Report on the 10th South Asian Dragonfly Meeting and Symposium 2018

Raymond J. Andrew[1], Ashish D. Tiple[2], Neha Mujumdar[3], Pankaj Koparde[4*]
[1]Centre for Higher learning and research in Zoology, Hislop College, Civil Lines, Nagpur, Maharashtra, India
[2]Department of Zoology, Vidyabharti College Seloo, Maharashtra, India
[3]Bombay Natural History Society, Hornbill House, Opp. Lion Gate, Shaheed Bhagat Singh Road, Colaba, Mumbai, Maharashtra, India
[4]School of Ecology & Environmental Management, Faculty of Sustainability Studies, MIT World Peace University, Kothrud, Pune, Maharashtra, India
***corresponding author: [pankajkoparde@gmail.com]**

The 10th South Asian Dragonfly Meet and Symposium 2018 was organized by Hislop College, in association with South Asian Council of Odonatology, DragonflySouthAsia, and Maharashtra State Forest Department (Melghat Tiger Conservation Foundation) from 3 to 6 October 2018 at Hislop College, Nagpur, India, including a three-day workshop at Melghat Tiger Reserve (Semadoh), Amravati, India. Mr Nitin Kakodkar, Additional Principal Chief Conservator of Forest (Maharashtra State), was the chief guest of the inaugural function which was presided over by Prof. D. B. Tembhare, past President, South Asian Council of Odonatology and ex-head, PGD Zoology, RTM Nagpur University. The dais was shared by the Principal of Hislop College, Dr Dipti Christian and Conveners of the Symposium, Dr K. A. Subramanian (Zoological Survey of India, Chennai) and Dr R. J. Andrew. The welcome address was followed by the release of the souvenir (in CD format). Dr R.J. Andrew, President, South Asian Council of Odonatology, and Convener of the Symposium spoke about various symposia and conferences of Odonatology organized by the South Asian Council of Odonatology held at different places in India, including the fifth, seventh and eighth at Nagpur under his leadership and also the 18th International Symposium of Odonatology which was organized by Hislop College in 2008. Dr Dipti Christian, Principal of Hislop College, lauded the efforts taken by the Department of Zoology in organizing such academic activities. She focused on the need for conservation of biodiversity and habitats. The chief guest Mr Nitin Kakodkar spoke about the similarity between tiger and dragonfly in its own biotope. He further added that the potential of the odonates is yet to be understood as they have a definite role to play in maintaining ecology in a given ecosystem, and the biodiversity to be protected. Prof. D. B. Tembhare was felicitated for his forty years of research in odonatology and being the perfect role-model teacher for his students. He informed delegates about the work undertaken by the South Asian Council of Odonatology, and the role undertaken by Hislop College in organizing various programs for the council. During the vote of thanks, Dr Andrew felicitated the persons who have helped him in organizing various odonatology symposia for the last 25 years. The list included Dr Manu Thomas (Madras Christian College, Tambaram, Chennai), Dr Gurinder Kaur Walia (Punjabi University, Patiala), Dr D.D. Barsagade, Dr S.S. Bakare, Dr S.S. Shrikhande, Dr Avinash Upadhyay, Dr Ashish Tiple, Dr Deepa Jamwal and Dr Anjali Andrew. The whole-hearted cooperation rendered by Mr M. Srinivasa Reddy, Chief Conservator of Forest and Field Director, Melghat Tiger Project, Amravati in the organization of the workshop at Semadoh, was appreciated and acknowledged.

After the address of the guests, the first session started with the Keynote address by Dr K. A. Subramanian (Odonata of the Himalayan region), followed by a plenary talk on dragonflies of Kerala by Mr Balachandran V. (General Secretary, Indian Dragonfly Society). In the second session, Mr David Raju (naturalist and author) presented a talk on the Biodiversity of Central India followed by an academic presentation by Dr Anulin Christudhas on *in silico* analysis of dragonfly defensin for its antibacterial activity. Post-lunch the participants departed for Melghat for the workshop session which was arranged at the Semadoh area of Melghat forest (21.4458 N, 77.1972 E, 564 m asl). The idea of the workshop was to provide a platform for researchers and amateurs working on odonates across India, to conduct field surveys, and to meet, interact and discuss their work. As soon as the participants reached Semadoh, Dr Ashish Tiple (Head, Dept. of Zoology, Vidhyabharati College, Selu) briefed them on the workshop schedule, activities to be undertaken and the general agenda of the workshop.

On 4th October morning, a field trip was arranged to Sipana River and Jawahar Kund waterfall in Melghat Tiger Reserve. The trip was led by Dr Ashish Tiple, Dr Gaurav Sharma (Zoological Survey of India, Solan) and Mr Shantanu Joshi (National Centre for Biological Sciences, Bangalore). Nineteen species of odonates were sighted during the trip. The field trip was followed by talks on understanding Odonata and Odonata behavioral biology by Neha Majumdar (Bombay Natural History Society, Mumbai), followed by a presentation on the taxonomy of Odonata by Mr Amila Sumanapala (Butterfly Conservation Society of Sri Lanka). Both these audio-visual lectures provided participants with basic knowledge on the identification of common odonates of the region. This session was followed by student participant presentations.

Mongolian Journal of Biological Sciences

An Updated List of Odonata Species from Athgarh Forest Division, Odisha, Eastern India (Insecta: Odonata)

Arajush Payra

Suraj Kumar Dash

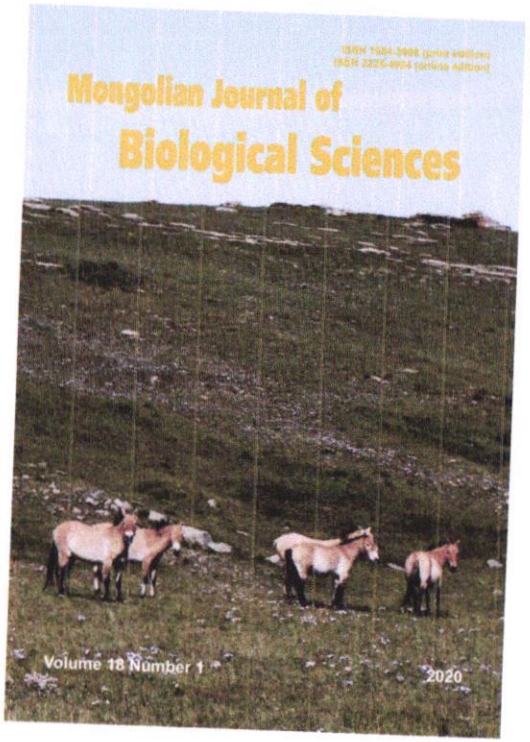
Himanshu Shekhar Palei

Ashish D Tiple

Arun Kumar Mishra

Rabindra Kumar Mishra

Srusti Dhar Rout



PDF

Abstract

Altogether 72 species of Odonata belonging to 46 genera and 9 families were recorded from Athgarh Forest Division, of which 32 species are representatives of the suborder Zygoptera and 40 species are members of the suborder Anisoptera. Athgarh Forest Division represents 65.4 % of the Odisha state and 14.7 % of the Indian Odonata fauna. Among recorded species, 17 species are newly recorded for Athgarh Forest Division. Elattoneura nigerrima Laidlaw, 1917 is reported for the first time from the state, and occurrence of Indothemis carnatica (Fabricius, 1798) in Odisha is confirmed here for the first

Published

https://biotaxa.org./mjbs
DOI:10.22353/mjbs.2020.18.07
Volume 18(1), 2020

Mongolian Journal of Biological Sciences

ISSN 1684-3908 (print edition)
MJBS
ISSN 2225-4994 (online edition)

Original Article

An Updated List of Odonata Species from Athgarh Forest Division, Odisha, Eastern India (Insecta: Odonata)

Arajush Payra[1,2], Suraj Kumar Dash[2], Himanshu Shekhar Palei[3], Ashish D Tiple[4], Arun Kumar Mishra[5], Rabindra Kumar Mishra[2] and Srusti Dhar Rout[2]

[1]*Ramnagar, Pin-721441, Purba Medinipur, West Bengal, India*
[2]*Department of Wildlife and Biodiversity Conservation, North Orissa University, Mayurbhanj, Odisha, India*
[3]*Aranya Foundation, 625/12, Mars Villa, Panchasakha Nagar, Bhubaneswar, Odisha, India*
[4]*Department of Zoology, Vidhyabharti College, Seloo,Wardha, Maharastra, India*
[5]*Divisional Forest Officer, Athgarh Forest Division, Cuttack, Odisha, India*

Abstract

Altogether 72 species of Odonata belonging to 46 genera and 9 families were recorded from Athgarh Forest Division, of which 32 species are representatives of the suborder Zygoptera and 40 species are members of the suborder Anisoptera. Athgarh Forest Division represents 65.4 % of the Odisha state and 14.7 % of the Indian Odonata fauna. Among recorded species, 17 species are newly recorded for Athgarh Forest Division. *Elattoneura nigerrima* Laidlaw, 1917 is reported for the first time from the state, and occurrence of *Indothemis carnatica* (Fabricius, 1798) in Odisha is confirmed here for the first time. *Pseudagrion spencei* Fraser, 1922 is also added to the Odonata fauna of Odisha and reported for the second time in the state from Athgarh Forest Division.

