारशीवर आधारित होते.

उद्दिष्टे:

1 भारतातील राष्ट्रीय शैक्षणिक धोरणांचा अभ्यास करणे

2 शालेय शिक्षण व्यवस्था अभ्यासणे.

संशोधन पद्धती -

दुय्यम तथ्य संकलन पद्धती:

संशोधनाच्या दृष्टीने दुय्यम स्रोताद्वारे माहिती जमा करताना निवडलेल्या विभागातील वार्षिक अहवाल, जर्नल्स, वृत्तपत्रे, संदर्भ पुस्तके, नियतकालिके मासिके, तसेच संकेतस्थळे यांचा वापर केला जाणार आहे. तसेच या सर्वांचा योग्य ठिकाणी संदर्भ दिला जाईल.

भारतातील राष्ट्रीय शैक्षणिक धोरणे:

1 राष्ट्रीय शैक्षणिक धोरण/National Educational Policy

राष्ट्रीय शिक्षण धोरण /1968 National Education Policy, 1968

3 राष्ट्रीय शैक्षणिक धोरण, /1986 National Education Policy, 1986

4 सुधारित राष्ट्रीय शैक्षणिक धोरण 1992

5 राष्ट्रीय शैक्षणिक धोरण, /2020 National Education Policy, 2020

1 राष्ट्रीय शैक्षणिक धोरण/National Educational Policy- नॅशनल पॉलिसी ऑन एज्युकेशन (NPE) हे

भारतातील शिक्षणाचा प्रचार आणि नियमन करण्यासाठी भारत सरकारने तयार केलेले धोरण आहे. या धोरणात ग्रामीण आणि शहरी भारतातील प्राथमिक शिक्षण ते उच्च शिक्षणाचा समावेश आहे. पहिला NPE भारत सरकारने 1968 मध्ये पंतप्रधान इंदिरा गांधी यांनी, दुसरा पंतप्रधान राजीव गांधी यांनी 1986 मध्ये आणि तिसरा पंतप्रधान नरेंद्र मोदी यांनी 2020 मध्ये जाहीर केला.

1947 मध्ये देशाला स्वातंत्र्य मिळाल्यापासून, भारत सरकारने ग्रामीण आणि शहरी दोन्ही भारतातील निरक्षरतेच्या समस्यांचे निराकरण करण्यासाठी विविध कार्यक्रम प्रायोजित केले. भारताचे पहिले शिक्षण मंत्री मौलाना अबुल कलाम आझाद यांनी एकसमान शैक्षणिक प्रणालीसह संपूर्ण देशभरातील शिक्षणावर केंद्र सरकारच्या मजबूत नियंत्रणाची कल्पना केली.

केंद्र सरकारने भारताच्या शिक्षण प्रणालीचे आधुनिकीकरण करण्यासाठी प्रस्ताव विकसित करण्यासाठी विद्यापीठ शिक्षण आयोग (1949-1948), माध्यमिक शिक्षण आयोग (1953-1952), विद्यापीठ अनुदान आयोग आणि कोठारी आयोग (66-1964) ची स्थापना केली.

**Implementation of National Education Policy -
2020: Multidisciplinary Education**

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

22	NEP: Changes of Education System Shelke Digambar Sakharan	89-91
23	The Importance of Language in National Education Policy 2020 Dhimate Sangita Sunil · Salve Priyanka	92-94
24	Role of NEP 2020 in emerging economy- A study with special reference to Maharashtra Sopan N. Shingote, Jayshree R.Singar	95-97
25	Implementation of National Education Policy (NEP) 2020 in Agricultural Education: - A Theoretical Analysis. D. N. Karle, S. R. Varpe	98-101
26	Stylistic Analysis of <i>Father Returning Home</i> by Dilip Chitre Aher T. V, Patel Mateen Ayyab	102-105
27	Azoles: Biological Activities and Synthetic Pathways Vinod R. Kadu, Amol K. Kharde	106-117
28	National Education Policy-2020: Issues and Challenges S.K. Pulate, S.B.Gholap	118-122
29	भारतातील राष्ट्रीय शैक्षणिक धोरणांचे तुलनात्मक अध्ययन विखे अर्चना अनिल., वैभव किशोर दिघे.	123- 126
30	साहित्य समाज आणि शिक्षण . वडितके शंकर गोरक्ष	127-128
31	नवीन शैक्षणिक धोरण 2020 मध्ये ग्रंथालयाचे महत्व आशिष ए.ठाणेकर	129-132
32	राष्ट्रीय शिक्षा नीति २०२० विमर्श: मानविकी और भाषाएँ जयवीर सिंह	133-136
33	नई शिक्षा नीति भारतीय भाषा की उपयोगिता प्रवीण तुलशीराम तुपे	137-139
34	ब्रिटीश काळातील शैक्षणिक धोरणाची ऐतिहासिक पार्श्वभूमी लवडे अर्चना बाबासाहेब	140-141
35	राष्ट्रीय शैक्षणिक धोरण – 2020 : गरज, तत्वे आणि मुलभूत सिद्धांत विखे ए.ए., पगारे सोनाली दिनकर	142-143
36	Planning And Performance Budgeting – Conceptual Frame Work Dr. Prashant Khoptikar	144-145
37	A Study of Performance and Analysis of Higher Education in India and it Opportunities and Challenges before National Education Policy 2020 Dattatraya Shivaji Thorat	146-152

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

भारताचे पहिले पंतप्रधान जवाहरलाल नेहरू यांच्या सरकारने वैज्ञानिक धोरणाचा ठराव स्वीकारला होता.

नेहरू सरकारने इंडियन इन्स्टिट्यूट ऑफ टेक्नॉलॉजी सारख्या उच्च दर्जाच्या वैज्ञानिक शिक्षण संस्थांच्या विकासासाठी प्रायोजित केले 1961 मध्ये, केंद्र सरकारने राष्ट्रीय शैक्षणिक संशोधन आणि प्रशिक्षण परिषद (एनसीईआरटी) ची स्थापना एक स्वायत्त संस्था म्हणून केली जी केंद्र आणि राज्य सरकारांना शैक्षणिक धोरणे तयार करण्यासाठी आणि अंमलबजावणीसाठी सल्ला देईल.

2राष्ट्रीय शिक्षण धोरण /1968National Education Policy, -1968

राष्ट्रीय शिक्षण धोरण 1968कोठारी आयोगाच्या शिफारशींवर आधारित होते आणि त्यात कोठारी आयोगाच्या अंमलबजावणीसाठी केंद्र आणि राज्य सरकार आणि प्राधिकरणांना मार्गदर्शन जारी करण्याची शिफारस करण्यात आली होती.

मोफत आणि सक्तीचे शिक्षण-कलम) 45 -भारतीय संविधान (नुसार वयाच्या 14व्या वर्षापर्यंत शिक्षण मोफत आणि सक्तीचे असले पाहिजे .शाळेत प्रवेश घेतलेल्या मुलांने अभ्यासक्रम यशस्वीपणे पूर्ण केला पाहिजे याची खात्री करण्यासाठी पावले उचलली पाहिजेत.

सर्वांना शिक्षणाची संधी-या धोरणांतर्गत देशातील प्रत्येक मुलाला जात, धर्म, प्रदेश किंवा काहीही असले तरी शिक्षण मिळाले पाहिजे .मागासवर्गीय, अल्पसंख्याक मुले, मुली आणि शारीरिकदृष्ट्या विकलांग मुलांना शिक्षणाच्या सुविधांचा लाभ घेण्यासाठी विशेष भर देण्यात यावा.

एकसमान शैक्षणिक संरचना - संपूर्ण देशात शिक्षणाची रचना एकसमान असावी .हा उच्च माध्यमिक ते महाविद्यालयीन स्तरापर्यंत 3+2+10नमुना असावा. प्रगतीचा आढावा-

सरकारने वेळोवेळी देशातील शिक्षणाच्या प्रगतीचा आढावा घेऊन भविष्यातील विकासासाठी मार्गदर्शक तत्वे मांडली पाहिजेत.

3राष्ट्रीय शैक्षणिक धोरण, /1986National Education Policy, -1986

1986चे धोरण राजीव गांधी यांच्या पंतप्रधान असताना जारी करण्यात आले होते आणि पीव्ही नरसिंह राव पंतप्रधान असताना ते 1992मध्ये अद्ययावत करण्यात आले होते.

त्याला "असमानता दूर करण्यावर आणि शिक्षणाच्या संधी समान करण्यावर विशेष भर"असे नाव देण्यात आले.या धोरणाचा मुख्य उद्देश महिला, अनुसूचित जाती आणि अनुसूचित जमातींसह सर्वांना समान शिक्षणाची संधी प्रदान करणे आहे.

राष्ट्रीय शैक्षणिक धोरण, 1986ची प्रमुख वैशिष्ट्ये-

(a)शिक्षणाचे विकेंद्रीकरण आणि जिल्हा शिक्षण आणि प्रशिक्षण संस्था स्थापन करणे .

(b)GDP च्या %6पर्यंत खर्च वाढवून शिक्षणासाठी पुरेसा निधी उपलब्ध करून देणे.

c) देशभरातील शिक्षणाच्या 3+2+10पॅटर्नच्या एकसमान पॅटर्नची तात्काळ अंमलबजावणी करण्याची शिफारस करण्यात आली.

d) प्राथमिक, माध्यमिक आणि उच्च माध्यमिक स्तरावर शैक्षणिक कार्यक्रमांची पुनर्रचना .तसेच, शालेय अभ्यासक्रमाची पुनर्रचना करण्याची शिफारस करण्यात आली होती.

e) बालपणीची काळजी आणि शिक्षणाला महत्त्व दिले गेले . अन्न आणि आरोग्यदायी वातावरणाची योग्य उपलब्धता करण्याचीही शिफारस करण्यात आली.

f) प्राथमिक शिक्षण पूर्ण होईपर्यंत मोफत आणि सक्तीचे शिक्षण.भाषा, गणित, विज्ञान, सामाजिक विज्ञान, सांख्यिकी, मानविकी, इतिहास आणि नागरिकांची राष्ट्रीय आणि घटनात्मक जबाबदारी यासारख्या काही संकल्पना विद्यार्थ्यांना शिकवण्यासाठी अनिवार्य शालेय विषयांना प्राधान्य दिले जाईल.

g) मुक्त विद्यापीठ आणि दूरस्थ शिक्षण संस्था उघडून उच्च शिक्षणाचा विस्तार केला जाईल आणि अशा शिक्षणाच्या पद्धतीला UGC द्वारे समान दर्जा आणि मान्यता दिली जाईल.

h) NPE ' 86शिफारस करते की राष्ट्रीय महत्त्व असलेल्या UGC, NCERT, NIEPA, AICTE, ICAR, IMC इत्यादी संस्थांना राष्ट्रीय शिक्षण व्यवस्थेला आकार देण्यासाठी आणि राष्ट्राच्या उदयोन्मुख मागण्यांना तोंड देण्यासाठी सक्षम बनवण्यात येईल.

1986च्या धोरणाच्या तुलनेत 1986च्या धोरणाने चांगली कामगिरी केली .याची अनेक कारणे होती . सर्वप्रथम, हे धोरण 1976मध्ये 42व्या घटनादुरुस्तीनंतर आले.या दुरुस्तीमध्ये शिक्षण, वने, वजन आणि मापे, वन्य प्राणी आणि पक्ष्यांचे संरक्षण आणि न्याय प्रशासन यासह पाच विषय राज्यातून समवर्ती यादीमध्ये हस्तांतरित करण्यात आले.दुसरे म्हणजे, आता केंद्र व्यापक जबाबदारी स्वीकारण्यास सक्षम आहे आणि या धोरणाच्या अनुषंगाने अनेक कार्यक्रम सुरू केले आहेत.

सर्व शिक्षा अभियान, माध्यान्ह भोजन योजना, नवोदय विद्यालये)NVS शाळा(, केंद्रीय विद्यालये)KV शाळा (आणि शिक्षणात IT चा वापर यासारख्या उत्कृष्ट सरकारी योजना 1986च्या NEP अंतर्गत सुरू झाल्या होत्या.

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4. सुधारित राष्ट्रीय शैक्षणिक धोरण 1992-

पी.व्ही.नरसिंह राव सरकारने 1992मध्ये 1986 च्या राष्ट्रीय शिक्षण धोरणात बदल केले.

वैशिष्ट्ये-नवीन विशेष शाळा उघडण्यासाठी आणि विद्यार्थ्यांना व्यावसायिक प्रशिक्षण देण्यासाठी स्वयंसेवी संस्थांनी या क्षेत्रात पुढे येण्यासाठी तरतुदी केल्या होत्या. नवोदय विद्यालयाच्या शाळांमध्ये गुणवत्ता वाढीवर भर देणे आणि इतर सर्व शाळांसाठी एक आदर्श प्रस्थापित करणे.प्रत्येक राज्यात किमान एक मुक्त विद्यापीठ उघडण्याची तरतूद करण्यात आली होती आणि त्यांचे नियमन करण्यासाठी IGNOU ला तांत्रिक सहाय्य आणि दूरस्थ शिक्षण परिपद द्यावी लागली.

5. राष्ट्रीय शैक्षणिक धोरण, /2020National Education Policy, -2020

केंद्रीय मंत्रिमंडळाने नवीन राष्ट्रीय शैक्षणिक धोरण (NEP), 2020ला मंजूरी दिली आहे ज्याचा उद्देश भारतीय शिक्षण व्यवस्थेत -शाळा ते महाविद्यालयीन स्तरापर्यंत अनेक बदलांचा परिचय करून दिला आहे.NEP 2020चे उद्दिष्ट "भारताला जागतिक ज्ञान महासत्ता "बनवणे आहे.मनुष्यबळ विकास मंत्रालयाचे नाव बदलून शिक्षण मंत्रालय करण्यासही मंत्रिमंडळाने मंजूरी दिली आहे.मंत्रिमंडळाने मंजूर केलेला NEP हा स्वातंत्र्यानंतरच्या भारतातील शिक्षणाच्या चौकटीतील केवळ तिसरी मोठी सुधारणा आहे.यापूर्वीची दोन शैक्षणिक धोरणे 1968आणि 1986मध्ये आणण्यात आली होती.

शालेय शिक्षण-

1. 2030पर्यंत शालेय शिक्षणात %100सकल नोंदणी गुणोत्तर)GER) सह पूर्वस्कूल ते माध्यमिक स्तरापर्यंत शिक्षणाचे सार्वत्रिकीकरण करणे.

2. 2कोटी शाळाबाह्य मुलांना मुक्त शाळा प्रणालीद्वारे मुख्य प्रवाहात आणणे.

3. सध्याची 2+10प्रणाली अनुक्रमे 8-3, 11-8, 14-11 आणि 18-14वर्षे वयोगटातील नवीन 4+3+3+5 अभ्यासक्रम संरचनेद्वारे बदलली जाईल.

4. हे 6-3वर्षे वयोगटातील न उघडलेले शालेय अभ्यासक्रमांतर्गत आणेल, ज्याला जागतिक स्तरावर मुलांच्या मानसिक क्षमतांच्या विकासामासाठी महत्वाचा टप्पा म्हणून ओळखले जाते.

5. यामध्ये तीन वर्षांच्या अंगणवाडी/पूर्व-शालेय शिक्षणासह 12वर्षांचे शालेय शिक्षण देखील असेल.

6. 10वी आणि 12वी बोर्डाच्या परीक्षा सोप्या केल्या जाव्यात, सर्व विद्यार्थ्यांना दोनदा परीक्षा देण्याची परवानगी देऊन, लक्षात ठेवलेल्या तथ्यांऐवजी मुख्य कौशल्यांची चाचणी घ्या.

7. नवीन मान्यता फ्रेमवर्क आणि सार्वजनिक आणि खाजगी दोन्ही शाळांचे नियमन करण्यासाठी स्वतंत्र प्राधिकरणासह, शाळा प्रशासनात बदल केले जाणार.

8. पायाभूत साक्षरता आणि संख्याशास्त्रावर भर, शाळांमधील शैक्षणिक प्रवाह, अभ्यासक्रमेतर, व्यावसायिक प्रवाह यांच्यात कोणतेही कठोर वर्गीकरण असणार नाही.

9. व्यावसायिक शिक्षण इयत्ता 6वी पामून इंटरनशिपसह सुरू होणार आहे.

किमान इयत्ता 5पर्यंत मातृभाषा/प्रादेशिक भाषेत शिकवणे . कोणत्याही विद्यार्थ्यावर कोणतीही भाषा लादली जाणार नाही.

10. -360डिग्री होलिस्टिक प्रोग्रेस कार्डसह मूल्यांकन सुधारणा, शिकण्याचे परिणाम प्राप्त करण्यासाठी विद्यार्थ्यांच्या प्रगतीचा मागोवा घेतला जाईल.

11. नॅशनल कौन्सिल ऑफ टीचर एज्युकेशन (NCTE) द्वारे नॅशनल कौन्सिल ऑफ एज्युकेशनल रिसर्च अँड ट्रेनिंग (NCERT) सोबत सल्लामसलत करून शिक्षक शिक्षणासाठी एक नवीन आणि व्यापक राष्ट्रीय अभ्यासक्रम फ्रेमवर्क (NCFTE) 2021तयार केला जाईल.

12. 2030पर्यंत, अध्यापनासाठी किमान पदवी पात्रता 4 वर्षांची एकात्मिक वीएड पदवी असेल.

13. उच्च शिक्षणातील एकूण नोंदणी प्रमाण 2035पर्यंत %50पर्यंत वाढवले जाईल .तसेच, उच्च शिक्षणात 5कोटी जागा जोडल्या जाणार आहेत.

14. उच्च शिक्षणातील सध्याचे एकूण नोंदणी प्रमाण)GER) २६.३ %आहे.

15. लवचिक अभ्यासक्रमासह होलिस्टिक अंडरग्रेजुएट शिक्षण 3किंवा 4वर्षांचे असू शकते आणि या कालावधीत एकापेक्षा जास्त एक्झिट पर्याय आणि योग्य प्रमाणीकरण मिळणार.

16. एम.फिल अभ्यासक्रम बंद केले जातील आणि पदवी, पदव्युत्तर आणि पीएचडी स्तरावरील सर्व अभ्यासक्रम आता आंतरविद्याशाखीय असतील.

2030पर्यंत शालेय शिक्षणात %100सकल नोंदणी गुणोत्तर)GER) सह पूर्वस्कूल ते माध्यमिक स्तरापर्यंत शिक्षणाचे सार्वत्रिकीकरण करणे .उच्च शिक्षणातील एकूण नोंदणी प्रमाण 2035पर्यंत %50पर्यंत वाढवले जाईल .तसेच, उच्च शिक्षणात 5कोटी जागा जोडल्या जाणार आहेत.

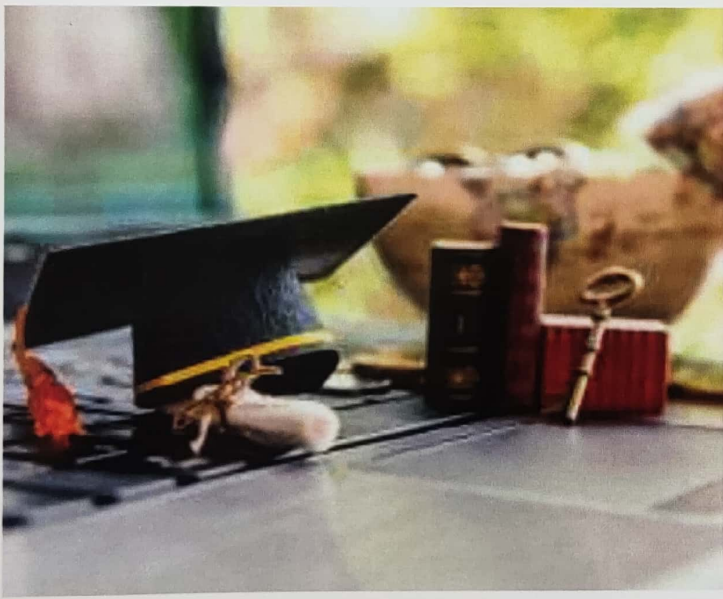
निष्कर्ष

नवीन शैक्षणिक धोरण 2020 मध्ये भारतातील उच्च शिक्षणाच्या गुणवत्तेत आणि प्रवेशयोग्यतेमध्ये लक्षणीय सुधारणा घडवून आणण्याची आणि विद्यार्थ्यांना

Implementation of National Education Policy -2020: Multidisciplinary Education

Editor

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Pub. Date: 12/02/2023

Volume: I

22	NEP: Changes of Education System Shelke Digambar Sakharam	89-91
23	The Importance of Language in National Education Policy 2020 Dhimate Sangita Sunil · Salve Priyanka	92-94
24	Role of NEP 2020 in emerging economy- A study with special reference to Maharashtra Sopan N. Shingote, Jayshree R.Singar	95-97
25	Implementation of National Education Policy (NEP) 2020 in Agricultural Education: - A Theoretical Analysis. D. N. Karle, S. R. Varpe	98-101
26	Stylistic Analysis of <i>Father Returning Home</i> by Dilip Chitre Aher T. V, Patel Mateen Ayyab	102-105
27	Azoles: Biological Activities and Synthetic Pathways Vinod R. Kadu, Amol K. Kharde	106-117
28	National Education Policy-2020: Issues and Challenges S.K. Pulate, S.B.Gholap	118-122
29	भारतातील राष्ट्रीय शैक्षणिक धोरणांचे तुलनात्मक अध्ययन विखे अर्चना अनिल., वैभव किशोर दिवे.	123- 126
30	साहित्य समाज आणि शिक्षण . वडितके शंकर गोरक्ष	127-128
31	नवीन शैक्षणिक धोरण 2020 मध्ये ग्रंथालयाचे महत्व आशिष ए.ठाणेकर	129-132
32	राष्ट्रीय शिक्षा नीति २०२० विमर्श: मानविकी और भाषाएँ जयवीर सिंह	133-136
33	नई शिक्षा नीति भारतीय भाषा की उपयोगिता प्रवीण तुलशीराम तुपे	137-139
34	ब्रिटिश काळातील शैक्षणिक धोरणाची ऐतिहासिक पार्श्वभूमी लबडे अर्चना बाबासाहेब	140-141
35	राष्ट्रीय शैक्षणिक धोरण - 2020 : गरज, तत्वे आणि मुलभूत सिध्दांत विखे ए.ए., पगारे सोनाली दिनकर	142-143
36	Planning And Performance Budgeting – Conceptual Frame Work Dr. Prashant Khoptikar	144-145
37	A Study of Performance and Analysis of Higher Education in India and it Opportunities and Challenges before National Education Policy 2020 Dattatraya Shivaji Thorat	146-152

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

“राष्ट्रीय शैक्षणिक धोरण – 2020 : गरज, तत्वे आणि मुलभूत सिध्दांत”

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गोपवारा :- मानवी जीवनात शिक्षण हे एक महत्वपूर्ण भूमिका बजावत असते. कोणत्याही देशाच्या आर्थिक आणि सामाजिक विकासासाठी शिक्षण हे प्रेरक शक्ती म्हणून कार्य करीत असते. भारत सरकारने राष्ट्रीय शिक्षण धोरण – 2020 चा अंगीकार 29 जुलै 2020 मध्ये केला. या शैक्षणिक धोरणातून सर्जनशीलता, तर्कशीलता सर्वसमावेशकता या विद्यार्थ्यांच्या कौशल्य गुणांच्या वाढीसाठी विशेष लक्ष दिले जाणार आहे.

या शैक्षणिक धोरणामध्ये शैक्षणिक व्यवस्था व संस्था यांना मार्गदर्शन करणारे मुलभूत सिध्दांत निश्चित करण्यात आली आहेत. या लेखामध्ये राष्ट्रीय शिक्षण धोरण 2020 ची गरज, शिक्षण धोरण तत्वे आणि शिक्षण धोरण सिध्दांत या विषयीची माहिती देण्याचा प्रयत्न केला आहे.

प्रस्तावना :- भारताला जागतिक महासत्ता बनविणे हे नविन राष्ट्रीय शिक्षण धोरण 2020 चे अंतिम उद्दिष्ट आहे. राष्ट्रीय शिक्षण धोरण 2020 ह्या 21 व्या शतकातील पहिल्या शिक्षण धोरणास भारत सरकारने 29 जुलै 2020 रोजी मान्यता दिली.

भारत हा देश विविध संस्कृती, भाषा, परंपरा आणि नैसर्गिक संपत्तीत संपन्न असा देश आहे. तरी अशा या भारत देशाची स्थानिक आणि वैश्विक गरज ओळखून भारत सरकारने सर्वसमावेशक बहुशाखीय आणि बहुभाषिक शिक्षणाची गरज ओळखून राष्ट्रीय शिक्षण धोरण 2020 चा स्विकार केला.

उद्दीष्टे :- ह्या लेखाचे प्रमुख उद्दीष्टे राष्ट्रीय शिक्षण धोरण 2020 ची गरज, राष्ट्रीय शिक्षण धोरणाची तत्वे आणि धोरणाचा मुलभूत सिध्दांत या विषयी माहिती करून घेणे हा आहे.

1. राष्ट्रीय शिक्षण धोरण 2020 ची गरज :- दर्जेदार शिक्षण हे राष्ट्राच्या सर्वांगीण विकासाचा मजबुत पाया आहे. भारत देश पुढील काळात युवकांच्या लोकसंख्येनुसार सर्वात जास्त कार्यशक्ती असणारा देश असणार आहे. या संधीचा उपयोग करून भारताला जगावर आपला ठसा उमटवायचा असेल तर चांगल्या गुणवत्तेच्या शिक्षण प्रणाली शिवाय पर्याय नाही.

भारताने सन 2015 मध्ये स्विकारलेल्या सर्वासाठी, समावेशक आणि समान गुणवत्तेचे शिक्षण सुनिश्चित करणे आणि निरंतर अध्ययनाच्या शिक्षणाच्या संधीना प्रोत्साहन देणे या उत्तुंग उद्दीष्टांकरीता आणि त्याच्या कार्यपूर्तीसाठी संपूर्ण शिक्षण प्रणालीची नव्यानेच रचना करणे आवश्यक आहे.

आज जगामध्ये सर्वात जास्त वेगाने ज्या गोष्टींमध्ये बदल होत असेल ते म्हणजे ज्ञान, विज्ञानाच्या आणि तंत्रज्ञानाच्या क्षेत्रामध्ये होत असलेल्या वेगवान विकासांमुळे जगभरातील अकुशल कामे आता यंत्रे करू लागली आहेत. परंतु त्याचबरोबर विज्ञान, समाजशास्त्र आणि मानवशास्त्रे

यांच्यातील बहुशाखीय क्षमता असलेल्या कुशल कर्मचा-यांची मागणीही वाढत आहे. आज संपूर्ण जगावर वेगवेगळ्या नैसर्गिक आपत्तीही कोसळत आहे. यातून मार्ग काढण्यासाठी बहुशाखीय शिक्षण हा एकमेव पर्याय आहे. प्राचीन भारतातील तक्षशिला, नालंदा, विक्रमशिला, वल्लभी यांसारख्या वैश्विक महाविद्यालयांनी बहुशाखीय शिक्षण आणि संशोधनाची उच्च मानके तयार केली होती. म्हणूनच आपल्या नवीन शिक्षण व्यवस्थेत त्यांचा नव्याने उपयोग करणे महत्वाचे आहे. तसेच

नविन शिक्षण धोरणाने सर्वच स्तरातील सामाजिक, आर्थिक वंचित, धार्मिक, अल्प प्रतिनिधीक विद्यार्थ्यांना चांगल्या गुणवत्तेची शिक्षणप्रणाली पुरविली पाहिजे. भारतातील युवकांनी त्यांना लाभलेल्या समृद्ध विविधतेच्या आणि संस्कृतीच्या जतनासाठी तसेच पुढील काळात वैश्विक गरजांसाठी निरंतर ज्ञान घेणे आवश्यक आहे.

2. राष्ट्रीय शैक्षणिक धोरणाची तत्वे :- या शिक्षण व्यवस्थेचा हेतु सुसंगत विचार आणि त्याच्या अंमलबजावणीसाठी आवश्यक असलेल्या करुणा, मैत्री, धैर्य, चिकाटी, शास्त्रीय दृष्टीकोन, सृजनशीलता, नाविन्यपूर्ण कल्पनाशक्ती आणि नैतिक मुल्ये यांसारखे मुलभूत गुण असलेले नागरिक घडविणे असा आहे. याचा उद्देश भारताच्या राज्यघटनेला अपेक्षित असलेली न्याय, क्षमता आणि बंधुता या तत्वांवर आधारित समाजाच्या निर्मितीसाठी आवश्यक असलेले कर्तव्यदक्ष नागरिक तयार करणे असा आहे.

3. राष्ट्रीय शिक्षण धोरण 2020 सिध्दांत :- या शैक्षणिक धोरणांनुसार शिक्षण व्यवस्था आणि शिक्षण संस्था यांना मार्गदर्शन करणारे मुलभूत सिध्दांत खालीलप्रमाणे आहेत.

1. प्रत्येक विद्यार्थ्याच्या वैशिष्ट्यपूर्ण क्षमता ओळखून त्यांचा सर्वांगीण विकासासाठी प्रयत्न करणे.
2. इयत्ता 3 री पर्यंतच्या विद्यार्थ्यांच्या मुलभूत साक्षरता आणि संख्या ज्ञान या गोष्टींना सर्वोच्च प्राधान्य देणे.

Implementation of National Education Policy -2020: Multidisciplinary Education

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

3. शिक्षण व्यवस्थेमध्ये लवचिकता असावी जेणेकरून विद्यार्थ्यांस आपली प्रतिभा, रुची यानुसार शिक्षणाचा मार्ग निवडेल.
4. बहुशाखीय शिक्षणप्रणाली तयार करणे की ज्यामध्ये कोणतेही स्पष्ट विभाजन नसेल.
5. संकल्पनाधिष्ठीत शिक्षणावर भर देणे .
6. विद्यार्थ्यांच्या तर्कशुद्ध आणि कल्पक विचारांना चालना देणे.
7. समता न्याय आणि बंधुता ही घटनात्मक मुल्ये विद्यार्थ्यांमध्ये रुजविणे .
8. लेखापरिक्षा मल्यांकनाऐवजी सातत्यपूर्ण मल्यांकन शिक्षणपद्धतीवर भर देणे.
9. अध्ययन अध्यापनात तंत्रज्ञानाचा सुयोग्य वापर करणे.
10. शैक्षणिक धोरण आणि अभ्यासक्रम यात विविधतेबद्दल व स्थानिक संदर्भाबद्दल आदर असणे आवश्यक आहे.

संशोधनाचे निष्कर्ष :- भारत सरकारने शाश्वत विकास कृती कार्यक्रम 2030 ची महत्वाचे लक्ष्य आणि उद्दीष्ट साध्य करण्याच्या उदात्त हेतूने राष्ट्रीय शिक्षण धोरण 2020 चा स्विकार केला आहे. ह्या धोरणाचा हेतू दर्जेदार बहुशाखीय, बहुभाषिक शिक्षण सर्व स्तरातील विद्यार्थ्यांना उपलब्ध करून त्यांचा सर्वांगीण विकास साधणे आणि उद्याच्या नैतिक मुल्ये असलेला नागरिक घडविणे हा आहे.

तरी अशा या आदर्शवत राष्ट्रीय शिक्षण धोरण 2020 ची यशस्वी अंमलबजावणी होऊन भारत हा भविष्यात जागतिक महासत्ता बनेल अशी अपेक्षा करण्यात.

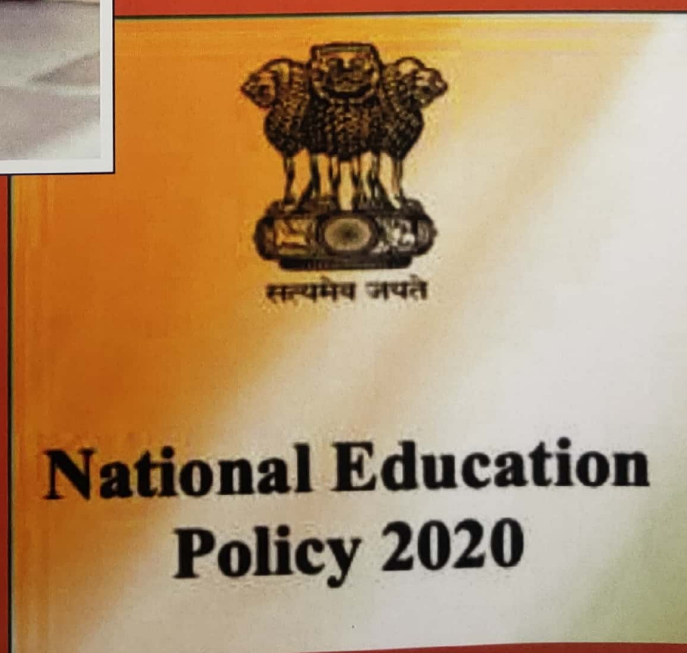
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Implementation of National Education Policy -2020: Multidisciplinary Education

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Implementation of National Education Policy - 2020: Multidisciplinary Education