Key words: Odonata, distributional records, habitat, Odisha state, India
Article information:
Received: 31 March 2020
Accepted: 26 June 2020
Published online: 30 June 2020
Correspondence: arajushpayra@gmail.com

Cite this paper as: Payra, A., Dash, S. K., Palei, H. S. Tiple, A. D., Mishra, A. K., Mishra, R. K. & Rout, S. D. 2020. An updated list of odonata species from Athgarh Forest Division, Odisha, eastern India (Insecta: Odonata). *Mong. J. Biol. Sci.*, 18(1): 55-64.

Introduction

The Odonata (damselflies and dragonflies) is one of the oldest insect orders with origin spanning back to the Carboniferous era, about 250 million years ago. They probably mark the first time that evolution experimented with the ability to hover in the air over an object of interest (Subramanian, 2005; Andrew *et al.*, 2008). They are beautifully coloured insects; spend their major part of their life cycle in freshwater ecosystems, such as rivers, streams, lakes, marshes, rice fields and known as the quintessence of freshwater health. They are not only important for water-rich habitats such as wetlands, lakes, and rainforests, but also significant for habitats where water is scarce, and therefore order Odonata regarded as a flagship group of insects (Dijkstra, 2007).

Worldwide, 6256 species in 686 genera of odonates have been reported, of which India known to represent 488 species, 27 subspecies in 152 genera under 18 families (Subramanian & Babu, 2017). Some of the noticeable works on Odonata fauna of Odisha were carried out by Laidlaw (1915), Fraser and Dover (1922), Srivastava and Das (1987), Prasad and Ghosh (1988), Mitra (2000, 2002), Sethy and Siddiqui (2007), Das *et al.* (2010, 2012), Nair (2011), Debata *et al.* (2013), Sajan and Mohapatra (2013), Kalita *et al.* (2014), Nair and Subramanian (2014), Payra *et al.* (2014, 2019),

TRAVAUX DU MUSÉUM NATIONAL D'HISTOIRE NATURELLE «GRIGORE ANTIPA»

THE JOURNAL OF "GRIGORE ANTIPA" NATIONAL MUSEUM OF NATURAL HISTORY

Papers published: **12**

Total pages: **186**

Printed version: **Paperback**

OPEN ACCESS

Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa" 63(2) (2020)

Short Communication

First Record of *Epophthalmia frontalis* from Central India (Insecta: Od Macromiidae)

Ashish D. Tiple, Arajush Payra

10.3897/travaux.63.e52897

31-12-2020

Research Article

Dragonflies and Damselflies (Odonata: Insecta) of the Bor Wildlife Sa Wardha, Maharashtra, Central India

TRAVAUX DU MUSÉUM NATIONAL D'HISTOIRE NATURELLE «GRIGORE ANTIPA»
THE JOURNAL OF "GRIGORE ANTIPA" NATIONAL MUSEUM OF NATURAL HISTORY

Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa" 63 (2): 127–130 (2020)
doi: 10.3897/travaux.63.e52897

SHORT COMMUNICATION

First Record of *Epophthalmia frontalis* from Central India (Insecta: Odonata: Macromiidae)

Ashish D. Tiple[1], Arajush Payra[2]

1 *Post Graduate Department of Zoology, Vidyabharti College, Seloo, Wardha, Maharashtra 442104, India*

2 *Ramnagar, Purba Medinipur, West Bengal 721441, India*

Corresponding author: *Ashish D. Tiple* (ashishdtiple@gmail.com)

Received 4 April 2020 | Accepted 11 June 2020 | Published 31 December 2020

Citation: Tiple AD, Payra A (2020) First Record of *Epophthalmia frontalis* from Central India (Insecta: Odonata: Macromiidae). Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa" 63(2): 127–130. https://doi.org/10.3897/travaux.63.e52897

Abstract

Epophthalmia frontalis, a new Macromiidae dragonfly for Central India, is recorded from Seoni of Madhya Pradesh based on a collection of a single male. In India, earlier, this species was only known from a few places of Western Ghats and Eastern India. Diagnostic characters with closely resemble species and field photographs are given.

Keywords

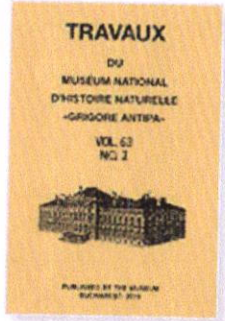
New Record, *Epophthalmia*, Madhya Pradesh

In the Indian fauna, family Macromiidae Needham, 1903 has 17 species represented by only two genera i.e. *Epophthalmia* Burmeister, 1839 and *Macromia* Rambur, 1842. Genus *Epophthalmia* was first proposed by Burmeister in his well know volume "Handbuch der Entomologie" in 1839 (Lieftinck 1931), with the type species *Epophthalmia vittata*. At present, genus *Epophthalmia* consists of six described species and confined only in the Asian countries (Schorr and Paulson 2020). In India, genus *Epophthalmia* is represented by three species (Subramanian and Babu 2017). *Epophthalmia vittata* Burmeister, 1839 is a frequently reported species in India and recorded from Andaman and Nicobar Islands, Andhra Pradesh, Goa, Jharkhand, Chhattisgarh, Kerala, Maharashtra, Odisha, Uttarakhand, Tamil Nadu, Tripura,

TRAVAUX DU MUSÉUM NATIONAL D'HISTOIRE NATURELLE «GRIGORE ANTIPA»

THE JOURNAL OF "GRIGORE ANTIPA" NATIONAL MUSEUM OF NATURAL HISTORY

In this issue



Papers published: **12**

Total pages: **186**

Printed version: **Paperback**

OPEN ACCESS

Go to issue

« Previous Issue 63(2) Next »

Issue No Number No

from 62 to 65 Go

Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa" 63(2) (2020)

Sort by: Pub

Select: All None Dow

Short Communication

First Record of *Epophthalmia frontalis* from Central India (Insecta: Oc Macromiidae)

Ashish D. Tiple, Arajush Payra

10.3897/travaux.63.e52897

31-12-2020

Research Article

Dragonflies and Damselflies (Odonata: Insecta) of the Bor Wildlife Sa Wardha, Maharashtra, Central India

TRAVAUX DU MUSÉUM NATIONAL D'HISTOIRE NATURELLE «GRIGORE ANTIPA»
THE JOURNAL OF "GRIGORE ANTIPA" NATIONAL MUSEUM OF NATURAL HISTORY

Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa" 63 (2): 131–140 (2020)
doi: 10.3897/travaux.63.e52922

RESEARCH ARTICLE

Dragonflies and Damselflies (Odonata: Insecta) of the Bor Wildlife Sanctuary, Wardha, Maharashtra, Central India

Ashish Tiple[1]

1 *Department of Zoology, Vidyabharti College, Seloo, Wardha 442 104, India*

Corresponding author: Ashish Tiple (ashishdtiple@gmail.com)

Received 5 April 2020 | Accepted 13 July 2020 | Published 31 December 2020

Citation: Tiple A (2020) Dragonflies and Damselflies (Odonata: Insecta) of the Bor Wildlife Sanctuary, Wardha, Maharashtra, Central India. Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa" 63(2): 131–140. https://doi.org/10.3897/travaux.63.e52922

Abstract

Dragonfly and damselfly (Odonata) species diversity was studied in the Bor wildlife sanctuary from 2011 to 2018. A total of 72 species of odonates belonging to 8 families were recorded. The study adds three new species for the Vidarbha region. The highest number of odonates belonged to the family Libellulidae (31 species) followed by Coenagrionidae (15 species), and Aeshnidae (six species). Of the total, 30 species were very common, 18 were common, seven were frequent common, 11 rare and six very rare. Among all, six species were Data Deficient, *Indothemis carnatica* (Fabricius, 1798) is listed as Near Threatened and 64 were Least Concern, in IUCN red-list of threatened species. The observations support the value of the wildlife sanctuary area in providing valuable resources for Odonata.

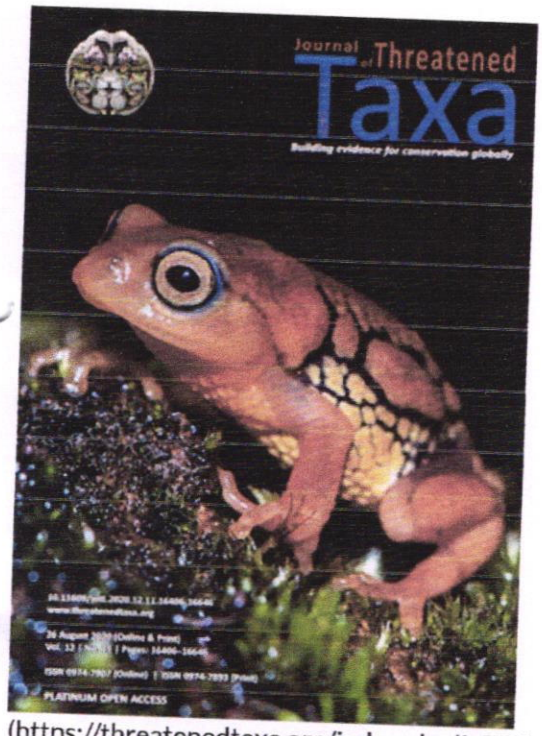
Keywords

Odonata, diversity, Bor Wildlife Sanctuary, Wardha, Mahrashtra, India

Introduction

Odonata (damselflies and dragonflies) is one of the oldest and amphibious insect order, with origins spanning back to Carboniferous era, about 250 million years ago. Dragonflies are very interesting and diverse insects. Odonates are freshwater insects and play an important role in wetland and terrestrial food chains as predators. The adults are generally predacious, while the larvae are carnivorous and voracious feed-

Butterfly (Lepidoptera: Rhopalocera) fauna of Jabalpur City, Madhya Pradesh, India



(https://threatenedtaxa.org/index.php/JoTT/issue/view/16407-16646)

PDF/A (https://threatenedtaxa.org/index.php/JoTT/article/view/4168/6947)

HTML (https://threatenedtaxa.org/index.php/JoTT/article/view/4168/6971)

Published: Aug 25, 2020

DOI: https://doi.org/10.11609/jott.4168.12.11.16607-16613
(https://doi.org/10.11609/jott.4168.12.11.16607-16613)

Keywords:
Butterflies, central India, diversity, new records

Jagat S. Flora
46, Napier Town, Jabalpur, Madhya Pradsh 482001, India.

Ashish D. Tiple
Department of Zoology, Vidyabharti College, Seloo, Wardha, RTM Nagpur University Nagpur, Maharashtra 442104, India.
http://orcid.org/0000-0002-2073-6387 (http://orcid.org/0000-0002-2073-6387)

Ashok Sengupta
Kendriya Vidyalaya, No. 1 Jalahalli, Bengaluru, Karnataka 560015, India.

Journal of Threatened Taxa | www.threatenedtaxa.org | 26 August 2020 | 12(11): 16607–16613
ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)
DOI: https://doi.org/10.11609/jott.4168.12.11.16607-16613
#4168 | Received 29 March 2020 | Final received 23 July 2020 | Finally accepted 30 July 2020

SHORT COMMUNICATION

Butterfly (Lepidoptera: Rhopalocera) fauna of Jabalpur City, Madhya Pradesh, India

Jagat S. Flora [1], Ashish D. Tiple [2], Ashok Sengupta [3] & Sonali V. Padwad [4]

[1] 46, Napier Town, Jabalpur, Madhya Pradsh 482001, India.
[2] Department of Zoology, Vidyabharti College, Seloo, Wardha, RTM Nagpur University Nagpur, Maharashtra 442104, India.
[2,4] Tropical Forest Research Institute, Jabalpur, Madhya Pradesh 482021, India.
[3] Kendriya Vidyalaya No. 1 Jalahalli, Bengaluru, Karnataka 560015, India.
[1] florajagat@gmail.com, [2] ashishdtiple@gmail.com (corresponding author), [3] ashokjbp@gmail.com, [4] sonalipadwad@yahoo.co.in

Abstract: The present study was carried out to reveal the butterfly species diversity in the Jabalpur City, Madhya Pradesh, India. Study was carried out from January 2008 to 2018. A total of 112 species were recorded, with an addition of 41 new species for Jabalpur district and one species for the state of Madhya Pradesh. Of the total, 42 species were very common, five were frequent common, 18 were rare, and four were very rare. Nymphalidae was dominant with 39 species, followed by Lycaenidae with 38, Pieridae with 15 species, Hesperiidae with 14, Papilionidae with eight and Riodinidae with one species. About six species of the recorded ones come under the protection category of the Indian Wildlife (Protection) Act, 1972. The study illustrated the value of Jabalpur City area in hosting valuable resources for butterflies.

Keywords: Butterflies, central India, diversity, new records.

Among insects, butterflies are sensitive biota severely affected by the environmental variations and changes in the forest structure as they are closely dependent on plants (Pollard 1991). Butterflies are generally regarded as one of the best taxonomically studied groups of insects; they have been studied systematically since the early 18th century and about 18,000 species are documented worldwide (Martinez et al. 2003). This figure is not constant because of the continuous addition of new butterflies and also due to ongoing disagreements between taxonomists over the status of many species.

The Indian subcontinent with a diverse terrain, climate, and vegetation hosts about 1,504 species of butterflies (Tiple 2011) of which peninsular India hosts 351, and the Western Ghats 336. Butterflies enable sustenance of ecosystem services through their role in pollination and serving as important food chain components. Being potential pollinating agents of their nectar plants as well as indicators of the health and quality of their host plants (Tiple et al. 2006) and the ecosystem as a whole, exploration of butterfly fauna thus becomes important in identifying and preserving potential habitats under threat.

In central India the butterfly species diversity was reported earlier by Forsayeth (1884), Swinhoe (1886), Betham (1890, 1891), Witt (1909), and D'Abreu (1931) who documented a total 177 species occurring in the erstwhile Central Provinces (now Madhya Pradesh and Vidarbha). Subsequent monumental works and fauna volumes include several species from Madhya Pradesh and Chhattisgarh (Evans 1932; Talbot 1939, 1947; Wynter-Blyth 1957). In the recent past, several

Editor: Soumyajit Chowdhury, M.U.C Women's College, Burdwan, India.

Date of publication: 26 August 2020 (online & print)

Citation: Flora, J.S., A.D. Tiple, A. Sengupta & S.V. Padwad (2020). Butterfly (Lepidoptera: Rhopalocera) fauna of Jabalpur City, Madhya Pradesh, India. *Journal of Threatened Taxa* 12(11): 16607–16613. https://doi.org/10.11609/jott.4168.12.11.16607-16613

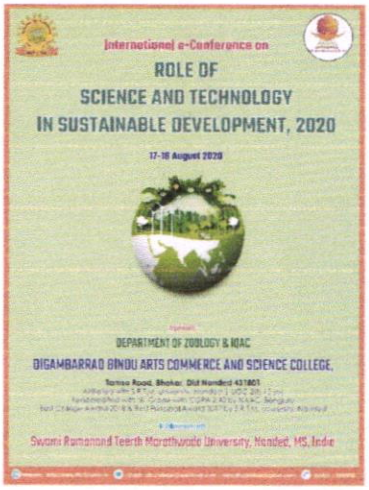
Funding: None.

Competing interests: The authors declare no competing interests.

Acknowledgements: Thanks to Dr. K.C. Joshi and Dr. Nitin Kulkarni, Senior Scientist, Tropical Forest Research Institute, Jabalpur for valuable suggestions and providing facilities.

INTERNATIONAL RESEARCH JOURNAL OF SCIENCE AND ENGINEERING

Special Issue | A10 | August, 2020



Special issue of International e-Conference on

"Role of Science and technology in Sustainable development-2020"

organized by

Department of Zoology & IQAC, Digambarrao Bindu ACS College, Bhokar, Dist. Nanded, Maharashtra, India

date, August 17-18, 2020.

PUBLISHED: 2022-07-10

IRJSE Int. Res. J. of Science & Engineering, Special Issue A10, August, 2020
ISSN: 2322-0015
SJIF Impact Factor 6.70
RESEARCH ARTICLE
OPEN ACCESS

Shoot induction and daidzein production in *Desmodium gangeticum* (L.) DC by using different Concentrations of Kinetin

Patil VN* and Deokule SS

*Vidyabharti College, Seloo Dist. Wardha - 442104 (MS) India.
Professor, Department of Botany, University of Pune, Pune- 411 007.
*Corresponding author Email : vnpatil85@gmail.com

Manuscript Details

Available online on https://www.irjse.in
ISSN: 2322-0015

Editor: Dr. Arvind Chavhan

Cite this article as:
Patil VN and Deokule SS. Shoot induction and daidzein production in *Desmodium gangeticum* (L.) DC by using different Concentrations, of Kinetin, *Int. Res. Journal of Science & Engineering*, 2020, Special Issue A10: 16-20.

Article published in Special issue of International e-Conference on "Role of Science and technology in Sustainable development-2020" organized by Department of Zoology & IQAC, Digambarrao Bindu ACS College, Bhokar, Dist: Nanded, Maharashtra, India date, August 17-18, 2020.

Abstract

Nodal explants were inoculated with basal cut surface down on MS medium with Kinetin. The different concentrations of Kinetin ranging from 0.25, 0.5, 0.75 and 1mg/lit were used for obtaining multiple shoots. After 40 days, maximum number of multiple shoots were obtained on medium containing 0.5mg/lit of Kinetin which was approximately 34.28±0.1 per culture. In the present study, 0.5mg/lit of Kinetin concentration was found to be an ideal concentration for high frequency of multiple shoots induction. This is the first report of such high frequency of multiple shoot induction in *D. gangeticum*. Maximum daidzein 7.991±0.02µg/g D.W. content was found at 0.25mg/lit kinetin. Minimum daidzein content was found at 1mg/lit Kinetin (5.504±0.02µg/g D.W.). We found that, the difference in the content of daidzein was also affected by concentration of Kinetin i.e. increased the concentration of Kinetin up to 0.5mg/lit, increased number of multiple shoots but decreasing concentration of daidzein.

Keywords: Kinetin, daidzein, multiple shoot, *Desmodium gangeticum*.

Introduction

Desmodium gangeticum (L.) DC belongs to family Fabaceae (Leguminoceae). It is known as Salparni in Sanskrit. It is a sub-erect, under-shrub 0.6–1.2m high with irregular angled, branched woody stem. Leaves are unifoliate or trifoliate. Flowers are small, pink to purple in color [1]. It is found in India, China, Africa, Australia, Ceylon, Burma, Malay Peninsula, Islands, Philippines and Tropical Africa [2, 3, 4].