ISBN: 978-93-94819-23-1

Pub. Date: 12/02/2023

Volume: I

Sr.No.	Title	Page
1	A Review on Algae as Biofertilizer A. A. Aher, A. S. Wadale	1-3
2	A Review of Agricultural Education in National Education Policy 2020 Rajesh M. Thoke, Shinde V. G., Vikhe A. A.	4-6
3	Review on Role of Physical Mutagen in Mutation Breeding M. D. Kakade, R. D. Borse	7-10
4	A Review of Composition and Metabolism of Bioactive Components in Citrus Fruits and Vegetables Vikhe A. S., Kharde H. S., Vikhe P. S., Rohmare S. S.	11-15
5	Academia and Industry - Society: A Paradigm Shift in the NEP -2020 Vidya M. Jirage	16-19
6	Humanistic Pessimism in the major novels of Thomas Hardy Adik Manisha, Amol Sawant	20-22
7	In-Vitro Micropropagation Of Rose (<i>Rosa Hybrid</i> L.) Using Different Growth Hormones. Sabale S. C., Shinde N. G.	23-26
8	National Education Policy 2020: Merits and Demerits in Higher Education Pratibha V. Kanawade, Hari L. Divekar	27-28
9	Synthesis of Nickel Oxide Nanoparticle using different synthetic method and their Applications: A review Kamal K. Chitalkar, Rupali D. Murade, Snehal V. Darandale, Sonali R. Magar, Haribhanu R. Aher	29-33
10	Review on Multi-component Synthesis of Biologically Important 2H-indazole[2,1-b]phthalazine-triones derivatives (2017-2021) Dilip Aute, Hrishikesh Nirmal, Vitisha Vikhe, Vaishali Murade, Anil Gadhave	34-38
11	A Review on Biomedical Approaches of Green Synthesized Cerium Oxide Nanostructure Sumaiyya M. Patel, Vaishali D. Murade, Shobha A. Musmade, Dinesh P. Hase, Surekha K. Kadu, Gajanan R. Pandhare	39-43
12	A Review On Bioactivity Of Schiff Base Cobalt And Nickel Metal Complexs Sonali A. Muntade, Shweta B. Dighe, Priyanka A. Tambe, Priyanka A. Gagare, Sonali S. Pardhe, Gajanan R. Pandhare, Haribhanu R. Aher	44-47
13	Qualities And Techniques In Sports Coaching For Better Performance Harde.S.M., Kadu .P .A	48-50
14	Implementation Of National Education Policy-2020 Madhuri Sontakki	51-52
15	Review on Different Extraction Techniques Used for Bioanalysis R. J. Gaikwad, A. A. Jondhale, V.A.Kadnor	53-55
16	Health risk of local fruit: Pomegranates Amruta K. Mhaske, Bhagwat K. Uphade	56-61
17	Outcome-Based Education (OBE) using Student Centered Learning (SCL) for Commerce faculties Rahul M. Bhandari	62-65
18	A review on Oxazines: Synthesis and Biological Potentials Amol K. Kharde, Vinod R. Kadu, Somnath S. Gholap	66-72
19	The Airborne Spread of <i>Staphylococcus aureus</i> in various Environmental Conditions - A systematic overview Aarif Khan, Pramod N. Kamble, Nazeer Mohammed	73-83
20	Academic Bank of Credits in Higher Education Institutions Deshmukh Kanchan Samish.	84-86
21	National Education Policy 2020: Reformation in Educational System of India Kanawade Pratibha Vijay	87-88

**Implementation of National Education Policy -
2020: Multidisciplinary Education**

ISBN: 978-93-94819-23-8

Pub. Date: 12/02/2023

Volume: I

22	NEP: Changes of Education System Shelke Digambar Sakharan	89-91
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25	Implementation of National Education Policy (NEP) 2020 in Agricultural Education: - A Theoretical Analysis. D. N. Karle, S. R. Varpe	98-101
26	Stylistic Analysis of <i>Father Returning Home</i> by Dilip Chitre Aher T. V, Patel Mateen Ayyab	102-105
27	Azoles: Biological Activities and Synthetic Pathways Vinod R. Kadu, Amol K. Kharde	106-117
28	National Education Policy-2020: Issues and Challenges S.K. Pulate, S.B.Gholap	118-122
29	भारतातील राष्ट्रीय शैक्षणिक धोरणांचे तुलनात्मक अध्ययन विखे अर्चना अनिल., वैभव किशोर दिघे.	123- 126
30	साहित्य समाज आणि शिक्षण . वडितके शंकर गोरक्ष	127-128
31	नवीन शैक्षणिक धोरण 2020 मध्ये ग्रंथालयाचे महत्त्व आशिष ए.ठाणेकर	129-132
32	राष्ट्रीय शिक्षा नीति २०२० विमर्श: मानविकी और भाषाएँ जयवीर सिंह	133-136
33	नई शिक्षा नीति भारतीय भाषा की उपयोगिता प्रवीण तुलशीराम तुपे	137-139
34	ब्रिटिश काळातील शैक्षणिक धोरणाची ऐतिहासिक पार्श्वभूमी लवडे अर्चना बाबासाहेब	140-141
35	राष्ट्रीय शैक्षणिक धोरण - 2020 : गरज, तत्वे आणि मुलभूत सिद्धांत विखे ए.ए., पगारे सोनाली दिनकर	142-143
36	Planning And Performance Budgeting – Conceptual Frame Work Dr. Prashant Khoptikar	144-145
37	A Study of Performance and Analysis of Higher Education in India and it Opportunities and Challenges before National Education Policy 2020 Dattatraya Shivaji Thorat	146-152

Implementation of National Education Policy -2020: Multidisciplinary Education

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साहित्य समाज आणि शिक्षण

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प्रास्ताविक :

केशवसुतांच्या मताप्रमाणे 'थांबला तो संपला', 'गतीशिवाय प्रगती नाही', हे लक्षात घेऊन एकविसाव्या शतकात ज्ञानाचा, लोकसंख्येचा व आकांशेचा स्फोट सर्वत्र क्षेत्राप्रमाणे साहित्य समाज व शिक्षणावर झालेला दिसून येतो. आजच्या समाजामध्ये युवक- युवतीपुढे नवनवीन आव्हाने निर्माण झालेली आहेत. अशा या महत्त्वपूर्ण घटकाकडे दुर्लक्ष करून चालणाना नाहीत, हे एकविसावे शतक अत्यंत महत्वाचे असून ते स्पर्धेचे देखील आहेत. अशा या संवेदनशील शतकात भारतासारख्या राष्ट्राच्या साहित्य समाज आणि शिक्षणावरती विचार मंथन करणे गरजेचे आहेत. जीवनाच्या नवनवीन क्षेत्रात पुरुषार्थ गाजविण्याची दुर्दैव मनीषा जेव्हा समाज मनात निर्माण होते, तेव्हा नवनवीन प्रश्न निर्माण होत असतात. व यांची उत्तरे सोडवतुकीसाठी विशिष्ट ज्ञानवंत, विचारवंत आघाडीवर राहावे लागते. साहित्य आणि समाज यांचा संबंध अतुट आहेत. केवळ मनोरंजनपरता हे साहित्याचे प्रयोजन नाही. तर साहित्य कलेला व्यापक परिमाण देऊ शकत नाही. मानवी जीवन समाज, साहित्य कला आणि निसर्ग यांचा परिवर्तनाशी घनिष्ठ संबंध आहेत.

साहित्यासंबंधी विचार करणाऱ्या कोणालाही साहित्याची फलश्रुती मानणे अपरिहार्य आहे. अनेक अडचणी, समस्यांवर मार्ग शोधण्याचे व एक नावित्य प्रस्थापित करण्यात शिक्षणाचा मोठा वाटा आहे. या माध्यमातून ज्ञानप्राप्ती होऊन त्याच्या उपयोजनातून मानवी प्रगती होत असते. कोणत्याही क्षेत्रातील रहस्य आणि वस्तुस्थिती अभ्यासून योग्य बदलांची मांडणी ही शिक्षणाच्याच जोरावर होत असते. काळ कोणासाठी कधीच थांबत नाही. प्रत्येक पिढीच्या गरजांनुसार समाजातील घटक हे नवप्रवाहाने मार्गक्रमण करत असतात. शिक्षण झाल्यास प्रत्येक क्षेत्राचा विकास होईल, असे समाजाला वाटत असते, साहित्य समाज व शिक्षणविचार यांसारख्या संबंधीत विषयावर चर्चा होणे अत्यंत महत्वाचे आहेत.

साहित्य आणि समाज :

साहित्य हा समाजाच्या जडण-घडणीतील व विचारप्रक्रीयेतील महत्वाचा घटक आहे. आज देशामध्ये स्वातंत्र्य मिळाल्यापासून साहित्याच्या आरंभामध्ये समाजाचा चेहरा अंधुकपणे का होईना, पण दिसत राहीलेला आहे. साहित्याची व्याख्या करणे ही तशी एक गुंतागुंतीची समस्या आहेत. म्हणून येथे साहित्य म्हणजे भाषा साधनाद्वारे केली जाणारी कला निर्मिती होय. तसेच मानवी जीवनव्यवहार विषयक चित्रण, विवरण, अर्थनिर्णयन भाष्य अशा स्वरूपाच्या भाषिक अभिव्यक्तीस स्थूल मानाने 'साहित्य' असे देखील म्हणता येते. साहित्य निर्मिती करण्याची क्षमता असणारी व्यक्ति म्हणजे लेखक होय. हा लेखक त्याच्या सभोवतालच्या गोष्टींचे चित्रण करत असतो. पारंपारिक स्वीकार करत असतो. समाजाचा साहित्यावर काळानुरूप बदल होत असतो. समाजापुढील प्रश्न हे नेहमी बदलत असतात. तर साहित्यिक त्यांचे योग्य उत्तरे सांगण्याचा प्रयत्न करीत असतात. साहित्य समाजाचे परिवर्तन घडवून आणत असते व दिशा दाखविण्याचे काम करत असते. साहित्य वाचनाचे परिणाम समाजाला विविध अंगाने होत असतात. एखादी साहित्यकृती वाचनाने समाजाला नवीन माहिती मिळत असते. साहित्याच्या

वाचनातून समाजाला पडलेल्या विविध प्रश्नांची उत्तरे देखील मिळू शकतात. साहित्यकृती ही कलावंत निर्मित कलावस्तु आहेत.

साहित्याचा अभ्यास करत असताना एकेक साहित्यकृती ही कलात्मकतेचा जणू आविष्कारच वाटत असतात. परंतु अशा कलात्मक साहित्यकृती समाजावर आपल्या पुस्तकरूपाने परिणाम करत असतात. जसे संत ज्ञानेश्वर महाराज, संत तुकाराम महाराज, संत नामदेव महाराज अशा विविध संतांच्या काव्य निर्मितीने समाज मनावर परिणाम केलेले आहेत. तसेच या संतांच्या काव्य निर्मितीनेही मराठी कवितेची भक्कम परंपरा निर्माण केलेली आहेत. आधुनिक काळातील केशवसुत, हरिभाऊ, मर्दकर यांनी देखील तेच काम केलेले आहेत.

आजच्या स्पर्धेच्या, वाजरीकरणाच्या व अनिश्चिततेच्या वातावरणात स्वतःच्या मूल्यव्यवस्थेबाबत सजगपणे विचार करणे, समष्टीशी स्वताला जोडून घेणे व त्याआधारे विवेकी व कृतीशील समाज निर्मिती करणे या व्यापक सामाजिक उद्दिष्टाच्या पूर्ततेत साहित्य अत्यंत महत्वाची भूमिका

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वजावत असते.सामाजिक अंगाने केलेला साहित्य विचार हा अत्यंत महत्वाचा ठरताना दिसतो.

शिक्षण आणि समाज :

शिक्षण हे समाज परिवर्तनाचे प्रभावी साधन आहे.शिक्षणातून ज्ञान साधना करता येते.समाज आणि शिक्षण हे एकमेकांवर अवलंबून असतात.त्यांचा संबंध ह्दयात्मक असून,ते एकमेकांवर परिणाम करतात.एकमेकांना बडवितात.व्यक्तीच्या भावी जीवनाची तयारी करून घेऊन सामाजिक परिवर्तनाचे एक साधन म्हणजे शिक्षण आहेत.व्यक्तिगत जन्मजात गुण गुणांना जागृत करून,चायना देणे,व त्या गुणांच्या आविष्काराला प्रोत्साहन देणे,समाजातील लोकांचा त्यांच्यातील गुण गुणांचा विकास होण्यासाठी परिस्थिती निर्माण करणे,हे शिक्षणामुळेच शक्य आहेत.

सत्यम शिवम सुंदरम ही जीवनाची अंतिम मूल्ये भयजण्याची व अनुभवण्याची क्षमता मनुष्यात निर्माण करणारे ते खरे शिक्षण असते.समाजामध्ये कार्यक्षम आणि जबाबदार नागरिक तयार करणे.तसेच देशाच्या सामाजिक व सांस्कृतिक विभागांना हातभार लावणे.एवढे व्यापक ध्येय हे फक्त शिक्षणामुळेच शक्य आहेत.आजचा समाज हा शिक्षण हे फक्त उपजीविकेचे साधन म्हणून तिला घट धरून वसलेला दिसतो आहेत.या उद्दिष्टामुळे शिक्षणाने मानुस उथळ व प्रवाहपतित वगून देशाच्या अधोगतीला करणीभूत ठरताना दिसत आहेत.

आजचे युग हे स्पर्धेचे युग आहेत. विविध आव्हानांना सामोरे जावे लागत आहेत.तसेच या एकविसाव्या सवेदनातील क्षतकात भारतासारख्या राष्ट्रांना आपल्या शैक्षणिक धोरणाचा क्षणभर थांबून विचार मंथन करणे गरजेचे झालेले आहेत.आजचे शिक्षण हे गुणवत्तापूर्ण शिक्षण असणे महत्वाचे आहेत.समाजामध्ये होत जाणारा शिक्षणातील बदल व या बदलांचा त्या क्षेत्रावर होणारा परिणाम कसा होईल,हे सर्व जाणून समाजशिक्षण यांचा परस्परशी घनिष्ठ संबंध प्रस्थापित होणे गरजेचे आहेत.समाजाचा नाविण्याच्या वाटेवर जाण्यासाठी शिक्षण महत्त्वपूर्ण ठरलेले आहेत.

स्वरूप :

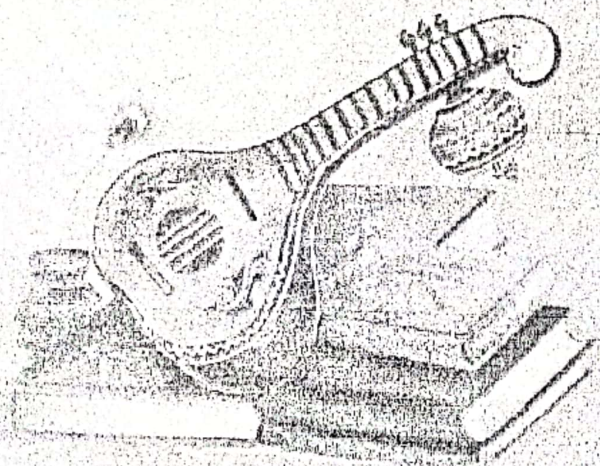
समाज जीवनातील वेगवेगळ्या साहित्याविषयीचे समस्या, तसेच काळानुसार त्यांच्यात झालेले बदल त्यांच्यामधील गुंतागुंत कशी आहेत, तसेच साहित्याचा समाज मनावर कसा परिणाम झालेला आहेत. शिक्षण आणि समाज यांच्यामधील संबंध कसे आहेत. शिक्षणाच्या विचारांनी समाजाशी कशी नाळ जोडलेली आहेत. अशा या घटकांचे कथाप्रकारे विचार मंथन करता येईल, असे या लेखनाचे स्वरूप आहेत.

सारांश ;

भाषेतून साहित्याची निर्मिती होत असते. प्रत्येक पिढीच्या गरजानुसार साहित्य हे समाजासाठी उपयुक्त ठरलेले आहेत. समाजात साहित्य,संस्कृती,आणि शिक्षण यांचा परस्परशी संबंध प्राधान्यांनी येत असतो. तसेच शिक्षणाच्या क्षेत्रात विकासाच्या वाटेवर प्रवास करताना समाज हा महत्त्वपूर्ण ठरलेला आहेत. शिक्षण क्रमाचे जे योग्य स्वरूप ठरेल,की ज्यातून समाजातील बहुसंख्येचा बौद्धिक विकास होईल अशा प्रकारचे शैक्षणिक धोरणात बदल करणे ही काळाची गरज बनलेली आहेत.

१. डॉ.च.वि.जोशी : साहित्यविचार, ऋतू प्रकाशन, सन २०१०, पृष्ठ क्र.०१
२. डॉ.गणेश देशमुख : ग्रामीण समाजजीवन आणि साहित्य,स्वरूप प्रकाशन औरंगाबाद, २००८ पृष्ठ क्र.०२
३. दिगंबर पाध्ये : साहित्य समाजजीवन आणि संस्कृती,लोकवाङ्मय गृह प्रकाशन,मुंबई २००५, पृष्ठ क्र.२,४,७.
४. रावसाहेब शिंदे : शिक्षण आणि समाज,अमेय प्रकाशन,पुणे २००१, पृष्ठ क्र.१९
५. गुरुवर्य.डॉ.र.वा.मंचरकर सदभाव ग्रंथ : साहित्याचा अभ्यास,प्रतिमा प्रकाशन पुणे २००३, पृष्ठ क्र.७२

आंतरविद्याशास्त्रीय विचार प्रवाह



संपादन
प्राचार्य डॉ. गुंफा कोकाटे

अनुक्रम

मराठी

- १) इंटरनेट या विद्याशाखेचा मराठी साहित्यविषयक व भाषिक संशोधनातील उपयोग / प्राचार्य डॉ. गुंफा कोकाटे / १३
- २) भारतातील सार्वजनिक आरोग्य व्यवस्था व प्रवृत्ती / डॉ. एस. बी. शिंदे / १९
- ३) इतिहासातील आंतरविद्याशाखीय प्रवाह / डॉ. रेखा राणूजीराव सौंदर्यमल / २९
- ४) ग्रंथालय : आधुनिकीकरण व नवीन बदलते ज्ञान संसाधने / प्रा. सतीश प्रभाकर पावसे / ३७
- ५) भारतातील वाणिज्य शिक्षणातील संधी आणि आव्हाने / प्रा. प्रकाश डी. देशपांडे / ४६
- ६) साहित्य आणि संगीताचे अंतर्संबंध! / प्रा. डॉ. अस्मिता नानोटी / ५९
- ७) वृद्धांच्या समस्यांचा समाजशास्त्रीय अभ्यास / प्रा. विलास म. गायकवाड / ६७
- ८) मराठी साहित्यातील आंतरविद्याशाखीय संशोधनाची गरज / डॉ. चंद्रशेखर आत्माराम भगत / ७४
- ९) मराठी साहित्यातील आंतरविद्याशाखीय साहित्यप्रवाह / प्रा. दिप्ती लक्ष्मण निकाळजे / ८१
- १०) मराठी वाङ्मयातील सर्वधाराचे साहित्य प्रवाहांना योगदान / प्रा. सिताराम मुरकुटे / ८७
- ११) धार्मिक पर्यटनातून अहमदनगर जिल्ह्याच्या पर्यटन विकासास संधी - एक भौगोलिक अभ्यास / सह.प्रा. अशोक थोरत / ९३
- १२) जागतिकीकरण आणि शिक्षण / प्रा. वडितके शंकर गोरक्ष / १०५
- १३) २१ व्या शतकातील भारतीय शिक्षणप्रणालीतील नवे प्रवाह आणि आव्हाने / डॉ. अशोक नाना माने / १०९
- १४) मानसशास्त्रातील आंतरविद्याशाखीय विचार प्रवाह / लक्ष्मण वसंत भागवत / १२४
- १५) मराठी साहित्यातील आंतरविद्याशाखीय साहित्य प्रवाह - दलित साहित्य प्रवाह / विनिता रावसाहेब भुजंग / १३०
- १६) अर्वाचीन मराठी काव्यातील मार्क्सवादी काव्यात्मक मिमांसा / प्रा. पुरुषोत्तम प्र. सुर्य / १३५
- १७) 'कलावंतांच्या आकांता'ची व्यथा : 'नटरंग' / प्रो. डॉ. गणेश देशमुख / १४६
- १८) राजकीय नेतृत्वाची शाश्वत विकासामध्ये भूमिका / डॉ. बाबासाहेब ना. पवार, प्रा. विकास सु. नालकर / १६८
- १९) योगविद्या आणि शरीरशास्त्र यांचा आंतरविद्याशाखीय संबंध / गीताराम गायकवाड / १७७
- २०) जागतिकरण आणि शिक्षणाचे प्रवाह / संगिता सिताराम मसराम / १८३
- २१) आण्णाभाऊ साठे यांच्या शाहिरीतील ऐतिहासिकता: एक परीक्षण / प्रो. (डॉ.) शेंडगे बाबासाहेब रावसाहेब / १९२
- २२) मार्क्सवादी विचारप्रवाह एक : अभ्यास / श्री सदाशिव शामराव हाटवळ / १९७
- २३) किशोरवयीन मुलांमध्ये शारीरिक तंदुरुस्ती आणि स्वतःची धारणा / प्रा. चव्हाण सविता घनश्याम / २०५

जागतिकीकरण आणि शिक्षण

प्रा. वडितके शंकर गोरक्ष

प्रस्तावना :

भारतीय परंपरेत ज्ञान सदैव पूजनीय मानले गेलेले आहेत, भारतीय परंपरेत ज्ञान हे आत्मबोधाशी किंवा ब्रह्मज्ञानाशी बांधलेले होते. 'अध्यात्मविद्या विद्यानाम' ज्या धर्मग्रंथाचा निर्वाळा आहेत. मानवाला सर्वांगीण प्रगती साधावायची असेल तर ज्ञानच महत्त्वाचे प्रयोजन आहेत. ज्ञान हे समाजाला वाटण्याचे सामाजिक धन आहेत व ते सर्वांना मिळाले पाहिजे. त्यातून सार्वत्रिक शिक्षणाची कल्पना पुढे आली व मोठमोठे विद्यापीठे आणि विद्यालयांची निर्मिती झाली. पुढे अविरतपणे त्यांची साखळी गुंफत गेली. देशामध्ये प्राचीन काळापासून शिक्षणाला अत्यंत महत्त्वाचे स्थान दिलेले आहेत. शिक्षण हे शासनाचे एक महत्त्वाचे कर्तव्य मानण्यात आलेले आहेत. शिक्षणव्यवस्था ही समाज व्यवस्थेची उपव्यवस्था आहेत. शिक्षणाने नाणसाला स्वत्वाची जाणीव येते. जीवन संस्कारित आणि विकसीत करण्याचे शिक्षण हेच प्रभावी माध्यम आहेत. प्रत्येक व्यक्तीच्या जीवनात शिक्षणाला अनन्य साधारण महत्त्व आहे. कारण प्रत्येक व्यक्ती हा जन्मतः हुशार नसतो, तर तो सुखातीला हाडांमांसाचा गोळाच असतो, परंतु काही विविध माध्यमांमुळे त्याच्यावर संस्कार केले जातात. त्यातूनच समाजमान्य अशा नागरिकाची निर्मिती होत असते.

देशाला स्वातंत्र्य मिळाल्यानंतर खऱ्या अर्थाने शिक्षणाचा प्रसार आणि प्रचाराला वेग मिळाला. शिक्षणाचे जाळे घराघरात पोहचवून ग्रामीण भागाची उन्नती झाली, अलीकडच्या काळात औद्योगिक क्रांतीमुळे व्यापार, उद्योग, व्यवसाय बाबरीबरच जाती- जमाती, धर्म- संस्कृती यांच्या रचनेतच आमुलाग्र बदल

घडत गेले, यातून नवनवीन शोध औद्योगिकीकरण, आर्थिकीकरण, खाजगीकरण होऊ लागले, तसेच शिक्षण सर्वच पातळ्यांवर विविध स्तरांवर विविध क्षेत्रातून बदलत चाललेले दिसून येते. काळाप्रमाणे जसा समाजात सामाजिक सांस्कृतिक बदल होत असतो. तसा शिक्षणातही बदल घडून येत असतो. तो शिक्षण घेण्याच्या पद्धतीत तसेच देण्याच्या पद्धतीतही होत असतो. अलीकडे दूरसंचार क्षेत्रात खुप मोठी क्रांती घडून आलेली आहे. संगणक, स्मार्टफोन, रेडिओ, टिव्ही या सारख्या माध्यमांमध्ये मोठ्या प्रमाणात बदल घडलेले आहेत. या सारख्या सर्वच प्रसार माध्यमांचा शिक्षणात मोठ्या प्रमाणात वापर होत आहेत. शिक्षणाच्या खाजगीकरणामुळे शिक्षण या सेवा क्षेत्राचा वापर बाजार तंत्राप्रमाणे होण्याची शक्यता निर्माण झालेली आहेत. तसेच या माध्यमांद्वारे आर्थिक, सामाजिक, राजकीय व सांस्कृतिक व्यवस्थेवर परिणाम होत असल्याचे दिसत आहेत.

जागतिकीकरणाचा शिक्षणावरील प्रभाव :

जागतिकीकरण ही एक विश्व व्यापक संकल्पना आहेत. जागतिकीकरणाची सुरुवात प्रामुख्याने आर्थिक क्षेत्रात झाली. आर्थिक बदलातून अनेक सामाजिक, सांस्कृतिक, व राजकीय बदल घडून नवी व्यवस्था अस्तित्वात आली. या व्यवस्थेच्या प्रभावापासून कोणताही देश अलिप्त राहिला नाही. देशांमध्ये होणाऱ्या व्यापाराच्या मुक्त प्रवाहातील तांत्रिक ज्ञानावरील व गुंतवणुकीवरील संरक्षणात्मक अडथळे दूर करणे म्हणजे जागतिकीकरण. 'जगाच्या विविध भौगोलिक क्षेत्रात राहणाऱ्या लोकांमध्ये वाढते सामाजिक, आर्थिक, औद्योगिक, व्यापारी, सांस्कृतिक संबंध दर्शविणारी व्यापक प्रक्रिया म्हणजे जागतिकीकरण.' अशा विविध जागतिकीकरणाच्या आपणास व्याख्या देता येईल.

आपल्या देशाच्या घटनेने शिक्षण देण्याची जबाबदारी सरकारकडे सोपविली आहेत. चौदा वर्षांखालील मुला-मुलींना सक्तीचे व मोफत शिक्षण देणे. ही सरकारची जबाबदारी राहिल असे सरकारचे उद्दिष्ट आहे. सक्षम समाज उभारणे, ज्ञान, आर्थिक विकास ही या धोरणा मागची उद्दिष्टे होती. जागतिकीकरणाच्या प्रक्रियेमुळे शाळा या गोष्टीची व्याख्या बदलून सरकार पर्यायी 'अनौपचारिक शिक्षण केंद्र' अशी करू पाहत आहेत. विद्यार्थ्यांना विचार करायला प्रवृत्त करणे,

। १०६ । आंतरविद्याशाखीय विचार प्रवाह ।

व्यापक प्रवेदन क्षमता आणि माणूसपणाचा विचार रुजविण्याचा प्रयत्न आजच्या शिक्षण व्यवस्थेत होताना दिसत आहेत. तसेच त्यांच्यात कौशल्यवृद्धी व्हावी. संवादीशी जाणीवपूर्वक प्रयत्न होत नाहीत. प्रत्यक्ष हाताने काम करण्याच्या जाणीवशिवाय ज्ञानाची समज पक्की होणार नाही. परंतु हा विषय आज व्यापकपणे नाही. विद्यार्थ्यांना संपूर्ण आकलना ऐवजी स्मरणशक्तीला महत्वाचे स्थान दिले आहे. यामध्ये त्यांच्या आकलनाची इतर अंगे समग्रविचार, तर्कसंगती, विवेकपण, परस्परसंबंध जोडणे यांना पुर्णपणे फाटा दिला आहे. प्रचलित परीक्षा पद्धतीने तर शिक्षणाच्या बाजरीकरणाच्या प्रक्रियेला आणखीनच बळकटी आणली आहे. मूल्यमापन पद्धती आधीच ठरलेली असल्यामुळे मुलांना काय शिकवले जाणार, काय प्रश्न विचारले जातील, याचा साचा अगदी बालवाडीपासूनच पक्का होऊ लागला आहे. बोर्डाच्या परीक्षांना असलेल्या महत्त्वामुळे कुठलेही शाळा शिक्षणात नवनवीन प्रयोग करण्याचे धाडस करू शकत नाही.

अलीकडच्या काळात नवीन आर्थिक धोरणाने संपूर्ण जगालाच वेढा घातलेला आहे, कारण जागतिकीकरणाच्या प्रक्रियेत अवघे जग ढवळून निघालेले आहेत. आज शैक्षणिक दृष्टिकोनातून पहिले तर या जागतिकीकरणाच्या वाऱ्यामध्ये आपल्या विद्यार्थ्यांना टिकून राहावयाचे असेल तर व्यावसायिक कौशल्यांचा शिक्षण क्रमात अंतर्भाव करणे, औद्योगिक शिक्षणावर भर देणे, विज्ञान आणि तंत्रज्ञानचा मोठ्या प्रमाणात वापर करणे अशा विविध घटकांना अंगीकारून भारतातील शिक्षणाचा स्तर उंचवायला निश्चितच वरील उपाययोजना ह्या सहाय्यक ठरू शकतात.

समारोप :

सध्याचे युग हे आधुनिक तंत्रज्ञानाचे युग आहे. अर्थव्यवस्था चालविणारी सर्व बौद्धिक संपदा शिक्षण क्षेत्रातून निर्माण होत असल्याने त्याचा मोबदला घेण्याचा अधिकार शिक्षण क्षेत्राला निश्चितच आहेत. जागतिकीकरणाने आज सर्वच देशांमध्ये प्रवेश केला आहे. शिक्षणामध्ये तो मोठ्या प्रमाणात आहे. जागतिकीकरणामुळे शिक्षणाचा प्रसार होत आहेत. त्यातून गुणवत्तापूर्ण शिक्षण प्रक्रिया अखंडपणे होत राहणार आहेत. भारतासारख्या विकसनशील देशांमध्ये स्पर्धेत टिकून राहण्यासाठी शिक्षण संस्था, विद्यार्थी, शिक्षक या तिन्ही घटकांसुद्धे

। आंतरविद्याशाखीय विचार प्रवाह । १०७ ।



19

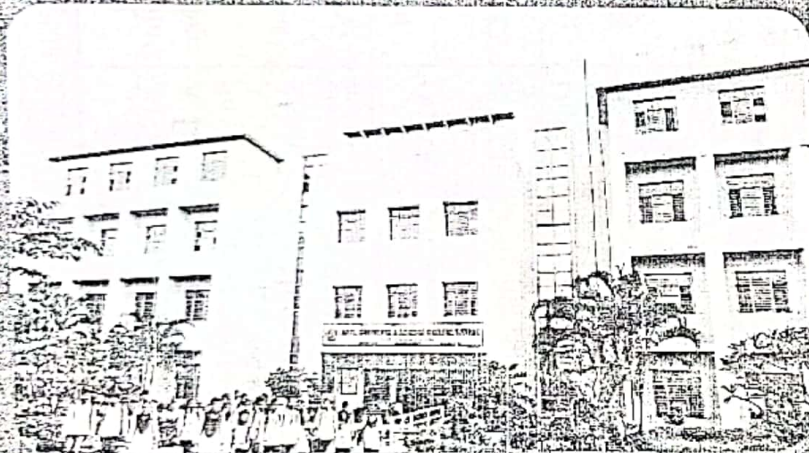
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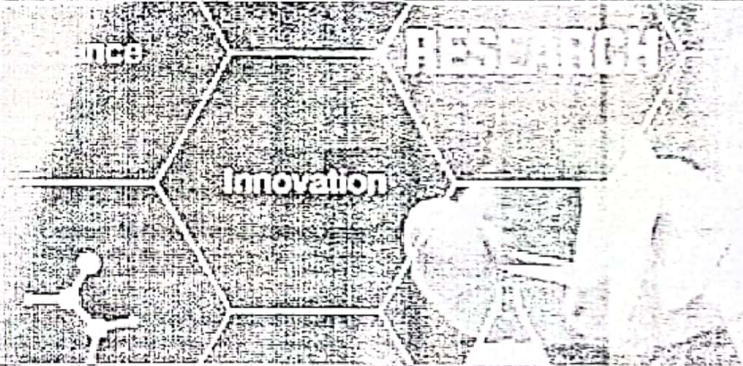
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TABLE OF CONTENTS

S.N.	Title	Name of Authors	Page
1	National Education Policy 2020: A Better Education through Industry Institute Linkage	A. S. Waghmare, K. R. Kadam, A. N. Ambhore	1-3
2	A Review on Synthesis and Applications of Metal Oxide -Zinc Oxide	Sonali A. Muntode, Priyanka A. Tambe, Priyanka A. Gagare, Sonali S. Pardhe, Gajanan R. Pandhare, Haribhau R. Aher	4-8
3	राष्ट्रीय शिक्षा नीति 2020: उद्योग-शैक्षिक संस्थान अनुबंध	Dr. Anant Kedare	9-13
4	New Education Policy and English Literature: An Analysis	Mr. Somnath Borude	14-15
5	Necessity and Issues of Collaborative Research Today	Dipti D. Agarkar, Swati P. Kadu, Sharayu G. Dighe	16-20
6	Enhancing English Language Teaching and Learning in Rural Areas under a New Education Policy	Mr. Nandkumar Bhandari	21-24
7	An overview on National Education Policy 2020	Dr. Ramdas D. Borse Dr. Deepak N. Gholap	25-29
8	Enhancing Students Skill Development in Higher Education through the Implementation of the National Education Policy 2020	Dr. Sushma A. Unde	30-32
9	शिक्षणातील बदलते आव्हाने...	प्रा. दिक्षीत साहेबराव जानोबा प्रा. डॉ. सखाराम वाघमारे अंधोरीकर	33-37
10	The overview of National education policy-2020	Mr. B.U.Rajdeo	38-39
11	National Education Policy 2020: Benefits	Dr. G.D. Borde	40-41
12	National Education Policy 2020: Implementation of Industry-Institute Linkage in the Education System	Mr. H.L. Divekar Mr. V.K. Dighe	42-44
13	Vermicomposting as a Agro-Industrial Processing Waste	Dr. Ram S. Tambe, Dr. Vijay M. Pulate & Dr. Prakash D. Pulate	45-48
14	"National Education Policy 2020 is The Need Of Hour"	Mrs. P. A. Galande	49-50
15	SWOT analysis of National Education Policy 2020 in Higher Education	Mr. Bhadakwad Rohidas Sampat	51-55
16	Featured Heterogeneous Catalysis in Organic Synthesis	K. R. Kadam, A. S. Waghmare, V. D. Murade, S. N. Shringare, D. S. Wankhede	56-62
17	An overview of NEP-2020	Dr. Rajendra Sitaram Pawar	63-66

11. National Education Policy 2020: Benefits

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Introduction

The National Education Policy (NEP) 2020 is a comprehensive policy framework introduced by the Government of India to reform the Indian education system. The policy replaces the 34-year-old National Policy on Education that was formulated in 1986. The NEP 2020 is a bold and visionary policy aimed at transforming the education system in India and making it relevant for the 21st century. The NEP 2020 emphasizes on holistic, multidisciplinary, and flexible education, with a focus on critical thinking and problem-solving skills. It aims to move away from rote learning and towards a student-centered, activity-based learning approach. The policy places great importance on the use of the mother tongue/regional language as a medium of instruction till at least grade 5, and encourages the use of Indian languages in higher education. This is in line with research that suggests that children learn best in their mother tongue or a language they are most comfortable with. The NEP 2020 aims to bridge the gap between academia and industry by introducing vocational education at the school level and providing opportunities for apprenticeships and internships. It also includes a National Apprenticeship Promotion Scheme to create job-ready graduates. The policy aims to make higher education more accessible and relevant by increasing the Gross Enrollment Ratio (GER) to 50% by 2035 and improving the quality of education in colleges and universities. The NEP 2020 also aims to make education inclusive, with special attention to marginalized communities, and promoting inclusive education. The policy includes provisions for differently abled students and students from economically weaker sections of the society. The policy recognizes that education is not just about acquiring knowledge, but also about the overall development of an individual, and thus focuses on promoting physical education, arts, and culture, as well as values and ethics, as integral components of the curriculum.