Bhoyar Arts, Comm. & Sci. College ★ D.R.G. SELOO

PRINCIPAL
Vidyabharti College, Seloo

TOJSR
The Oxford Journal of Science and Research

ISSN No.: 2581-9380
TOJSR, 2020, 3 (1), 17-24

Some floristic diversity in Vidyabharti College Campus, Seloo, dist. Wardha (Maharashtra) India

V. N. Patil*

Department of Botany, Vidyabharti College, Seloo Dist. Wardha, India 442104

ABSTRACT: The present study was carried out to assess floristic diversity to collect the information and number of plant species in college campus. Up to this date, the progress is relatively slow, as the number of common names, synonyms is high in studied area. One of the grand tasks of current taxonomy is to prepare a checklist of plants of the globe. For this purpose critically examined data are required in regional floras and checklists with all the taxonomic tools. Certain areas mostly the rural areas remain poorly explored as the majority of novelties come from the tropics and numerous species in these areas still waiting to get recognition. Taking into consideration the importance of taxonomy, I have selected to study the floristic diversity of Vidyabharti Mahavidyalaya campus area Seloo of Wardha District with special reference to the number of individual species in the area. The Seloo is situated at 20°50′6″N and 78°42′33″E. In 2011, the Town population was nearer 40,000. The present study attempts to understand and highlight the rainy season floristic diversity of vast plant resources of the campus in a conservation perspective. A total of 80 species of flowering plants are documented in which 44 were herbs, 20 shrubs and 16 trees distributed in 25, 15, and 12 families respectively.

Keywords: *Floristic Diversity, taxonomy, survey*

INTRODUCTION

Floristic explorations and the taxonomic study provides resourceful and opportune information about the distribution, nomenclature, ecology, utility of diversities in plant species and thus consequently about an ecosystem. From the very beginning of inception of human beings on the earth man has relied on plants to fulfill his basic needs for his survival. Plants provide food, shelter and health. India is one among the 12 mega-biodiversity centers identified in the world having rich biodiversity indices, vast flora and fauna coupled with different topographical, ecological, climatic factors and about 18,664 taxa of vascular plants with 5725 endemics (Nayar, 1997). It is estimated that about ten million species of plants inhabit the planet earth. Out of that only 1.7 million species are known to science. Therefore, it is a strong need to study and explore the floristic wealth. However the plant diversity is under serious threat due to various anthropogenic activities and several species are disappearing and most of the species are awaiting to study. Various species are becoming extinct. Such a scenario indicated that, there is an urgent need of conservation of floristic diversity. To originate diverse strategies, the first important step is to explore and make inventories the flora of selected areas. Keeping this point in view, the present studies were initiated to explore and make inventories the plant species.

Therefore, an attempt has been made to study the plant species present in the Vidyabharti College Campus area. Different Morphological (external) characters are being studied like habit, height, stem, leaf, flowers, inflorescence and fruits etc representing diversity of plants in the college campus.

* *vnpatil85@gmail.com*

MUKt SHABd JOURNAL

Mukt Shabd Journal

UGC CARE LIST GROUP – I JOURNAL

UGC University Grants Commission

volume-9-issue-12-2020

Dr. R.G. Bhoyar Arts, Sci. College SELOO

PRINCIPAL
Dr. R. G. Bhoyar Arts, Comm. & Science College, SELOO

Dr. R.G. Bhoyar Arts, Comm. & Sci. College SELOO

PRINCIPAL
Dr. R. G. Bhoyar Arts, Comm. & Science College, SELOO

FOOD SECURITY IN MAHARASTRA: REGIONAL DISPARITIES

Prof. Dr. Parag R. Kawley
(M.Com.,Ph.D.)
Assistant Professor,
Vidyabharti College, Seloo
Ta. Seloo, Dist. Wardha.

ABSTRACT

Regional disparities all along with food security have remained an issue of debate in Maharashtra yet while its commencement as a State in 1960. Some studies have examined economic development as well as food security issues at the regional level, although there has been no efficient effort made to analyze food security systematically pleasing into account its four elements viz. accessibility, convenience, sustainability, and consumption. The circular argument that disparities in investment lead to underdevelopment and accordingly food uncertainty is a part of our well-built dispute. Therefore, an effort is made in this paper to comprehend food security across regions of Maharashtra. The results make known three major groups of regions in terms of food insecurity. Whereas certain regions practice food arrears and lower poverty alongside a higher level of nutritional status, the other regions reveal higher levels of under-nutrition and poverty along with comparatively higher and medium food competence.

Key Words: Food Security, Nutrition Security, Region, Maharashtra in India.

INTRODUCTION

Maharashtra has not only been proclaimed as one of the economically developed States but also has remained at the top amongst the States in conditions of pertinent economic indicators. The Net State Domestic Product (NSDP) and Per Capita Income (PCI) put the State amongst the summit three economically front position States. The NSDP of the State for 2004-05 worked out to 3, 38,254 crores at current prices, which is higher than India's NSDP. In addition to this, the PCI of the State has been continuously higher more than the years as compared to the national average (GoI, 2006). Notwithstanding this knowledge of enlargement, the issue of regional disparities regarding development initiatives crossways regions of Maharashtra has engaged the center stage of discussion for a long (Dandekar Committee, 1984; and Vidwans, 1996). Amid the current studies, we have recognized two sets of studies that generally observe the issue of regional disparities in the State. While the first set analyses the state of economic development athwart regions (Prabhu and Sarker,

MUKt SHABd JOURNAL

Mukt Shabd Journal

UGC CARE GROUP - I JOURNAL

ISSN NO : 2347-3150 / web : www.shabdbooks.com / e-mail : submitmsj@gmail.com

Certificate ID : MSJ/3037

ज्ञान-विज्ञान विमुक्तये
UGC
APPROVED

IMPACT FACTORS 4.6

DOI:09.0014.MSJ

crossref member
CROSSREF.ORG
THE CITATION LINKING BACKBONE

CERTIFICATE OF PUBLICATION

This is to certify that the paper entitled

"FOOD SECURITY IN MAHARASTRA: REGIONAL DISPARITIES"

Authored by

Prof. Dr. Parag R. Kawley, Assistant Professor

From

Vidyabharti College, Seloo Ta. Seloo, Dist. Wardha.

Has been published in

MUKT SHABD JOURNAL, VOLUME IX, ISSUE XII, DECEMBER - 2020

Sumit Ganguly
Editor-In-Chief
MSJ
www.shabdbooks.com

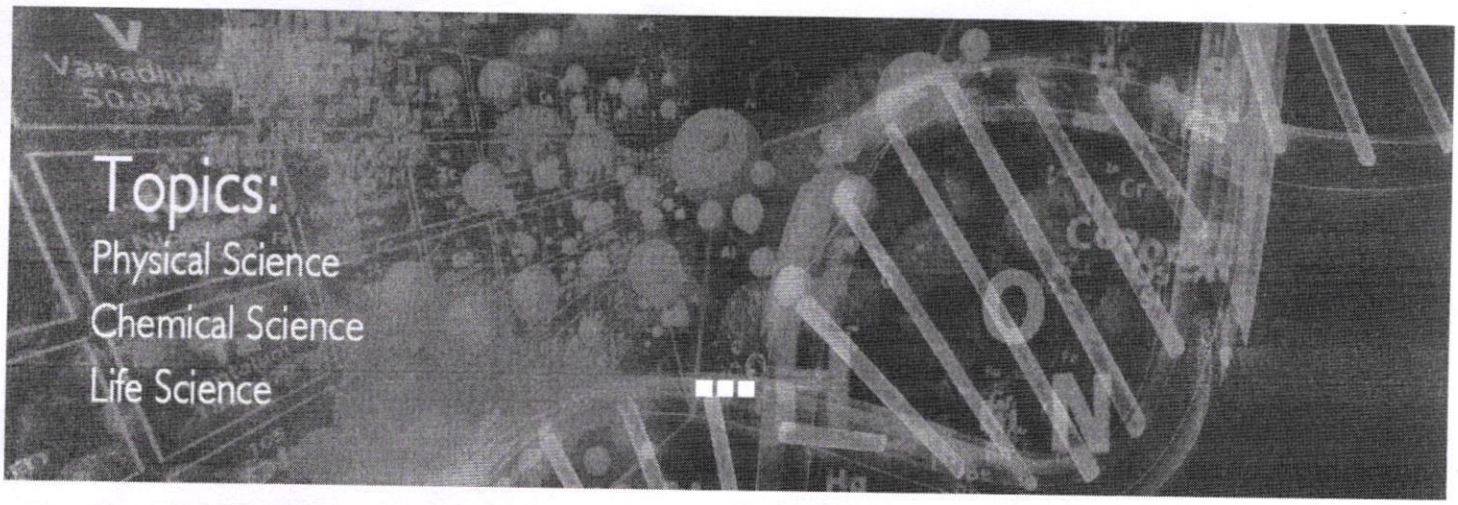
Dr. R.G. Bhoyar Arts, Comm. & Science College ★ SELOO

PRINCIPAL
Dr. R. G. B... Arts, Comm.
& Science College, SELOO

The Oxford Journal of Science & Research

Topics: Physical Science / Chemical Science / Life Science
Current Issue: 5 June 2018, Volume 1, Issue 1, PP 1-95