The NEP 2020 aims to increase the use of technology in education, including the use of digital and online learning platforms, to make education accessible to all. It also prioritizes the promotion of research and innovation and encourages a multidisciplinary approach to learning and research. The policy introduces multiple entry and exit options in higher education, enabling students to take breaks and resume their education at a later stage if they need to. In conclusion, the NEP 2020 is a visionary policy aimed at transforming the education system in India. It recognizes the changing needs of the 21st century and aims to provide quality education to all, regardless of their background or circumstances. The policy focuses on making education inclusive, accessible, and relevant and is a step forward in creating a brighter future for India and its citizens.

Objective of the Study

- ❖ To Study the National Education Policy 2020.
- ❖ To Study the National Education Policy 2020 benefits of various stakeholders.

The New Education Policy 2020 in India provides benefits for various stakeholders including:

1. **Students:** The policy aims to provide students with a holistic and well-rounded education that prepares them for the challenges of the 21st century. The policy also makes higher education more accessible and inclusive, promoting equity in education.
2. **Teachers:** The policy proposes the establishment of National Professional Standards for Teachers (NPST), which will improve the quality of teacher training programs and provide teachers with the skills and knowledge needed to support student learning and development.
3. **Institutions:** The policy aims to improve the quality of higher education institutions, promoting greater research and innovation. The policy also promotes greater autonomy for institutions, allowing them to design their own curricula and programs.
4. **Employers:** The policy promotes the development of relevant and in-demand skills among students, enhancing their employability and preparing them for the workforce.
5. **Society:** The policy aims to promote a more equitable and inclusive education system, providing opportunities for all students, regardless of their background, to access higher education and succeed in their careers.

Conclusion

Overall, the New Education Policy 2020 provides benefits for various stakeholders, including students, teachers, institutions, employers, and society as a whole. The policy aims to improve the quality of education and promote equity and inclusiveness in the education system.

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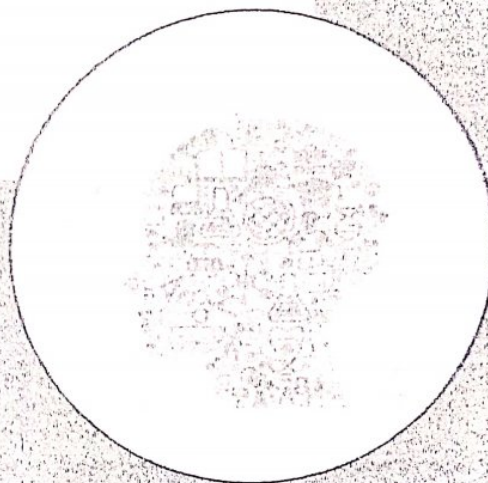
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31

20

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Physical and Chemical Properties of Water in Rahuri Tahsil of Ahmednagar District (M.S.)

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Abstract

Water quality assessment of Rahuri tahsil in Ahmednagar district has done in Maharashtra State, India. This paper aims to study the physical and chemical properties of water of Rahuri and its surrounding area. The physical parameters included Temperature, Total dissolved solids and electrical conductivity. The chemical parameters included pH, total hardness, calcium hardness, magnesium hardness, Phenolphthalein alkalinity, total alkalinity. Ionic parameters like chloride, phosphate, sulphate, calcium, magnesium, sodium, potassium, iron, chromium and manganese. Also, the biological parameters studied standard plate count and most probable number.

Keywords: Physico-Chemical Parameters, Permissible Limit, Chemical Standards of Drinking Water.

Introduction

Water is the most precious resource because the life of animals and plants depends on it. Most industries also require water for various applications, so the global economy depends on it. Springs are the places where ground water is discharged at specific locations on the earth and they vary dramatically as to the type of water they discharge. Many of the springs are the result of long cracks or joints in sedimentary rock. (Young, 2007) Hot springs are defined as springs where the temperature of water lies significantly above the mean of annual air temperature of that region. (Thompson, 2003 and Young, 2007) Hot ground water can be used to drive turbines and generate electricity, or it can be used directly to heat homes and other buildings. Energy extracted from the Earth's heat is called geothermal energy. (Thompson and Turk, 2005)

Water is one of the abundantly available substances in nature. It is essential constituent of all animal and plants material and forms about 75% of matter of earth crust. It has been argued previously that geochemical energy-yields may be a key determinant of microbial community structure and diversity in thermal environments (Amend and Shock, 2001)

Rainfall, an important and largest source of water, other sources are surface water and sub-surface water or ground water. (Sharma B.K. 2001) Water is mostly important for industrial and municipal purposes. In addition to the direct consumption of water at homes and farms, there are many indirect ways in which water affects our daily life.

The physical, chemical and biological composition of water is influenced to a great extent by different factors including climate, geomorphology and geology. Also the physical variables which include temperature and turbidity; chemical variables in that non-toxic variables such as pH, total dissolved salts, salinity, conductivity, ions, nutrients, organic matter and dissolved gases and toxic variables like biocides and trace metals. The objectives of the present work are to analysis and discuss the suitability of water for drinking and sanitation.

Study Area

The Rahuri Tehsil in Ahmednagar district of Maharashtra has been selected for the present investigation work. The tehsil comprises of 95 villages and two urban centers spread over an area of 1, 00,593 hectares. The geographical extension of the study area is from 19°15' N to 19°34' North latitude and 74°23' E to 74°50'

East Longitude. The Rahuri rehsil lies in the rain shadow zone of the Western Ghats in

Mula and Pravara basin.

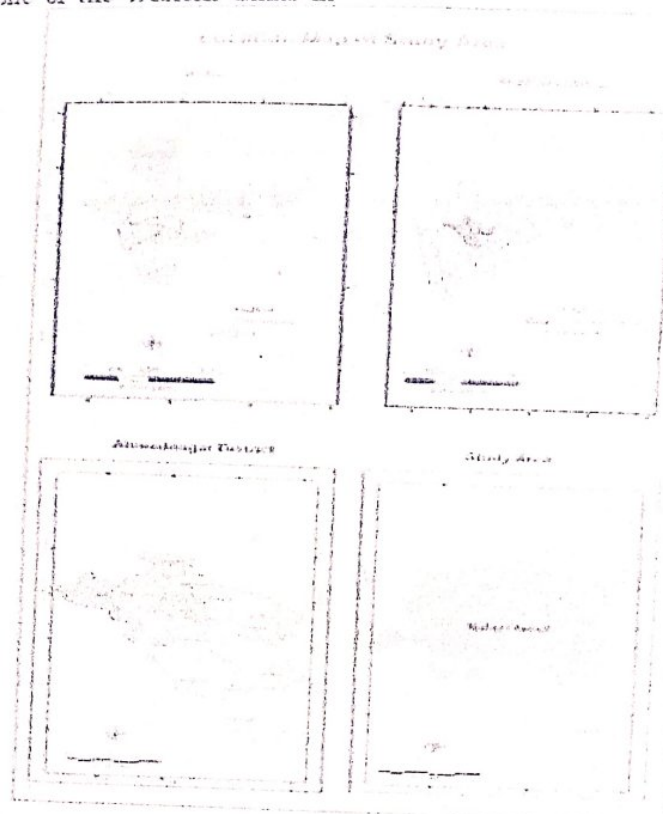


Figure: Location Map of Study Area

Sampling Methods

The water quality parameters estimated by the standard methods given by APHA (1998). For the present investigation groundwater samples were collected every month during the study year from June 2013 to May 2014 from 32 different sampling stations of Rahuri rehsil. The water samples collected from the Rahuri Tahsil and taken in pre-cleaned polyethylene bottle. Water temperature recorded immediately on the site by mercury thermometer. TDS of water samples measured using gravimetric method. Dissolved oxygen was estimated by the method of Winkler method. EC values of the water sample under investigation were measured using Digital Conductivity meter. The pH value of water sample measured by using Digital pH meter.

The total hardness of the water sample was determined by complex metric titration with EDTA using Erichrome black T as an indicator. The calcium hardness and

calcium of the water sample were determined by complex metric titration with EDTA using Murexide as an indicator. Phenolphthalein and Total alkalinities of the water samples were determined by titrating with H₂SO₄ using phenolphthalein and methyl orange as indicators.

Result and Discussion

A total of 32 samples were collected from 32 villages of Rahuri rehsil in Ahmednagar. Among these villages, 4 drinking water samples from two locations contain 1 mg/l of fluoride, 93% of the samples contain fluoride 0.5 mg/l. The results indicate that the fluoride content in all the sampling stations was found within the permissible levels as per WHO standards.

• Hydrogen Ion Concentration (pH)

The average of pH noted from 32 villages of Rahuri rehsil. Water sample is 8.77 as maximum and minimum 5.1 was observed.

• Electrical conductivity (EC)

Dr. Sopan N. Shingote, Dr. Rajendra S. Pawar

The average of Electrical conductivity recorded from 32 villages of Rahuri tahsil. Of it water sample is 4.52 uS/cm as maximum and 0.16 uS/cm as minimum recorded.

Total Dissolved Solids (TDS)

The average total dissolved solids observed from 32 villages of Rahuri tahsil. From water sample are 690 mg/L as maximum in pre-monsoon and 110 mg/L as minimum in post monsoon. Total dissolved solids are above the permissible limiting 500 mg/L recommended by WHO.

Asrari et al. (2009) measured the TDS minimum 6(mg/L and maximum 3575 mg/L from Kor River, Iran. The amount of TDS related with increasing dissolved ions.

Temperature

The water temperature noted from 32 villages of Rahuri tahsil. It 28.5°C in pre-monsoon as maximum and 27°C in post-monsoon season. Jaybhaye et al. (2008), reported water temperature ranged from 22.5-32.5°C from Kayadhu river, near Hingoli during January-December 2004.

Dissolved Oxygen

The average dissolved oxygen obtained from 32 villages of Rahuri tahsil of water sample is 0.3 mg/L maximum and 0.2 mg/L minimum with the mean value of 0.49 mg/L.

Yannawar VB and Bhosale AB (2013), achieved value of dissolved oxygen varied from 2.0, 1.12, 1.8 and 1.64 in S1, S2, S3 and S4 respectively from the selected sites. The lower dissolved oxygen due to organic contamination near sources to water.

Hardness

The average hardness obtained from 32 villages of Rahuri tahsil of water sample is 310 mg/L maximum and 80 mg/L minimum with the mean value of 80 mg/L.

Singh et al. (2005), found hardness level as 243 mg/L, 180 mg/L and 149 mg/L during June 1999 from the wells, springs and the rivers respectively in Udhampur, Jammu and Kashmir. Also they found hardness 194 mg/L, 179 mg/L and 146 mg/L in October 1999 from same water sampling sites.

Calcium

The value of calcium observed from 32 villages of Rahuri tahsil of water samples are 188 mg/L maximum and 5.6 mg/L minimum in pre and post-monsoon respectively. The mean calcium hardness was 33.1 mg/L.

Vijayakumar et al. (2005), observed calcium ranged from 8.60 – 94.10 mg/L 75.25

– 124 mg/L in surface and sub-surface water of Bhadra River respectively.

Phenolphthalein Alkalinity (PA)

The phenolphthalein alkalinity of 32 villages of Rahuri tahsil of water sample is below detectable limit in pre-monsoon and 1885 mg/L maximum and minimum 267 mg/L. Average value of phenolphthalein alkalinity 596.9 mg/L.

Approximately of the aquatic characteristics stay lower the accepted edge in the post-monsoon period and some are upstairs the acceptable limits in pre-monsoon season. This might be due to dilution of water by raining. Simular remarks are observed by Yannawar et al. (2013).

Conclusion

On the basis of above discussion, it is concluded that the water quality assessment of Rahuri Tehsil in Ahmednagar district in Maharashtra. It reveals that although the situation is not worst but it has to be maintained. Some of the water characteristics are below the permissible limit in the post-monsoon season and some are above the permissible limits in pre-monsoon season. This may be due to dilution of water by raining. Complete study showed that the water is more polluted in pre-monsoon as compared to post-monsoon.

Acknowledgement

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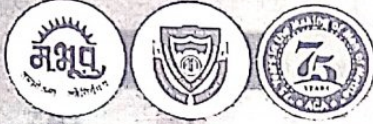
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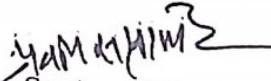
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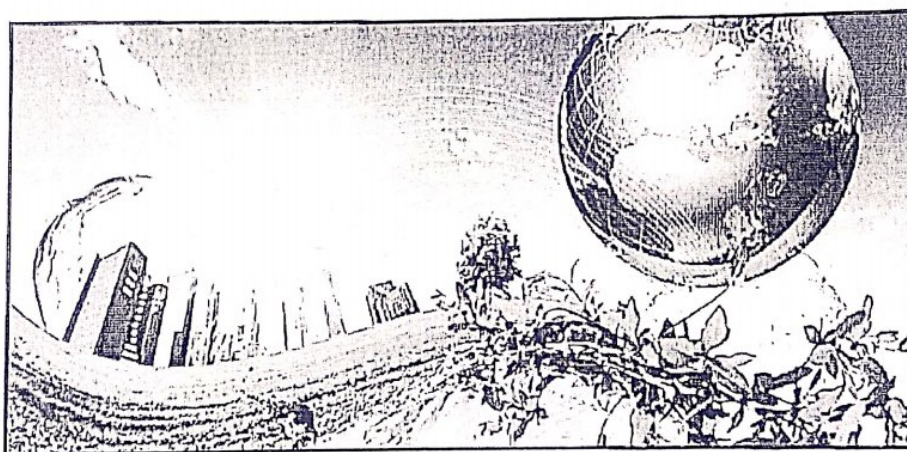
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: CONTENTS :

English

1.	Synthetic Approach for biologically active Bis (indolyl) methane's.....	1
	A. R. Parhad and B. K. Uphade	
2.	Studies on New Species of the Genus Tylocephalum (Cestode : Leacanthecephalide, Braun, 1900) from Marine Fish <i>Dasyatis Sephen</i>	5
	R. S. Madle, D. M. Pathan and D. B. Dhure	
3.	Guava fruits storage shelf life determination using Electronic Nose.....	9
	Ashok Kanade and Arvind Shaligram	
4.	Effect of algae on seedling growth of Cluster bean	13
	Aher A. A, Wabale A. S.	
5.	Evaluation of Anti-Asthmatic Activity of <i>Achyranthes Aspera</i> Linn Root Extract	15
	Shinde Ganesh S., Rahul Kunkulol, Sandeep Narwane, Ravindra Jadhav	
6.	Fabrication and Performance Analysis of a Glass Tube Type Solar Cooker	19
	Pathan A. S., Anarthe S. S., Date N. A.	
7.	In vitro effect of <i>catharanthus roseus</i> plant extract on human blood lymphocytes	24
	R. B. Gaikar, S. D. Bhumkar, V. A. Salve and A. J. Gavhane	
8.	Anti- bacterial Activity of Commercially Available Essential Oils.....	30
	Shital B. Bhalke, Shabanabi S. Shaikh	
9.	Prevalence of Cestode parasites in domestic fowl from Sangamner region of Maharashtra.....	33
	Avinash B. Gholap, Lokhande D. V., Tambe D. S.	
10.	Recent Synthetic Strategies for the Multicomponent Synthesis of Biologically Important Polyhydroquinolines (2016-2020)	37
	Dilip Aute, Vitisha Vikhe and Anil Gadhave	
11.	A Review on Cobalt substituted and Cobalt Free Perovskite Oxide Materials for Cathode in Solid Oxide Fuel Cell.....	43
	Pawar R. A. & Laxmikant Patange	
12.	A Review : Spectrophotometric Determination Techniques of Ruthenium (III).....	50
	H. R. Aher, S. R. Kuchekar, S. D. Bhumkar, A. S. Murkute	
13.	Effect of leaf extract on Seed borne fungal pathogens of <i>Glycine max</i> (L.) Mirril	55
	A. M. Vikhe, M. N. Kharde, A. S. Wabale, S. L. Kakad and B. F. Mundhe	
14.	Antioxidant Evaluation of Different Fractions of <i>Heterophragma quadricolor</i> (Roxb.) K Schum. .	58
	Varpe S. S., Mundhe B. F., Anarthe B. B.	
15.	Abundance and Status of Spiders from Parner Tahsil.....	62
	Ravindra S. Wale, Satish K. Bhondave, Pandurang K Ughade	
16.	Boric acid mediated synthesis of 4,4'-diaminotriarylmethane derivatives in aqueous condition	67
	Amol K. Kharde and Vinod R. Kadu	
17.	Liquisolid Compact Systems.....	72
	Dipmala D. Ghorpade and Suhas Siddheshwar	
18.	Vermicompost : Impact of earthworms in Soil Fertility and changing aspects	76
	R. S. Tambe and P. D. Pulate	