INDEX



TOJSR PUBLICATIONS

ISSUE III

- Yawar Alamgeer
- Kokila Srinivasa
- Sangita Shah
- V. N. Patil
- Akshatha Banadka
- Dipti Lata
- Silva Kanta Lakra
- S.B. Patil
- Raji Sukumar
- Pooja.M.Dyapanagoudar
- Yogesh B.J
- Vienna Dorothy Fernandes

ISSUE II

- Sajana Balan Manian
- Bharathi S
- Prathibha nair
- Deepasri Prabhakar
- Ashwini.S.M
- Narayanaswamy
- Soujanya V
- Raji Sukumar

Dr. R.G. Bhoyar Arts, Comm. & Sci. College SELOO

PRINCIPAL
Dr. R. G. B... Arts, Comm.
& Sci... College, SELOO

TOJSR
The Oxford Journal of Science and Research

ISSN No.: 2581-9380
TOJSR, 2020, 3 (1), 17-24

Some floristic diversity in Vidyabharti College Campus, Seloo, dist. Wardha (Maharashtra) India

V. N. Patil*

Department of Botany, Vidyabharti College, Seloo Dist. Wardha, India 442104

ABSTRACT: The present study was carried out to assess floristic diversity to collect the information and number of plant species in college campus. Up to this date, the progress is relatively slow, as the number of common names, synonyms is high in studied area. One of the grand tasks of current taxonomy is to prepare a checklist of plants of the globe. For this purpose critically examined data are required in regional floras and checklists with all the taxonomic tools. Certain areas mostly the rural areas remain poorly explored as the majority of novelties come from the tropics and numerous species in these areas still waiting to get recognition. Taking into consideration the importance of taxonomy, I have selected to study the floristic diversity of Vidyabharti Mahavidyalaya campus area Seloo of Wardha District with special reference to the number of individual species in the area. The Seloo is situated at 20°50′6″N and 78°42′33″E. In 2011, the Town population was nearer 40,000. The present study attempts to understand and highlight the rainy season floristic diversity of vast plant resources of the campus in a conservation perspective. A total of 80 species of flowering plants are documented in which 44 were herbs, 20 shrubs and 16 trees distributed in 25, 15, and 12 families respectively.

Keywords: *Floristic Diversity, taxonomy, survey*

INTRODUCTION

Floristic explorations and the taxonomic study provides resourceful and opportune information about the distribution, nomenclature, ecology, utility of diversities in plant species and thus consequently about an ecosystem. From the very beginning of inception of human beings on the earth man has relied on plants to fulfill his basic needs for his survival. Plants provide food, shelter and health. India is one among the 12 mega-biodiversity centers identified in the world having rich biodiversity indices, vast flora and fauna coupled with different topographical, ecological, climatic factors and about 18,664 taxa of vascular plants with 5725 endemics (Nayar, 1997). It is estimated that about ten million species of plants inhabit the planet earth. Out of that only 1.7 million species are known to science. Therefore, it is a strong need to study and explore the floristic wealth. However the plant diversity is under serious threat due to various anthropogenic activities and several species are disappearing and most of the species are awaiting to study. Various species are becoming extinct. Such a scenario indicated that, there is an urgent need of conservation of floristic diversity. To originate diverse strategies, the first important step is to explore and make inventories the flora of selected areas. Keeping this point in view, the present studies were initiated to explore and make inventories the plant species.

Therefore, an attempt has been made to study the plant species present in the Vidyabharti College Campus area. Different Morphological (external) characters are being studied like habit, height, stem, leaf, flowers, inflorescence and fruits etc representing diversity of plants in the college campus.

* *vnpatil85@gmail.com*

Removal of Arsenic using *Cyanobacterial species* by Continuous Flow Fixed Bed Bioreactor System

Shilpa, P.Mankar[#1] and K.Roychoudhury*[2]

[#1]*Departmentof Microbiology, VidyabhartiCollege,Seloo(Dist.Wardha) RTM Nagpur University,India*

*[2]*Departmentof Microbiology, S.K.Porwal College, Kamptee(Retired)RTM Nagpur University,India*

[1] gawandeshilpa3@gmail.com

[2] roychoudhuryk@yahoo.com

Abstract*- Arsenic is one of the significant environmental pollutants and its toxicity directly or indirectly affects the ecology. A continuous flow fixed bed bioreactor is an efficient system for the growth of *Cyanobacteria* and it improves the removal efficiency of many metallic ions. Many times the removal efficiency of the system gets affected when the culture system is not axenic in nature. Continuous flow fixed bed bioreactor which was operated at the steady state was found to be useful in the removal of arsenic from the system. The results show all the three organisms namely, *Anabaena, Nostoc* and *Leptolyngbya* were able to remove more than 95% of arsenic from the system individually. It can be confirmed that arsenic removal efficiency may possible by *Cyanobacteria.

Keywords –Heavy metal, Arsenic removal, *Cyanobacterial spp.*, Bioreactor system, Continuous flow fixed bed bioreactor.

I. INTRODUCTION

Arsenic is toxic element, highly ubiquitous in nature, found naturally in water, soil and rocks and at times the certain quantity of arsenic is also found in living organism like plants, animals and microbes. The environment gets enriched by arsenic due to various natural activities as well as anthropogenic activities. The problem of arsenic pollutions became prominent in the early 20th century. In the last 40 years the menace of arsenic became more prominent in some parts of the world as they were hampering human health because of their capability to enter food chains in large amounts [1], [2]. So it is necessary to development of advanced technologies or arsenic management and treatment.

Various technologies have been used in the arsenic remediation. Some of the common among them are coagulation [3], adsorption[4], ion- exchange [5], electrocoagulation[6], biological processes [7]-[9]and phytoremediation[10]-[12]. Apart from this immobilization technology over biosorping materials have also been reported[13]. Report of arsenic tolerance and removal by Cyanobacterialspecies require a justification for the use of *Cyanobacteria* in the management of arsenic. A continuous flow fixed bed bioreactor is an efficient system for the growth of *Cyanobacteria* as these cells adhere to the matrix system employed in the reactor and improves the removal efficiency of many metallic ions. So for removal of arsenic by such a system has not been reported. Hence the basic intent of employing such a reactor was to evaluate its ability in the removal of arsenic.

II. MATERIALS AND METHOD

A. The design of continuous flow fixed bed bioreactor

A cylindrical glass column having the dimensions of height 66 cm, diameter 3.4 cm. was constructed a reservoir of 2 liter volume was kept at the top and connected to the column via peristaltic pump. The column was filled with stones and pebbles of approximate radius of 0.5-0.6 cm to such a height so that the working volume ranges 400 cm^3 along with the head space of 200 cm^3. The outlet of the column was joined to a discharge bottle which was finally connected to the effluent reservoir. The geometric and the operating parameters of this reactor were calculated after filling the columns up to a desire height with stone pebbles. The flow rate of the medium was maintained at around 20 ml/hour. A continuous fed fixed bed photo-bioreactor was constructed and the design of the photo-bioreactor and its accessories are shown in Fig. 1.

ALOCHANA CHAKRA JOURNAL
(UGC-CARE GROUP-1 JOURNAL)

An ISO : 7021 - 2008 Certified Journal

ISSN NO: 2231-3990 / Web : http://alochanachakra.in/// e-mail : submitacj@gmail.com

Certificate of Publication

This is to Certify that the Paper Entitled

Removalof Arsenic using Cyanobacterial speciesby Continuous Flow Fixed Bed Bioreactor System

Authored by:

Shilpa, P.Mankar

From

Departmentof Microbiology, VidyabhartiCollege,Seloo(Dist.Wardha)
RTM Nagpur University,India

Has been published in

AC JOURNAL, VOLUME IX, ISSUE V, MAY-2020

L Zadeh (Univ. of California, USA)
Editor-In-Chief
ALOCHANA CHAKRA JOURNAL
http://alochanachakra.in/

Dr. R. G. Bhoyar Arts, Comm. & Science College, SELOO

PRINCIPAL
Dr. R. G. Bhoyar Arts, Comm.
& Science College, SELOO

ISSN NO:2231-3990

Comparative Study of Estimation of Gibberellic acid (GA_3) by Analytical Methods

Kshama Murarkar[#1], Dewanand Satpute*[2], D. M. Dharmadhikari[#3]
[#1]Department of Microbiology, Vidyabharti College, Seloo (Dist-Wardha), RTM, Nagpur University
[*2] National Environmental Research Institute (NEERI), Nagpur (Retired), India
[#3] National Environmental Research Institute (NEERI), Nagpur (Retired), India
[1]kmurarkar@gmail.com
[2]satpute1952@gmail.com

Abstract— **Gibberellins are plant hormones which act as chemical messengers to control plant growth and development. They are synthesized via the terpenes route from the geranylgeranyl diphosphate and feature a basic structure formed by an ent-gibberellane tetracyclic skeleton and are involved in a number of developmental and physiological processes in plants. Plants and some microorganisms such as fungi and bacteria produce it. Out of many gibberellins GA_3 is extensively used as plant growth regulator in agriculture, horticulture and plantation crop.**

In the present paper gibberellic acid (GA_3) has been produced by solid state fermentation (SSF) process using a fungal strain *Gibberella fujikuroi* NCIM 1099 and solid substrates banana waste, tomato waste ,spinach waste, potato waste, pea waste, maize cob waste, sorghum straw waste and pigeon pea pod waste. SSF carried out for 8 days under pre-standardized conditions isolated using ethyl acetate and crystallized by diethyl ether. The estimation of GA_3 has been carried out by UV/VIS spectrophotometry and reverse phase High performance liquid chromatography (HPLC).