19.	Pumice Supported Sulfonic Acid Promoted Synthesis of arylidenemalononitrile Derivatives	79
	Adinath Tambe, Ravindra Dhawale, Rahul Narode, Chaitali Dange, Jayshri Gawande, Gopinath Shirole	83
20.	Study of Passive Indirect Type Solar Dryer : A Review	
	M. S. Bhujbal, N. D. Sali, P. M. Dighe	
21.	Study of Ichthyofaunal diversity in Pravara River Basin Near Ashvi Kd, Dist. Ahmednagar (MS) India	88
	Lokhande D. V., Avinash B. Gholap	91
22.	Comparative Study of SOLAR dryer and natural Solar Drying Method for Fruits	
	M. B. Chavan and S.S. Anarthe	
23.	Study of physico-chemical properties of lake water and ground water from Musalwadi, Tal. Raburi, Dist. Ahmednagar.....	93
	Gaikwad S. S and Tambe D. S	97
24.	Review on synthesis and degradation of dye by ZnO nanoparticles.....	
	Haribhau R. Aher, Sandeep R. Gadhave, Harshal S. Kharde	
25.	Review: Aqueous and Non aqueous Sol-Gel Techniques for Synthesis of SnO ₂ Nanoparticles.....	104
	R. A. Pawar, B. M. Pehera	
26.	Toxicity of the Custard apple leaves on Catfish (<i>Ictalurus punctatus</i>).....	108
	Vishnu R. Pawade and Sandip D. Talole	
27.	"Influence of Ln ³⁺ ions on structural, electrical and magnetic properties of hexa ferrites system : A Brief Review"	110
	Shivanjali P. Thete, R. A. Pawar, Priti Mhase	
28.	"A Review on Use of Various Plant Extract to Control Disease Causing Fungal Organism".....	115
	S. V. Luhare, V. S. Patil, R. D. Borse and A. S. Wable	
29.	Review on "New Synthetic Approaches of Pyrazole Analogues and Their Practice in Medicinal Chemistry"	120
	Sujata Nirmal, Rohit Jaysing Bhor, Sagar Magar	
30.	Study of Efficiency of a Parabolic Cooker and Hot Water System	124
	Akash Nanasahab Khaire and Rajniket Raosaheb Dushing	
31.	Studies on Reproduction Rate of Store Grain Pest and Their Effect on Grains	127
	Shabanabi S. Shaikh, Shital B. Bhalke and Asma S. Shaikh	
32.	Qualitative Isolation, Identification of Steroids, Terpenoids, Alkaloids, Amino acids Bioactive Compound from Helicteres Isora Fruit.....	132
	Moin M. Patel, Asghar Jafar Khan and S. M. Patel	
33.	Nanotechnology: A Short Review on Emerging Technology of Modern Science.....	135
	Vilas S. Hogade	
34.	Gamma Radiation Induced Changes in Phytochemical Composition of Irradiated ALFA (Medicago sativa L.) in M1 Generation.....	138
	M. D. Kakade and R. D. Borse	
35.	Comparative Study of Hubble Space Telescope and James Webb Space Telescope	142
	Ravina Lokhande, Pradip Dighe, Satyajit Potdar	
36.	Review on Bismuth Complexes : Biomedical Applications.....	145
	Rajendra B. Gaikar, Prajakta N. Khuladkar, Shweta B. Dighe, Varsha S. Shinde, Yogita R. Talekar	
37.	Surface Plasmon Resonance Effect of AgX for Boosting Photocatalysis : A Review.....	148
	Shobha Musmade, Snehal Damndale, Sonali Mugar, Namrata Retharekar, Vaishali Murade	
38.	Orodispersible Tablets : A Popular growing technology.....	155

Gamma Radiation Induced Changes in Phytochemical Composition of Irradiated ALFALFA (*Medicago sativa* L.) in M₁ Generation

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Abstract:

The most significant and ancient crop for feeding animals is alfalfa. Common uses for alfalfa include its ability to detoxify the body and act as an antioxidant, anti-inflammatory, and antifungal. Phytochemicals are biologically active substances originating from plants, such as phenolics, flavonoids, alkaloids, saponins, tannins, and lignin. The seeds of Alfalfa were irradiated with different doses of gamma radiation (5 KR, 10 KR, 15 KR, 20 KR, 25 KR, 30 KR, 35 KR, 40 KR, 45 KR, and 50 KR) and treatment combinations were arranged in a randomized block design with six replicates to carry out phytochemical screening according to conventional methods. An organic solvent chloroform was used to prepare the extracts. For each treatment, the extract yield was examined in order to conduct a qualitative analysis of the phytochemical components. The phytochemical substances, including steroids, terpenoids, phenols, tannins, saponins, alkaloids, phlobatanin, glycosides, flavonoids, carbohydrates, oils, and resins, were qualitatively examined using a predefined process. The study's findings showed that the treatment with gamma radiation caused a change in the presence or absence of several phytochemicals in alfalfa in the M₁ generation as compared to the control.

Key Words: Gamma Radiation, Phytochemical, Alfalfa.

Introduction :

Gamma rays have a shorter wavelength and thus greater energy than other types of radiation. Cobalt-60 and Cesium-137 are the most common gamma ray sources utilized in mutation induction. When gamma rays interact with atoms or molecules in the cell they form free radicals, which are classified as ionizing radiation. These free radicals cause cell harm but they can also change the cells and components (Shahbazi *et.al*, 2008). The anatomy, morphology, physiology and biochemistry of plants are all affected by these radiations (Mohajer *et.al*, 2014). The effect of these rays is dose dependant as they stimulate plant growth even at low doses. Genetic variability can also be increased by inducing mutations with ionized radiations.

The world's oldest and most significant animal feeding crop is alfalfa (*Medicago sativa* L.). Alfalfa has enormous potential as a food or a feed crop (Rajut *et.al*, 2010). For a good yield, manure must be applied in a sufficient and timely manner. Alfalfa has a good nutritional grade since it contains a lot of high-quality protein and carbs. The oldest and most significant crop for feeding animals is alfalfa. The high concentration of high-quality protein and carbs in alfalfa has been linked to its high nutritional quality. One source of β -enolene,

vitamins, certain digestive enzymes, and chlorophyll is alfalfa. A variety of phytochemicals have been found in *M. sativa* including alkaloids, flavonoids, saponins and coumarins (Bora and Sharma, 2011).

Alkaloids, flavonoids, phenolic compounds, saponins, steroids, tannins and terpenoids (Akindede *et.al*, 2007) are all essential therapeutic and industrial substances that can be discovered by phytochemical screening. The methodical process of studying, inspecting, extracting, experimenting and therefore identifying different classes of phytoconstituents found in various areas of the base for the development of pharmaceuticals with the active components being taken for further examination and research. The method used was phytochemical screening which is a qualitative method (Sharma *et.al*, 2020). Phytoconstituents are a group of chemical compounds found in plants (Meray *et.al*, 2017). Phytoconstituents benefit plants by performing secondary activities such as assisting in plant development, protecting plants by activating defense mechanisms and providing colour, taste and flavour (Molyneux *et.al*, 2007). Recent work on alfalfa flavonoids revealed that they consist of apigenin, luteolin, tricetin and chrysoeriol glycosides and the only sugar unit found in sugar chains is glucuronic acid. The goal of this research was to see how different

dosages of gamma irradiation affected the phytochemical constituents of Alfalfa.

Materials and Methods:

Plant materials: Experimental plant material selected for the present investigation was Alfalfa commonly known as Lucerne [*Medicago sativa* (L.), Var: RI-88]. Germplasm (seeds) of this variety was procured from Fodder Improvement Division of Maharashtra Phule Agricultural University, Rahuri (Ahmednagar district, Maharashtra state, India).

Gamma radiation: The experiment employed cobalt 60 as a source of gamma radiation (^{60}Co). The facility available at the BHABA Atomic research center, Trombay, Mumbai. (M.S. India) was availed. T_1 - 5KR, T_2 - 10KR, T_3 - 15KR, T_4 - 20KR, T_5 - 25KR, T_6 - 30KR, T_7 - 35KR, T_8 - 40KR, T_9 - 45KR and T_{10} - 50KR doses were used for each treatment. Dry uniform 01 gm seeds were irradiated with above mentioned doses of gamma radiation. Untreated seeds with gamma radiation are used as control. Irradiated and control seeds were sown in the experimental fields as M_1 generation.

Preparation of Chloroform plant extract: The fresh plant materials were shade dried and then powdered. In a conical flask plugged with cotton wool 2.5 g of each plant powder was added to 25 ml of organic solvent such as chloroform. The supernatant was collected after 24 hours and the solvent was evaporated to prepare the crude extract (Harborne, 1998).

Qualitative Phytochemical Analysis: Preliminary phytochemical analysis was carried out for the extract as per standard methods (Gokhale *et.al*, 1993 and pranoothi *et.al*, 2014). The following test were done for analysis of Steroids, Terpenoids, Phenols, Tannins, Saponins, Alkaloids, Phlobatanin, Glycoside, Flavonoids, Carbohydrate, Oils & resins (Harborne J.B.,1998)

Test for Steroids: One ml extract was dissolved in 10 ml chloroform and an equivalent volume of strong

sulphuric acid was introduced to the test tube from the sides to test the top layer turn red while the sulphuric acid layer appears yellow with green fluorescence for the presence of steroids.

Test for Terpenoids: Five ml of extract and 2 ml of chloroform was added to the appearance of reddish brown colour in the inner face to observe the presence of terpenoids.

Test for Phenols: Two ml extract is treated with few drops of ferric chloride solution to test the formation of bluish black colour indicates for the presence of phenols.

Test for Tannins: Two ml extract was added to few drops of 10 percent ferric chloride to test the formation of a yellowish precipitate to observe the presence of tannins.

Test for Saponins: Five ml extract was mixed with 5 ml distilled water to test the formation of frothing (appearance of creamy colour small bubbles) to check the presence of saponins.

Test for Alkaloid: 2 drops of extract treated with few drops of Wagners reagent was used to observe the reddish-brown precipitate for the presence of alkaloids.

Test for Phlobatanin: One ml extract was boiled in 2ml 1% aq. hydrochloric acid to observe the formation of red colour that presence of phlobatanin.

Test for Glycosides: Two ml extract was mixed with 3 ml of chloroform and 1ml 10% ammonia solution was added to see the pink colour formation which indicates presence of glycosides.

Test for Flavonoids: Three ml of 1% ammonium chloride solution was added to 5ml of extract to see yellow colour that indicates the presence of flavonoids.

Test for Carbohydrate: To 0.5 mg of extract, 5 ml of Benedict's solution was added and boiled in a water bath to test the presence of reducing sugar by the formation of red-yellow or green precipitate.

Test for Oils and Resins: Filter paper test was applied to test oils and resin presence.

Results and Discussion:

The present investigations of various phytochemicals were qualitatively analyzed using Alfalfa (*Medicago sativa* L.) chloroform extract. The results were presented in Table I.

Test no.	Test	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}
1	Steroid	+	-	+	-	+	-	+	-	+	+	+
2	Terpenoids	+	+	-	-	+	-	-	+	-	-	+
3	Phenols	+	-	+	-	+	+	-	-	+	+	-

4	Tannins	-	-	+	-	-	-	+	+	-	+	-
5	Saponins	+	+	+	+	+	+	+	-	-	-	+
6	Alkaloids	+	-	-	-	+	-	+	-	-	+	+
7	Phlobatanin	+	-	-	+	-	+	+	-	+	-	-
8	Glycoside	-	-	+	-	+	-	+	+	-	-	-
9	Flavonoids	+	+	+	+	+	+	+	+	+	+	+
10	Carbohydrate	+	+	+	+	+	+	+	+	+	+	+
11	Oils & resins	+	+	+	+	+	+	+	+	+	+	+

Table-1: Qualitative test for phytochemical analysis of whole aerial part of irradiated Alfalfa in chloroform extract of M₁ generation (+ = Positive, - = Negative)

These chloroform extract showed variation in phytochemical constituents due to the treatment of gamma radiation. Result revealed that in chloroform extract of irradiated alfalfa Steroid were present in T₁, T₃, T₅, T₇, T₉, T₁₀ and T₁₁. Terpenoids were present in T₁, T₂, T₅, T₈, and T₁₁. Phenols were present in T₁, T₃, T₅, T₆, T₉ and T₁₀. Tannins were present in T₃ and T₇. Saponins were absent in T₉ and T₁₁. Alkaloids were present in T₁, T₅, T₇, and T₁₁. Phlobatanin were present in T₁, T₄, T₆, T₇, T₁₀ and T₁₁. Glycoside present in T₃, T₅, T₇ and T₉. Flavonoids were absent in T₉, T₁₀, and T₁₁ present in remaining treatments. Carbohydrate, oils and resins were present in all the treatment of gamma radiation. Phytochemicals present in chloroform extract of irradiated Alfalfa showed the variation as compared to other extract. Tannins and glycosides were absent in T₁ and other phytochemical were present whereas terpenoids and phenols were absent in T₇. It means that in M₁ generation gamma radiation cause the effect on phytochemical present in Alfalfa.

According to Mohajer *et.al*, 2014 phytochemical research revealed that irradiation treatment changed the status of phenol content, flavonoid content, and alkaloid presence in Alfalfa. Phytochemical, natural compound occur in plants such as medicinal plants, vegetables and fruits that work with nutrients and fibers to act against diseases or more specifically to protect against diseases (Geedhu and krushnakumari, 2015). This result revealed that various extract showed changes in the presence of phytochemical due to the treatment of gamma radiation. Similar results observed by Chavan *et.al*, 2015 that Lipids, carotenoids, triterpens, free sterol, alkaloids, and carbohydrates were found in the pet ether and methanolic extracts of *Medicago sativa* Leaves, Tannins, glycosides, and resinous compounds

were discovered in the methanolic extract according to phytochemical study without irradiation treatment.

Conclusion:

The presence of several phytochemical components, including alkaloids, flavonoids, phenols, terpenoids, saponin Phlobatanin, and carbohydrates in the extract of the *Medicago sativa* L. plant, was modified by gamma radiation in the current study. In addition to being planted extensively over the world as cattle feed, alfalfa is also used as a traditional herbal remedy to treat a variety of diseases. Finding novel sources of chemicals with therapeutic and commercial value depends heavily on qualitative phytochemical evaluation of medicinal plants. The qualitative assessment of the screened phytochemical may open the door for a more thorough examination of their protective effects against pathogenic processes. Their wide range of species suggests a role for them in the association of plant herbivores. The findings imply that both main and secondary bioactive chemicals have significant commercial and medicinal value. The majority of common phytochemical may be the cause of the therapeutic benefits.

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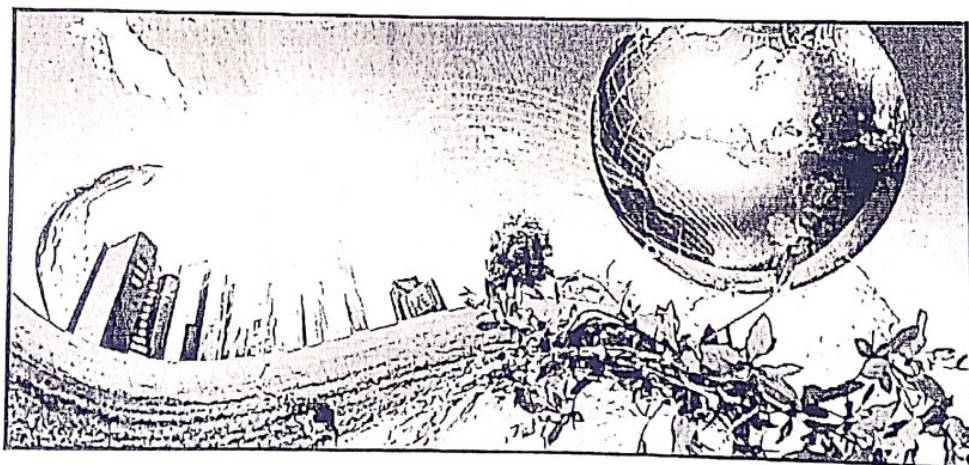
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Effect of algae on seedling growth of Cluster bean

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Abstract:

The effect of algae was studied on the seed germination, seedling growth of Cluster bean. The experimental analysis was carried out by soaking the seed overnight in various concentrations viz, 1%, 5%, 10%, 15%, 20%, 25% and control of algal liquid extracts. The result obtain that algal extract showed maximum activity in 20% conc. In terms of increase in seed germination, root length, and shoot length as compared to other concentrations.