PERKIN-ELMER lambda 900, UV/VIS/NIR spectrophotometer has been used for estimation of gibberellic acid (GA_3). An absorption maximum of gibberellic acid complex (formed with 60 % of concentrated sulphuric acid) was found to be at 277.83 nm.

HPLC instrument with Schimadzu LC-10 system using µ Bondapak C-18 column (3.9 mm x 300 mm) with particle size 10 µm and photodiode array detector has been used for estimation of GA_3. Standards of GA_3 and unknown samples prepared in HPLC grade methanol injected in HPLC instrument using the mobile phase methanol. The flow rate of samples has been set at 1ml/minutes. The maximum absorbance for standard and unknown GA_3 was obtained at 212 nm.

From the straight line equation of standard gibberellic acid (GA_3) solutions unknown GA_3 samples has been estimated and calculated in gm/kg of solid wastes used. The calculated yield of GA_3 obtained from SSF of pigeon pea pod waste was superior in both UV/VIS/NIR spectrophotometry (18.99 ± 2.87 gm/kg) and HPLC (15.01 ± 2.35 gm/kg) to the other wastes used for production of gibberellic acid.

Key words— **Gibberellic acid (GA_3), *Gibberella fujikuroi* NCIM 1099, Solid state fermentation, UV/VIS/NIR spectrophotometry, High performance liquid chromatography (HPLC).**

I. Introduction

Gibberellins are important plant growth regulators. They are synthesized via the terpenes route from geranylgeranyl diphosphate. The basic structure of gibberellins formed by an ent-gibberellane tetracyclic skeleton. Among 136 isolated GAs, gibberellic acid (GA_3) has received the most attention.

Gibberellic acid (GA_3) is the main product of gibberellins in fungi and bacteria [2] and involved in number of developmental and physiological processes in plants. They are endogenous hormone functioning as plant growth regulator such as development of plant such as germination, stem elongation, dormancy, sex expression and fruit senescence,expansion of leaves and flowers[2-4].They stimulate the activity of transference, generating higher development of xylem and phloem in ligneous plant [5-7]. These properties make gibberellins a valuable tool in agriculture to increase yield [1][8].

GAs is found in plant, algae, fungi, and bacteria. However, due to high concentrations in fungus industrial production of GAs are performed by submerged fermentation of the ascomycetes fungus *G.fujikuroi*. Production by plant extraction is not viable because of low concentrations of GAs, which contributes to waste generation [9].GA_3 is one of the best-selling and most important plant growth regulators (PGR). Because of the high investment and involved production costs, only few are still engaged in developing PGRs, reducing its large utilization [10].

In the present work gibberellic acid was produced by solid state fermentation (SSF) process using a fungal strain *Gibberella fujikuroi* NCIM 1099 fruits and agriculture waste of banana peels, tomato waste, spinach waste, potato waste, pea pod waste, maize cobs, sorghum straw, pigeon pea pod waste. The isolated gibberellic acid (GA_3) has been estimated by UV/VIS spectrophotometer and reverse phase High performance liquid chromatography (HPLC).The estimated GA_3 quantified in g/kg and yield has been compared.

PRINCIPAL
Dr. R. G. Bhoyar Arts, Comm.
& Science College, SELOO

ALOCHANA CHAKRA JOURNAL

(UGC-CARE GROUP-1 JOURNAL)

An ISO : 7021 - 2008 Certified Journal

ISSN NO: 2231-3990 / Web : http://alochanachakra.in/// e-mail : submitacj@gmail.com

Certificate of Publication

This is to Certify that the Paper Entitled

Comparative Study of Estimation of Gibberellic acid (GA3) by Analytical Methods

Authored by:

Kshama Murarkar

From

1Department of Microbiology, Vidyabharti College, Seloo (Dist-Wardha), RTM, Nagpur University

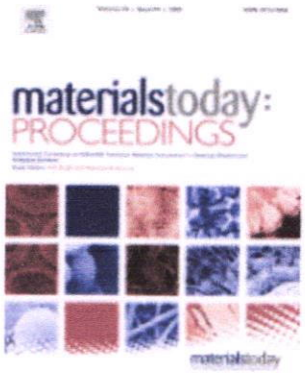
Has been published in

AC JOURNAL, VOLUME IX, ISSUE V, MAY-2020

L Zadeh (Univ. of California, USA)
Editor-In-Chief
ALOCHANA CHAKRA JOURNAL
http://alochanachakra.in/

Dr. R. G. Bhoyar Arts, Comm. & Science College, SELOO

PRINCIPAL
Dr. R. G. Bhoyar Arts, Comm.
& Science College, SELOO



PRINCIPAL
Dr. R. G. Bhoyar Arts, Comm.
& Science College, SELOO

Materials Today: Proceedings 29 (2020) 1246–1250

Contents lists available at ScienceDirect

Materials Today: Proceedings

journal homepage: www.elsevier.com/locate/matpr

A review on Nanotoxicology: Aquatic environment and biological system

Ashish D. Tiple [a], Vaishali J. Badwaik [a], Sonali V. Padwad [b], Ratiram G. Chaudhary [c], N.B. Singh [d,*]

[a] Post Graduate Department of Zoology, Vidyabharti College, Seloo, Wardha 442 104, MS, India
[b] Departments of Biotechnology, SGB Amravati University, Amravati 444602, MS, India
[c] Post Graduate Department of Chemistry, Seth Kesarimal Porwal College of Arts, Commerce and Science, Kamptee 441001, India
[d] Department of Chemistry and Biochemistry, SBSR, Research & Technology Development Centre, Sharda University, Greater Noida 201306, India

ARTICLE INFO

Article history:
Received 18 May 2020
Accepted 28 May 2020
Available online 2 July 2020

Keywords:
Nanotoxicology
Nanomaterials
Genotoxicity
Ecotoxicity
Oxidative stress

ABSTRACT

Nanotoxicology is a field of new and emerging research area in toxicology. This stream is related with the toxic effects of nanomaterials (NMs) on health and environment. They pose dangerous health effect, societal threat and environmental hazards due to their nanoscale diamensio. Physical, chemical properties of NPs and environmental factors collectively influence NPs behaviour and toxicity. The mechanism of NMs influencing the toxicity has been studied. Reactive oxygen species (ROS), oxidative stress, ecotoxicity, genotoxicity represents some mechanism. Here, this review will focus on topics including to chemical and physical properties of NMs and characterization for proper toxicological evaluation, exposure, environmental fate and transport, ecotoxic and genotoxic effects. This article discusses about possible sources and routes of NMs in the aquatic environment.

Selection and peer-review under responsibility of the scientific committee of the International Conference on Advanced Functional Materials (Innovations in Chemical, Physical and Biological Sciences).

1. Introduction

Nanotoxicology deals with the special problems caused by nanoparticles. The toxicity of nanomaterials/nanoparticles on life and environment is determined by nanotoxicology. Nanotoxicological studies are intended to know and understand environmental and health issues [1]. Nanoparticles may cause toxicity in various ways. It may interact with blood, tissue fluid and also can enter the central nervous system and affect cardiac and cerebral functions. During the transfer through various site of organism, nanoparticles may bind with mediators which can activate inflammatory responses [2]. Nanotoxicology was proposed as a new branch of toxicology to address the gaps in knowledge and to specifically address the adverse health effects likely to be caused by nanomaterials. Complexity of toxicity of nanoparticles is given in Fig. 1 [3].

Engineered nanomaterials (ENMs), form the hub for growing industry and manufactured products. The use of engineered nanomaterials increases nowadays. There is also an uncertainty, how it effects on biological system. The unawareness about biological effects of NMs creates concern regarding their potential for causing unexpected adverse health effects. During past decade research on environmental impacts of NMs has been flourished but studies on environmental fate, transport, and toxicity of a variety of nanomaterials are still lacking. In this review role of NMs in the aquatic environment and biological systems has been reviewed.

2. Physical and chemical properties of NPs influencing their toxicity

Physical and chemical properties of NMs make them suitable in several applications for humans such as medicine, energy production and also adversely affect the humans and the environment like penetrance in biological barriers causing cell damage. The physicochemical characteristics of nanomaterials, including their chemical composition, shape, size, stability, functionalization, charge, porosity and hydrophobicity/hydrophilicity, agglomeration or aggregation, mainly affect their interactions with biological molecules. In Fig. 2 the most important parameters of nanoparticles are summarized [4]. The impact of nanoparticle characteristics in their toxicity is represented in Fig. 3 [4].

* Corresponding author.
E-mail address: nbsingh43@gmail.com (N.B. Singh).

https://doi.org/10.1016/j.matpr.2020.05.755

Selection and peer-review under responsibility of the scientific committee of the International Conference on Advanced Functional Materials (Innovations in Chemical, Physical and Biological Sciences).