Key Words: Seed Germination, Seedling Growth, Seedling.

Introduction :

The guar or cluster bean, with the botanical name *Cyamopsis tetragonoloba*, is an annual legume and the source of guar gum. It is also known as gavar, gawar, or guvar bean. This legume is a valuable plant in a crop rotation cycle, as it lives in symbiosis with nitrogen-fixing bacteria. Guar leaves can be used like spinach, and the pods are prepared like salad or vegetables

The high fiber content in cluster beans is highly beneficial for gut health. They stimulate bowel movements, reduce constipation, and help eliminate the toxins from our body. Cluster beans are rich in iron that is available in soluble form. Iron reduces the chances of anemia and enhances blood circulation in our system. Guar beans have numerous vitamins, including vitamins A, C, K, and folates, which have antioxidant properties, reduce age-related degeneration, boost immunity, and are helpful in the various bodily mechanism. Applications of fertilizer play a vital role in the yield of crops. But continuous use of inorganic fertilizers has made their soil infertile for cultivation pesticides eutrophication of surface water concentration. In order to overcome this problem organic fertilizers can be utilized. There are many types of organic manure of which the most abundant and easily available source is fresh water algae.

The modern agriculture is searching for new techniques that would reduced the use of chemical fertilizer without negatively affecting crop yield (Herrera et.al., 2013). Certain fresh water algal extracts are known to improve seed germination (Bhosale et.al., 1975, Rajeshwari et.al., 1983, Mohan et.al., 1994). Fresh water algal extract shows the increase in seed germination percentage, seedling vigour index and improving the total seedling growth. Booth, 1969

observed that the value of algal extract was not only due to nitrogen, phosphorous and potassium content but also due to the presence of trace elements and metabolites similar to plant growth regulators. These include shoot length, root length, seedling vigour index and seed germination percentage. In India many workers experimented on fresh water algae and sea weeds as liquid fertilizer. Hence in percent investigation and attempt was made to study the algae as a liquid bio-fertilizer on the growth of Cluster bean.

Materials and Methods :

A mixture of fresh water algal used in these experiments was collected from local water resource. Healthy material was handpicked and brought to the laboratory, washed thoroughly under running tap water and epiphytes found were removed. Then the material was shade dried for 4 to 6 days. The dried algae from was grinded with the help of mixer and the powder was stored in airtight plastic bottles.

Extraction by Boiling : 10 gm of fine powder of collected algal form was mixed separately in 100ml of sterile distilled water and boil to reduce the volume up to 10ml. this extract was filtered through a muslin cloth and cooled. The extract was used as stock solution (100%). The extract was diluted with sterile distilled water for preparing 1%,5%,10%,15%,20%,25% concentration and was stored in airtight bottles for further study. The algal extract was prepared by using the method of Bhosale et.al (1975).

Experimental Setup :

In order to study the effect of fresh water algal extract on Cluster bean as test plant, paper towel method (Singh et.al., 1972) was used equal sized healthy seeds were presoaked in different concentrations of algal extracts for 24 hours. The experiment was carried in triplicates. Moist paper towel

was stretched on a clean polythene paper and one the other side of the paper towel fifteen seeds were arranged on its half portion containing three rows each of five seeds. The paper towel was rolled from the right end with plastic paper and the ends were tightened with rubber bands. The paper towel was placed vertically in beaker with some water for further experimental work.

First count for germination percentage was carried out after 7 days and final count taken after 21 days, for total seedling growth. Different parameters were used in the present investigation as follows.

1. Germination percentage
2. Shoot length
3. Root length
4. Total height of seedling

Above mentioned parameters were calculated by the following formulae.

- Germination percentage =
$$\frac{\text{No. of seed germination} \times 100}{\text{Total no. of seed}}$$
- Total height of seedling =
$$\text{Shoot length} + \text{Root length.}$$

Results :

It was the obtained from the results that all parameters under study were generally influenced by the application of algal extract as compare to the control. Seed treated with 20% concentration of algal extract showed maximum shoot length, root length; total height of seedling maximum seed germination as compared to control (Table-1). However, total height of plant and percent seed germination was also good at 1% algal extract. The increase trend has been reported in the outcome of all parameters starting from 1%, 5%, 10%, 15% and 20% algal concentration. However all parameters have shown significant decrease in the outcome at concentrations higher than 20%. It is reported that, algal concentration of 20% are more effective in the seed germination and seedling growth as compare to control.

Table -1 : Effect of Fresh water Algae extract on the seedling growth of Cluster bean.

Boiled water algal extract (%)	Shoot length (cm)	Root length (cm)	Total height of seedling (cm)	Seed germination (%)
1	5	7.11	12.95	90%
5	4.92	7.36	12.28	75%
10	3.26	5.38	8.65	80%

15	3.92	6.06	9.98	85%
20	5.47	8.48	13.96	95%
25	4.98	7.16	12.15	70%
Control	6.32	7.38	12.65	60%

Discussion :

Although the results have shown that, 20% concentrations of algal extract have stimulated the germination, shoot and root growth of the Cluster bean. The total height of seedling at algal concentration of 1%, 5%, 10%, and 15% was 12.95cm, 12.28cm, 8.65cm, and 9.98cm respectively. Only the concentration of 20% had shown more seedling height and then control. Percent seed germination at 1%, 5%, 10%, 15%, and 20% was 90%, 75%, 80%, 85%, 95%, which was more than the control (60%). Herrera et.al, 2013 also reported significant seed germination in the tomato seeds treated with sea weed extracts. They have further concluded from their study that, liquid sea weed extracts are more effective in stimulating the growth of tomato seedlings.

Conclusions :

From the above experimental results it is clearly seen that the seed germination percentage, and total height of seedling in Cluster bean has increased due to the application of algal extract as compare to control. The percentage findings will be useful to the marginal farmers for utilizing fresh water algal extract as liquid fertilizers. Utilization of algal extracts in fertilizers will produced low cost eco-friendly commercial products which will help in reducing environmental pollution and pesticide tolerance. Moreover, the algal material will be available to the farmers in their own agricultural ponds and this Biofertilizer is easy for farmers to handle. Further study will be carried out to screen out the algal mixture.

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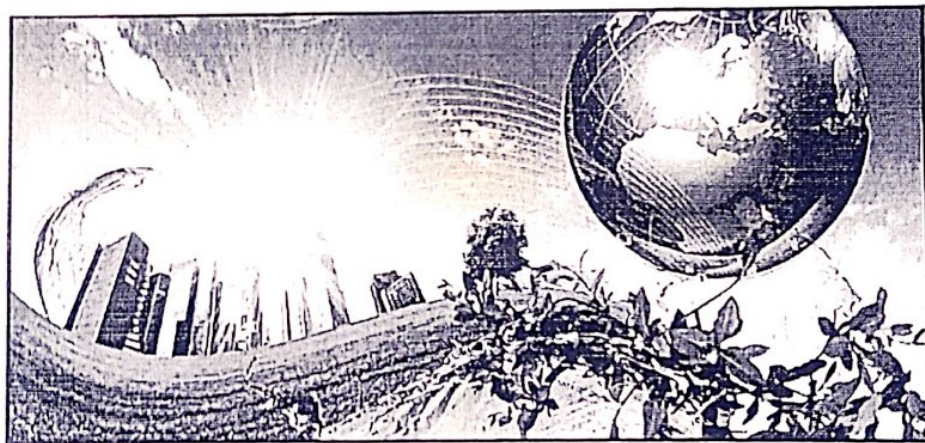
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: CONTENTS :

English

1. Synthetic Approach for biologically active Bis (indolyl) methane's..... 1
A. R. Parhad and B. K. Uphadel*
2. Studies on New Species of the Genus Tylocephalum (Cestode : Lecanicephalide, Braun, 1900)
from Marine Fish *Dasyatis Sephen* 5
R. S. Madle, D. M. Pathan and D. B. Bhure
3. Guava fruits storage shelf life determination using Electronic Nose..... 9
Ashok Kanade and Arvind Shaligram
4. Effect of algae on seedling growth of Cluster bean 13
Aher A. A, Wabale A. S.
5. Evaluation of Anti-Asthmatic Activity of *Achyranthes Aspera* Linn Root Extract 15
Shinde Ganesh S., Rahul Kunkulol, Sandeep Narwane, Ravindra Jadhav
6. Fabrication and Performance Analysis of a Glass Tube Type Solar Cooker 19
Fathan A. S., Anarthe S. S., Date N. A.
7. In vitro effect of *catharanthus roseus* plant extract on human blood lymphocytes 24
R. B. Gaikar, S. D. Bhumkar, V. A. Salve and A. J. Gavhane
8. Anti- bacterial Activity of Commercially Available Essential Oils..... 30
Shital B. Bhalke, Shabanabi S. Shaikh
9. Prevalence of Cestode parasites in domestic fowl from Sangamner region of Maharashtra..... 33
Avinash B. Gholap, Lokhande D. V., Tambe D. S.
10. Recent Synthetic Strategies for the Multicomponent Synthesis of Biologically
Important Polyhydroquinolines (2016-2020) 37
Dilip Aute, Vitisha Vikhe and Anil Gadhave
11. A Review on Cobalt substituted and Cobalt Free Perovskite Oxide Materials for Cathode in Solid Oxide
Fuel Cell..... 43
Pawar R. A. & Laxmikant Patange
12. A Review : Spectrophotometric Determination Techniques of Ruthenium (III)..... 50
H. R. Aher, S. R. Kuchekar, S. D. Bhumkar, A. S. Murkute
13. Effect of leaf extract on Seed borne fungal pathogens of *Glycine max* (L.) Mirril 55
A. M. Vikhe, M. N. Kharde, A. S. Wabale, S. L. Kakad and B. F. Mundhe
14. Antioxidant Evaluation of Different Fractions of *Heterophragma quadriularae* (Roxb.) K Schum. . 58
Varpe S. S., Mundhe B. F., Anarthe B. B.
15. Abundance and Staus of Spiders from Parner Tahshil..... 62
Ravindra S. Wale, Satish K. Bhondave, Pandurang K Ughade
16. Boric acid mediated synthesis of 4,4'-diaminotriarylmethane derivatives in aqueous condition..... 67
Amol K. Kharde and Vinod R. Kadu
17. Liquisolid Compact Systems..... 72
Dipmala D. Ghorpade and Suhas Siddheshwar
18. Vermicompost : Impact of earthworms in Soil Fertility and changing aspects..... 76
R. S. Tambe and P. D. Pulate

Boric acid mediated synthesis of 4,4'-diaminotriarylmethane derivatives in aqueous condition

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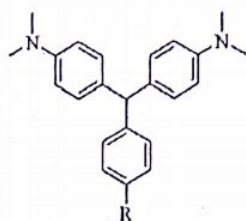
Abstract:

The synthesis of 4,4'-diaminotriarylmethanes utilising boric acid as a catalyst in aqueous medium using N,N-dimethylaniline and aryl aldehydes is stated to be a rapid and efficient process. The reaction is straightforward and no additional reagents are needed unlike other traditional synthetic protocols for synthesis of 4,4'-diaminotriarylmethanes. This effort involved the synthesis of 4,4'-diaminotriarylmethanes from a variety of aryl aldehydes under solvent-free and at reflux condition in the presence of boric acid as catalyst.

Key Words: Boric Acid, Aqueous Medium, Straightforward, Reflux Condition etc.

Introduction:

According on the chemical composition of 4,4'-diaminotriarylmethanes, use or application techniques, dyes can be categorised. The categorization of chemical structure triarylmethane dyes are among the most essential dyes. Triarylmethane dyes are artificial monomethine dyes containing three terminal aryl groups, but only one or two of them are a donor group substitutes preferably two or three methane carbon atom. Due of N,N-significance dimethyl's numerous reviews on the di- and triphenylmethane derivatives of aniline (DTM) compounds have been published¹⁻⁵. These substances possess several uses for color-forming, forming new products, high-speed photo duplicating copying papers, pressure-sensitive heat-sensitive materials, many forms of colourless copying sheets, publications for ultrasonic recording, electrothermic, and light-sensitive heat-sensitive writing instruments; inks, crayons, and paper for imaging photos and ribbons⁶⁻⁸. Leucomalachite Green (A) and Leucocrystal Violet (B), two of the earliest synthetic dyes, are significant members of this class (Figure 1)^{9,10}.



(A) R=H: Leucomalachite Green
(B) R=N(Me)₂: Leucocrystal Violet

Figure 1. Structures of Leucomalachite Green and Leucocrystal Violet.

Triarylmethanes, a well-known leuco base and crucial intermediates in the production of triarylmethanedyes, are produced by the acid-catalyzed reaction via Baeyer condensation of aromatic aldehydes with N,N-dimethylaniline. A review of the literature indicates that many preparation techniques for the title compounds have been documented. The reaction of aryl aldehydes with N,N-dimethylaniline in the presence of an acid, such as sulfuric acid, HCl, and p-TSA, as well as zeolites and montmorillonite K-10, is one of the most efficient ways to synthesize DTMs¹¹⁻¹².

Our contribution is to explain the use of a novel catalyst in the manufacture of diaminotriphenylmethane dyes and to broaden the range of the leuco base of these dyes that is already accessible. This method eliminates the issues related to the use of organic solvents while providing products in yields that are good to exceptional. Avoiding organic solvents during reactions in organic synthesis results in a clean, effective, and cost-effective technique, as well as an improvement in safety, convenience of set-up, and cost savings.

Result and Discussion :

We performed the reaction of aryl aldehydes and N,N-dimethylaniline in presence of catalytic amount of boric acid to get 4, 4'-diaminotriarylmethane with excellent yield (Scheme 1). We are able to synthesize a diversified 4, 4'-diaminotriarylmethane derivatives using different aromatic aldehydes (1) and N, N-dimethylaniline (2). The result in form of yield is shown in Table. 1.

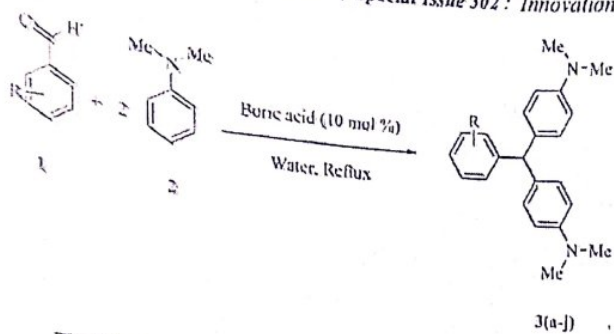

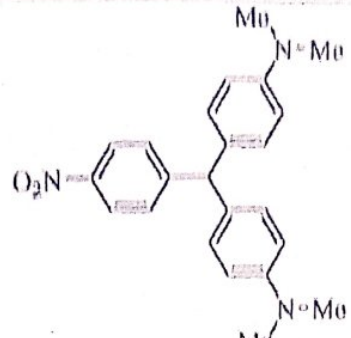
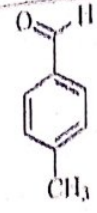
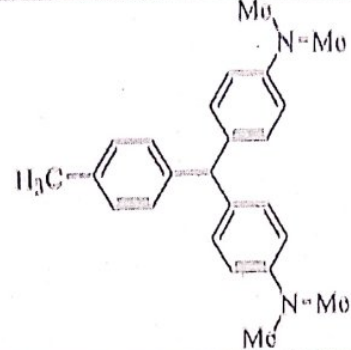
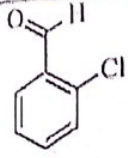
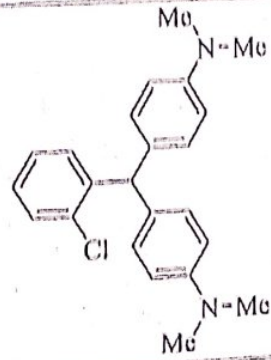
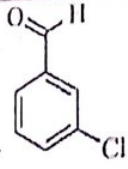
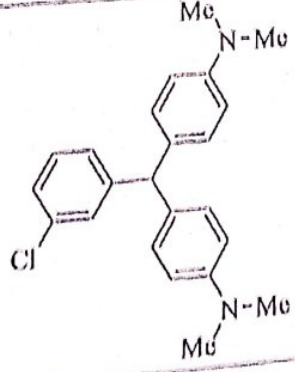
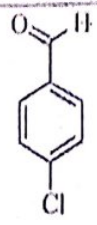
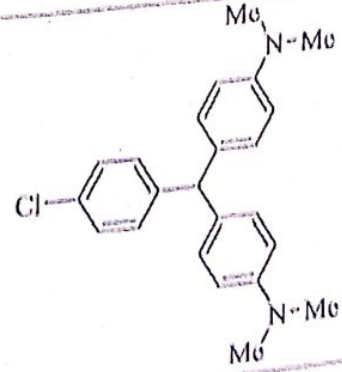


Table 1 : Synthesis of 4,4'-diaminotriarylmethane 3(a-j)

Entry	Aldehyde	Product	Reaction Time (h)	Yield %	M.P. °C
3a			4	82	90-91
3b			3	85	152-154
3c			4	90	146-147

3d			3	85	170-172 ¹¹
3e			4	75	98-100 ^{7a}
3f			4	92	107-109 ¹⁹
3g			6	88	109-111 ²⁰
3h			5	90	88-90 ¹⁹

3i			3	85	90-92
3j			8	75	102-103

Experimental Procedure:

Material and Methods:

Chemical reagents in high purity were purchased from Merck and used without further purification. The melting points were determined by open capillaries and were used uncorrected. The reaction monitoring was conducted using Thin-layer chromatography was performed using commercially prepared 60-mesh silica gel plates and visualization was effected with short wavelength UV light (254 nm).