A comparative study of Innovations and Agricultural reforms towards Digital India

Prof.Dr. Siddhartha D. Nagdive

Vidyabharti College,Seloo, Dist:-Wardha (MS)

Preface: -

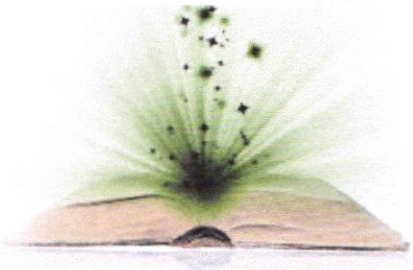
The era of current century changing rapidly. Every area is undergoing rapid changes over time. One thing that has not changed in the country's landscape is the suicide of farmer under the burden of debt. It is still continuing, but statistics say that, since 1995, farmer's suicides have been steadily increasing. The courts of the country took cognizance of farmer suicides cases and asked the government to promote the rural friendly policy for farmers. More than half of the country's people get employment from agriculture, yet why is the agriculture sector in so badcondition? Why does the farmer get a little bit profit in return against the mountain profit of industries? Today, the scientists, researchers, entrepreneurs and the government of the country need to make efforts to meet the challenges of the agriculture sector and to find employment opportunities in the agriculture sector.

With the advent of robotics, 3D printing and digitally controlled lasers, the manufacturing sector has become so automated that it is not possible for an unskilled agricultural labourer to have the option to work in a factory. The best way to deal with the problem is to develop skill in 'E-agriculture entrepreneurship". For which government and non- governmental organisations are playing an important role. Information technology and universality have given rise to diverse possibilities for a bright future in e- commerce. Today every big e-commerce businessman is looking for trained employees. Discussion of e-commerce is now happening in big cities as well as small towns. The number of people doing business through the internet is increasing. E-commerce is the new way of doing business. There is new way of better use of new technology and concrete means of establishing a company. If farmers and youth have to establish their supremacy in the era of modern competition, then they will have to be constantly connected to the world of new technological knowledge and modern mechanization. Being self –reliant, young generation should accept agricultural entrepreneurship as a better employment opportunity.

Journal of Applicable Chemistry

(An International Peer Reviewed Journal of Chemistry)

ISSN 2278 - 1862



WELCOME TO JOURNAL OF APPLICABLE CHEMISTRY

This Journal is an Interdisciplinary Open Access Bi-monthly Science Journal and is Dedicated to Late Smt. KAZA INDIRA DEVI, W/O Prof. Kaza Somasekhara Rao. It caters to all areas of Chemistry-Analytical, Inorganic, Organic, Physical, Environmental, Pharmaceutical, Microbiological, Green Chemistry, Agricultural, Nano and Chemical Education with aspects of some application (both fundamental and applied).

This journal accepts original Papers and Review articles from any of the above fields and publishes after reviewing. Many Research Workers simply do Research purely academic with projection to application but without appending any application part of the work. With this view, this Journal had started, so that it can be more useful to the Society, to sustain Environment, to make Wealth from Waste and to provide Lead Thoughts to young researchers.

Read More... (Welcome.aspx)

SEARCH

RESEARCH PAPERS,REVIEWS, CHEM EDU ARTICLES, AAA IN JOAC (2012-)

Article Title

Author name

Available online at **www.joac.info**

ISSN: 2278-1862

Journal of Applicable Chemistry

2020, 9 (6):1068

(International Peer Reviewed Journal)

AUTHOR INDEX

Available online at **www.joac.info**

ISSN: 2278-1862

Journal of Applicable Chemistry

2020, 9 (6): 898-903

(International Peer Reviewed Journal)

Green Synthesis of Novel Substituted 4, 4-Biphenothiazine Derivatives

M. N. Narule*, Vibha Nikose and Mamta Joshi

Department of Chemistry, Vidya Vikas Arts, Commerce and Science College, Samudrapur, Dist Wardha, 442305, **INDIA**

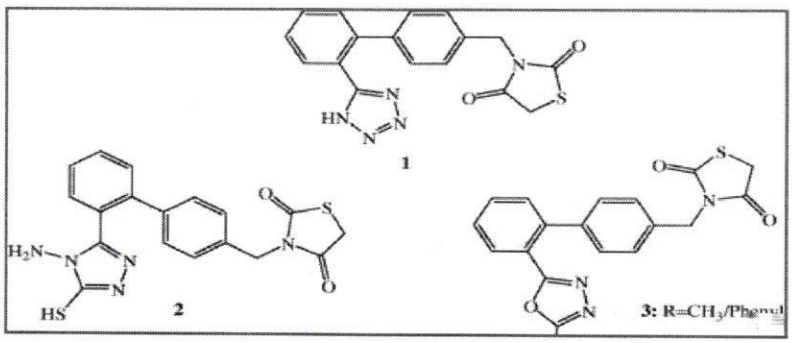
Email: meghasham_n@rediffmail.com

Accepted on 19th October, 2020

ABSTRACT

In this paper, common heterocyclic system contains nitrogen or oxygen or both plays an important role in the evolution of life. Comparison of conventional and microwave assisted synthesis of 4, 4 Biphenyl and 4, 4-Biphenothiazines is an intermediate use in the manufacture of thermoplastics such as liquid crystalline polymers, polyesters, polycarbonates and polysulfones. A new class of 4, 4-Biphenyl and 4, 4-Biphenothiazines derivatives condensed with different aldehydes under micro synthesized compounds has been characterized by IR, 1H, NMR and mass spectral data. The compounds were then evaluated for antimicrobial activities.

Graphical Abstract



Tetrazole derivatives.

Keywords: Biphenyl, Phenothiazine, Substituted aldehydes, Biological activities.

INTRODUCTION

The 4,4'-Biphenol is an organic compound which is phenolic derivative of biphenyl are estrogenic and cytotoxic .The biological activities of 4,4'- biphenol, 2,2'-biphenol and phenol are discussed in the light physicochemical parameters such as stoichiometric factor (n), BDE. Phenol is one amongst oldest antibacterial agent. The redox and acidity properties of 2, 2' and 4, 4' biphenol and the corresponding phenoxyl radicals have been determined using UV-Visible spectrophotometer pulse radiolysis and cyclic voltammeter. 4, 4' biphenol it is prepared by dealkylation of the tetra-t-butyl

derivative generated by the oxidative coupling of 2,6-di-tert-butyl phenol. Aromatic compound, are class of unsaturated chemical compounds which characterized by one or more planar rings of atoms joined by covalent bonds of two different kinds and unique stability of these compounds is referred to as aromaticity. The term aromatic originally concerned odour, but today its use in chemistry which is restricted to compounds that have particular electronic, structural, or chemical properties. There are different derivative of biphenyl name is tetrazole derivative [1], 1,3,4-triazole derivative [2] and 1,3,4-oxadiazole derivative [3].

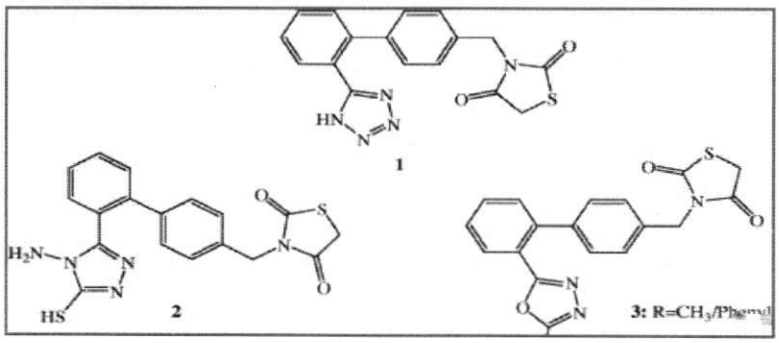


Figure 1. Tetrazole derivatives.

Polybrominated biphenyls are chemicals that were added to plastics which is used in a variety of consumer products, such as computer monitors, televisions, textiles, and plastic foams, to make them difficult to burn. Because PBBs were mixed into plastics rather than bound to them, they leave the plastic and find their way into the environment.

The intense research work in the field of medicinal chemistry has enhanced. The significance of Biphenyl moiety is as pharmacologically important compound. Some of the compounds which bearing biphenyl moiety and it possess important medicinal properties like antihypertensive and calcium channel blocker, anti-inflammatory, diuretic [4], anti-diabetic activity [5], antipsychotic [6] and anxiolytic activity [7-11]. Some of the Biphenyl hydrazide-hydrazone is also known which exhibit very good antimicrobial activity [12-20] Fluorinated biphenyl derivatives are essential building blocks in fluorinated liquid crystals. The fluoro-substitution of benzene rings in mesomorphic molecules may produce some changes in the melting point, viscosity, birefringence, dielectric anisotropy and other physical properties. Phenothiazine derivatives showed a wide range of different types of biological activity such as Antiemetic activity [21], Bactericidal activity [22], Antiseptic activity[23], Antitumor activity[24], Ant cholinergic activity [25-27], Anticonvulsant activity, Antihistamine activity, Narcobiotic activity, Analgesic activity, Antiemetic activity, Anti-inflammatory activity.

MATERIALS AND METHODS

Melting points were taken in open capillary tubes and are uncorrected. IR spectra were run in KBr pellets on a Perkin-Elmer 157 spectrometer. ^{1}HNMR spectra were recorded in $CDCl_3$ on a Bruker-Variah 300MHz FT NMR spectrometer using TMS as internal standard. Purity of the compounds was checked by TLC on silica gel G plates and the spots were located by exposure to iodine vapors. The characterization data of the compounds is given in table 1.