General Procedure for the synthesis of 4,4'-diaminotriarylmethane derivatives:

To a solution of aldehydes (2 mmol), N,N-dimethylaniline (4 mmol) was added with constant stirring. To this solution catalytic amount of boric acid was added and reaction was refluxed for prescribed time. The progress of the reaction was monitored by TLC. The reaction mixture was further extracted by ethyl acetate to get the desired product.

Spectral data of representative compound 3f:

MP; 107-109°C;

IR (KBr, cm^{-1}): 3400, 2850, 1620, 1510, 1440;

^1H NMR (400 MHz, CDCl_3): δ 3.06 (s, 12H, CH_3), 5.53 (s, 1H, CH), 6.84 (d, 4H, CH), 7.15 (d, 4H, CH), 7.10 (m, 1H, CH), 7.51 (m, 3H, CH);

^{13}C NMR (CDCl_3): δ 40.2, 56.7, 115.5, 125.3, 127.4, 132.8, 133.3, 134.6, 135.2, 136.5, 149.7, 151.1;

Conclusion:

Aldehydes and N,N-dimethylaniline are used to synthesize a variety of 4,4'-diaminotriarylmethane derivatives with excellent yields that better than most other methods. The method enables the synthesis of 4,4'-diaminotriarylmethane derivatives without the need of catalyst than boric acid oxidants or coupling reagents that generate chemical waste. Atom-efficient with excellent yield and no byproducts are some of the advantages of current process. We believe this method will have several uses, one of which is the fast synthesis of a library of important 4,4'-diaminotriarylmethane derivatives.

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: CONTENTS :

1.	Growth of Digital Marketing in Indian Scenario	1
	Prof. Dr. Rajaram Nathaji Wakchaure	
2.	Digital Marketing Trends For 2022.....	7
	Dr. B. D. Ranpise, Ashwini Khanderao Pawar	
3.	Effects of Demonetization on E- Commerce	10
	Dr. Sau.Gursal Vijaya Nitin	
4.	Impact of Digital marketing and current scenario in India	13
	Mr. Ganesh R. Shelke, Prof. Dr. R. G. Rasal	
5.	Status of Cashless Economy in India	15
	Dr. Sunil Dadaram Pawar	
	Digital Marketing In India.....	18
	Dr. B.D. Ranpise, Naim Husen Khatik	
7.	E-Banking in India : Challenges and Opportunities.....	21
	Dr. P. V. Kadam, Mr. Ganesh R. Shelke	
8.	Digital Marketing: A new stream of marketing.....	24
	Dr. Adinath R. Gholap, Dr. Mangal A. Gholap	
9.	A Study of Digital Marketing and Its Impacts on Marketers and Consumers.....	26
	Dr. Kanawade Pratibha Vijay, Dr. Shelke Digambar Sakharan	
10.	New Trends in E-Banking in India.....	28
	Dr Archana Anil Vikhe and Mr.Sagar Balasaheb Gholap	
11.	A Study of Human Resource Management In Charitable Hospitals in Ahmednagar District.....	30
	Dr. Borde G.D., Mr.Dighe Anil R.	
12.	Cloud Computing in E-Marketing: Challenges and related solutions in 2023	34
	Chhaya S. Galande, Dr. Sushma A. Unde	
13.	Post Covid Opportunities and Challenges in Banking Sector in India	37
	Dr. Nirmal Vijay D.	
14.	A Study of Digital Marketing in Agricultural Sector	45
	Dr. Suresh Sukdeo Shinde	
15.	Digital Marketing Trends in India	48
	Dr. Ganesh R. Deshmukh	
16.	E-Banking in India	52
	Dr. Jayshree R. Dighe	
17.	E-banking Services in India.....	55
	Dr. Sunil Sakharhari Mohate	
18.	Recent Trends in Digital Marketing.....	59
	Dr. Unde S. A., Dr. Rohamare S. S.	
19.	Cashless Economy.....	64
	Dr. Jayshree Dighe, Miss Harshada Nailwade	

A Study of Digital Marketing and Its Impacts on Marketers and Consumers

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Introduction :

Digital Marketing is the application of digital technologies to business models to form new differentiates business capability. In the future, all business strategy will be digital strategy. Digital Marketing focuses on using technology to improve business performance, whether that means creating new products or reimagining current processes. It specifies the direction an organization will take to create new competitive advantages with technology, as well as the strategy it will use to attain these changes. This usually includes changes to business models, as new technology makes it possible for modern companies to provide services that weren't earlier possible.

Today, technology has included with business to become something more than hardware or software. As digital technology becomes more invasive and companies move further in the journey of digital revolution. It's important to remember that digital Marketing is both a concept and a thing — that is, a digital Marketing should ultimately lead to the creation of a concrete plan. While you can keep changing the specific tactics you've decided to pursue, there should also be a clear commitment to your understanding of what digital means for your company.

Key Word : digital, organization, digitalization, technology, marketing,

Objective of Study :

1. To know the need of digital marketing in the modern era.
2. To understand the difference between offline marketing and online marketing.
3. To study the importance and benefits of digital marketing.
4. To develop various strategies for digital marketing.

Research Methodology :

The study is primarily based on secondary data. The data is collected by the different reports and news from the newspapers and magazines and novels. Certain references are also taken from the different scholarly research articles published in the field.

Types of Digital Marketing :

Digital marketing refers to any marketing strategy that uses an electronic device that May or may not is connected to the internet. Even radio ads and television commercials are digital marketing strategies, though digital marketing has evolved, and new strategies can be much more effective. Digital marketing is important when it comes to being competitive and relevant within your industry. If your business has no web or digital presence, you're missing out on countless opportunities to reach out to your target audience.

Importance of Digital Marketing :

The importance of digital marketing is increasing day by day as the global economy moves towards digitization. Small businesses, large corporations, students, fresher's, and traditional marketers- need to understand the relevance and importance of digital marketing. In this blog, we discuss why digital marketing is important along with a pre-Covid and post-Covid comparison. Before we go any further to understand the importance of digital marketing presently, you must learn about the scope of digital marketing in the future.

The beginning of digital marketing can be traced back to the time when search engines and social media became the first preferences of knowledge and communication for audiences. Ever since the possibility and importance of digital marketing have quickly increased. Businesses are turning to digital mediums for their branding needs as they see the target spectator's shift to search engines and social media. More so, with digital marketing, businesses are receiving traceable results, leads, and eventually sales.

Development in business due to digital marketing has led to more budget distribution for digital marketers which in turn has increased the number of digital marketing jobs. Hence, the scope of digital marketing is ever-evolving and emergent exponentially. There's one more rationale that has led to the growth of digital marketing which we will discuss in the next section

Benefits of Digital Marketing :

Digital marketing has rewritten conventions as far as advertising and branding are concerned. While traditional marketing channels and techniques allowed brands and businesses to reach mass audiences, there were hardly any ways to actually track impressions, ROI, visibility, user sentiments and more. Data and its visualization are amongst the biggest advantages of digital marketing. Here are some of the other pros of digital marketing.

Cost-Effective :

Digital marketing is cost-effective. The traditional marketing techniques were (and still are) expensive and are reserved for seasoned market players and big organizations. However, digital marketing disrupts these dynamics by allowing small and medium businesses to target and reach a wide spectrum of audiences, generate leads and spread the word about their brands as well.

Data-driven

Data-driven decision making is one of the other major advantages of digital marketing. Marketing agencies and businesses can know if their strategies are working in the market if they are targeting the right audience groups if their email subject lines are effective and more. There is several touch points in digital marketing that allow marketers to track KPIs and metrics and ultimately take corresponding actions.

Precision Targeting :

It's never a blind approach with digital marketing. Similar to how your product or solution is not for all but exclusively reserved for people with specific requirements, your marketing strategies are as well. With digital marketing, you can conveniently tap into such market segments and target audiences and reach out to those who are actually on the lookout for solutions like yours.

Campaign Optimization

If your marketing budget for a quarter is close to \$10,000 and the initial phase of your campaign is not performing as expected, you can stop the campaign immediately and optimize it for the remaining budget. It's never a massive loss, unlike other traditional campaigns and marketing techniques.

Global Reach

Digital marketing allows a business owner in Rwanda or Australia to target a particular user in

Norway or India. This can never be possible with conventional marketing unless heavy investments are pumped into campaigns.

Target Multiple Buyer Person :

The onset of the internet and its evolution has allowed marketers to classify buyers into different segments based on their journey in purchasing a product or service. Digital marketing allows brands to target different buyer personas and engage them uniquely. For instance, customers in the awareness stage could be targeted through blog articles or YouTube videos and those in the consideration stage could be nurtured through email sequences.

Conclusion :

The research and perform of digital marketing is humanizing with the advancement of technology. The advancement in technology foster comprehensive opportunities and at the same time poses extraordinary challenges for the marketers. Marketers make use of Digital collection as a platform to promote a professional brand by defining the product in a manner that adds reliability. Research highlights that B2B buyers dislike cold emails and calls, hence, Digital marketing allows enough provisions for finding the right people through its efficient search engine and relations. In the present era, buyers expect knowledge that offers potential solution to their product related problems. The strong visibility of the business or the brand through digital marketing allows the consumers to develop apparent knowledge about the brand.

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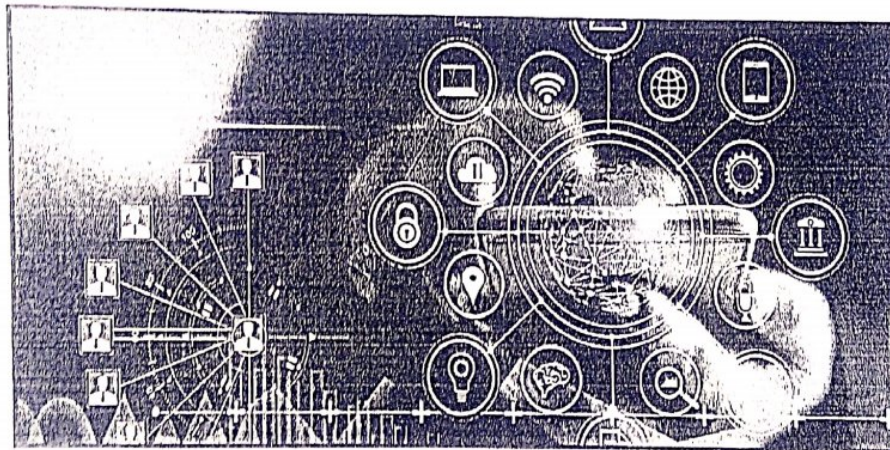
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English

1.	Growth of Digital Marketing in Indian Scenario	1
	Prof. Dr. Rajaram Nathaji Wakchaure	
2.	Digital Marketing Trends For 2022.....	7
	Dr. B. D. Ranpise, Ashwini Khanderao Pawar	
3.	Effects of Demonetization on E- Commerce	10
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17.	E-banking Services in India.....	55
	Dr. Sunil Sakhahari Mohate	
18.	Recent Trends in Digital Marketing.....	59
	Dr. Unde S. A., Dr. Rohamare S. S.	
19.	Cashless Economy.....	64
	Dr. Jayshree Dighe, Miss Harshada Naikwade	

New Trends in E-Banking in India

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Abstract :

Banking is now no more limited in going and visiting the bank in person for various purposes like depositing withdrawing money, requesting for account statement, stop a payment. You can also keep a track of your account transactions and balance all the time. Now getting passbook updates to know the total account balance is a matter of past. The main aim is to provide the customers much faster service with low cost. The foreign banks are entering into Indian banking market.

This research paper is focused on technology used in E-Banking, current uses of technology in bank, advantages of the technology, challenges of the technology, legal issues- IT act 2000. E banking comprises of internet banking, smart cards, debit cards, credit cards, automated teller machines and charge card etc.

Keyword : E-banking.

Introduction:

A bank is a financial institution that provides banking and other financial services to their customer. Bank provides fundamental services that is accepting deposits and providing loans. Non banking institution also provides certain banking services. The Indian banking sector is broadly classified into scheduled banks and non- scheduled banks. All banks which are included in the second schedule to the Reserve Bank of India act 1934 are scheduled banks. These banks comprise scheduled commercial banks and scheduled cooperative banks. Scheduled cooperative banks consist of scheduled state cooperative banks and scheduled urban cooperative banks. Scheduled commercial banks in India are categorized into 5 different groups these are State Bank of India and its associates, nationalized banks, private sector banks, foreign banks, regional rural banks.

E-Banking refers to electronic banking this banking is also called green banking, virtual banking. It also refers to conducting banking activities with the help of information technology and computer computerization of banking. E-Banking implies provision of banking products and services through electronic delivery channels.

E-Banking refers to the banking services provided by the banks over the internet. Some of the services include paying of bills, funds transfer, viewing account statement. Banks also deliver their latest products and services over the internet. E-Banking is performed through a computer system or similar devices that can connect to the banking site via the internet. Now a days, you can also use E-Banking on your mobile phones using a Wi-Fi 5G connection in incoming days.

This progress of electronic banking started with the use of automatic teller machines and then developed into internet banking. In the future mobiles will be vanished. Financial transaction online banking is the best option.

Computer systems are used to perform financial transactions electronically. The electronic fund transfer is used for electronic payments and customer initiated transactions where the card holders pay using credit or debit card. Withdrawal, deposit, intra-account transfer, enquiry, administrative transaction that covers financial transactions including PIN change are different transaction types.

Objectives of the study:

- To study various innovative services.
- To study the advantages of E-Banking.
- To study challenges of E-Banking.

Research methodology:

All the data of this research have been collected from secondary sources of data collection, from Banking related books and other from published and unpublished data.

Innovative services:

- **Mobile banking**

This is a recent facility available to customers. Generally this facility can be used for mobile banking. Bank provides this facility anywhere, at any time and in any condition or any place. Facilities include balance enquiry, fund transfer, credit book request etc. being the biggest bank in the country.

- **Credit card or debit cards**

The credit card holder is empowered to use the card wherever and whenever he wants with his Credit Card within the limits fixed by his bank. Credit cards include pre-paid card, postpaid card.

Debit cards are also known as check card. Debit cards look like credit cards but their functions are different. Debit is a 'pay prior', while a credit card is a way to 'pay later'; when you use a debit card, your money is quickly deducted from your savings account.

• Demat services

This service includes if any customers are interested to buy any securities from the capital market then it is necessary to open the demat account way to keep track your securities and investment over a period of time.

• RTGS

It is fund transfer mechanism where transfer of money takes place from one bank to another bank. This is the fastest possible money time. This is a possible to transfer system through the banking. In short, there are the various service provided through e-banking to the customer.

Advantages of e-banking:

- It Saves time.
- International banking can be done in less time.
- We can do internet banking 24/7 in any place. Need internet connections only.
- It provides well organized cash management for internet optimization.
- Stop payment or cheques.
- Demand draft/ pay order.
- Opening of fixed deposit account.
- Opening of letter of credit.
- Speed of concluding transactions.
- Safety banking from own home.
- Economy- banking without visiting your bank and cheaper service fees.
- Lower cost of both installation and maintenance.
- Platform independent.
- Remote Authorization.
- Easy customization.
- Highly scalable.

Challenges of e-banking:

1. Regularity risk : Because the internet allows services to be provided from anywhere in the world, there is a danger that the bank will try to avoid regulation and supervision. Determining when Bank electronic services trigger the need for license can be difficult. Regulators need to establish guidelines to the grey areas.

2. Legal Risk : E-Banking carrier heightened legal risk for banks. Banks can expand geographical scope of their services faster through e banking.
3. Operational risk : The Reliance of new technology to provide services makes security and availability. The central operational risk of e-banking needs to become an integral part of banks, overall management of risk and supervisors need to include operational risks in their safety and soundness evolution. Risk arising from execution companies business functions.
4. Credit risk : Risk of loss arising from borrowers who does not make payments as promised.
5. Liquidity Risk : Risk that is given security or assets cannot be traded weakly enough in the market to prevent the loss.
6. Market risk : Risks are that the value of portfolio, either an investment portfolio or a trading portfolio will decrease due to the change in value of the market risks factor.
7. Reputational risk : A type of risk related to the trustworthiness of business
8. Microeconomic risk : Risks related to the aggregate economy the bank is operating.

Conclusion :

In India 'E-Banking' is becoming immensely popular. Indian banking system is a very important for Indian economy. The main function of accepting deposit and lend loan is done by traditional banking. But e banking is borderless entity permitting anytime, anywhere and anyhow banking. Information Technology has played vital role in the advancement of banking system.

E banking is a difficult business and faces a lot of challenges while e banking provides many benefits to the customers.

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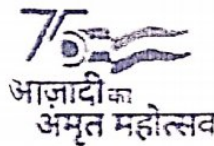
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Certificate



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