Synthetic method of 4, 4-dihydroxy biphenyl: 50 g of Benzedrine are dissolved in a liter of water and 60 mL of concentrated hydrochloric acid. The solution is diluted to 5 L, 200 g of concentrated sulphuric acid added, and the whole diazotized in the usual way with a solution of 37 g of sodium nitrite in 200 mL of water. The clear solution is then heated to boiling by blowing in steam,

and maintained at this temperature about twenty minutes. The solution is filtered hot, and the biphenylcrystallizes out on cooling. It forms colorless needles melting at 272°C, yield 80%.

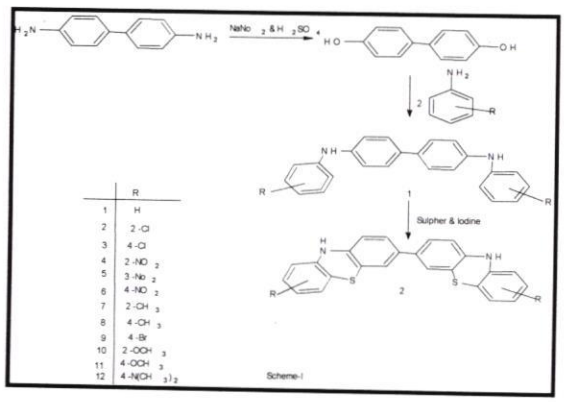
Synthesis of 4, 4-Biphenothiazines: A mixture of biphenyl-4-Benzylidene and sulphur were condensed in the presence of iodine as a catalyst about 5hrs. The product is cooled and poured ice, filtered, dried and crystallized from ethanol. Yield 64%, M.P.168°C.

Table 1. Physical characterization data and Elemental analysis of newly synthesized 4, 4-Biphenothiazines 2(a-l).

Compound	R	Molecular Formula	Relative Molecular Mass (RMM)	Melting Point (°C)	Yield (%)	C	H	N
						Calculated	Found (%)	
2a	H	$C_{24}H_{16}N_2S_2$	396	122	50	70.42 70.22	4.01 3.99	8.80 8.54
2b	2-Cl	$C_{24}H_{15}N_2S_2Cl$	430	128	56	65.69 65.53	3.54 3.44	8.21 8.10
2c	4-Cl	$C_{24}H_{15}N_2S_2Cl$	430	138	45	65.69 65.53	3.54 3.45	8.21 8.09
2d	2-NO_2	$C_{24}H_{15}N_3S_2O_2$	441	149	65	64.36 64.23	3.47 3.29	10.72 10.56
2e	3-NO_2	$C_{24}H_{15}N_3S_2O_2$	441	121	45	64.36 64.22	3.47 3.29	10.72 10.55
2f	4-NO_2	$C_{24}H_{15}N_3S_2O_2$	441	101	54	64.36 64.23	3.47 3.24	10.72 10.51
2g	2-CH_3	$C_{25}H_{18}N_2S_2$	410	169	53	70.86 69.00	4.31 4.25	8.55 8.30
2h	4-CH_3	$C_{25}H_{18}N_2S_2$	410	162	43	70.86 70.09	4.31 4.25	8.55 8.30
2i	4-Br	$C_{24}H_{15}N_2S_2Br$	465	172	44	60.44 60.01	3.26 3.25	7.55 7.31
2j	2-OCH_3	$C_{25}H_{18}N_2S_2O$	426	121	47	68.62 68.32	4.17 4.01	8.28 8.02
2k	4-OCH_3	$C_{25}H_{18}N_2S_2O$	426	126	47	68.62 68.31	4.17 4.01	8.28 8.02
2l	4-$N(CH_3)_2$	$C_{26}H_{21}N_3S_2$	409	124	48	69.21 69.10	4.65 4.10	10.76 10.69

Microwave method

Synthesis of 4, 4-Biphenothiazines: A mixture of biphenyl-4-Benzylidene and sulphur were condensed in the presence of Iodine as a catalyst in minimum quantity of anhydrous ethanol were taken in RB flask, which was placed in microwave oven and a reflux condenser was attached. The contents were subjected to microwave irradiation. The reaction was completed in 4-5 min (monitored with T.L.C at 300W. The solid obtained washed with distill water, dried and recrystallized from dioxane. Yield 80%, M.P.160°C (Table 2).



Scheme 1. Heterocyclic compounds.

Biological Activities: A slight change in the substitution pattern of Phenothiazine nucleus brings a marked difference in their biological activities. So it has been considered worthwhile to synthesize Phenothiazine incorporated heterocyclic compounds as antimicrobial agents. Antibacterial activity data of 4, 4-Biphenothiazines are presented in the table 3.

Table 2. Comparision of conventional and microwave assisted synthesis of 4, 4-Biphenothiazines 2(a-l)

Compound	Yield (%)		Reaction Time		Energy	
	Conventional	Microwave	Conventional (h)	Microwave (min)	Conventional (Temp.°C)	Microwave (Power. Watt)
2a	55	78	5	4-5	50-60	300
2b	58	83	5	4-5	50-60	300
2c	64	80	5	4-5	50-60	300
2d	50	78	5	4-5	50-60	300
2e	55	82	5	4-5	50-60	300
2f	49	85	5	4-5	50-60	300
2g	60	80	5	4-5	50-60	300
2h	53	79	5	4-5	50-60	300
2i	47	83	5	4-5	50-60	300
2j	50	67	5	4-5	50-60	300
2k	55	87	5	4-5	50-60	300
2l	62	81	5	4-5	50-60	300

Table 3. Antibacterial activity data of 4, 4-Biphenothiazines 2(a-l)

Compound	Bacteria along with zone of inhibition					
	S.aureus	*B.substilis*	*B.cereus*	*E.Coli*	*P.aeruginosa*	*P. vulgaris*
2a	10	09	08	09	10	05
2b	11	16	15	12	10	12
2c	12	14	14	13	10	15
2d	12	08	09	19	09	09
2e	13	15	10	15	15	10
2f	17	19	15	19	11	11
2g	10	07	05	-	-	-
2h	15	09	15	10	17	14
2i	12	11	09	15	16	12
2j	11	15	08	11	10	10
2k	09	11	18	12	09	09
2l	-	-	-	10	15	11
Streptomycin	23	20	24	26	20	22

Table 4. FT-IR and ^{1}H-NMR spectral Data of newly synthesized 4, 4-Biphenothiazines 2(a-l)

FT-IR	^{1}H-NMR
1642 N=CH-, 1545(C=C str), and 3178 (Ar-H),2810 (C-H str), 729 (C-Cl), 1382 NO2 sharp IR bands and broad IR bands at 3425-3442 cm-1 for (N-H str.).	2.5 (d, 1H, C-CH-Cl), 6.9-8.3(m, 2H, Ar-H), 8.88 (s, 1H,N=CH) ,8.00-8.3 (m,4H,Ar-H), 3.4(s,1H,NH). 6.57(1H, s, -CO-CH), 7.05-7.33(m, Aromatic-CH), 7.65 (1H, d, =CH-Ar). **MS**[14-16]: [M+]:[$C_{28}H_{20}ClN_3O_3$], 482.

RESULTS AND DISCUSSION

In view of these observations, it was thought worthwhile to synthesize several compounds in which 4,4-Biphenyl derivatives have been linked with moiety. The reaction sequence leading to the formation of desired heterocyclic compounds are outlined in scheme 1. The starting material of Benzedrine is dissolved in water and concentrated hydrochloric acid. The solution is concentrated sulphuric acid added, and the whole diazotized in the usual way with a solution of sodium nitrite.

Antimicrobial activity of Biphenyl: In recent years, derivatives of biphenyl are an extensively investigated class of compounds, which exhibits various important biological activities, such as anti-tuberculosis, antibacterial, antifungal and anticancer. These observations place new emphasis on the synthesis of azo derivatives a view to incorporation of a biphenyl fragment, for the evaluation of associated important antibacterial activity.

Antimicrobial activity of biphenyl hydrazine–hydrazine: Development of new chemotherapeutic agents is challenging task for the medicinal chemists and different new research programs are directed towards the design and synthesis of new drugs for their chemotherapeutic usage. Hydrazones are the compounds which consist of an important class for new drug development in order to discover an effective compound against multidrug resistant microbial infection.

Antiviral activity of biphenyl: A new co-drug, a-DDB-FNCG was synthesized via coupling of a-biphenyl dimethyl dicarboxylate and also the nucleoside analogue FNCG, through an ester bond. The anti-HBV activity and also their hepatoprotective effects of this compound were investigated both in vitro and in vivo.

Anticancer activity of biphenyl: The biphenyl compound shows the anti-tumor activity both in vitro and in vivo, which can produce apoptosis and which prevent proliferation of a cell line for colorectal cancer, lung cancer, liver cancer, breast cancer or pancreatic cancer in vitro, and inhibit tumor for the liver cancer and the colorectal cancer in vivo, so that the it can be applied in the preparation of anti-tumor drugs.

APPLICATION

These compounds has the various advantages of easy obtainment of different sources of raw materials and mild reaction conditions, simple operation of the reaction process, cheap and easy obtainment of used reagents.

CONCLUSION

It is the efficient method for the synthesis of 4, 4-Biphenothiazines **2(a-l)**. These compounds showing good result tested at 100 mg mL^{-1} concentration against *E. coli, S. aureus, Ps. acruginosa, P. vulgaris, A. niger and C. albicans* as compare to simple di-amine.

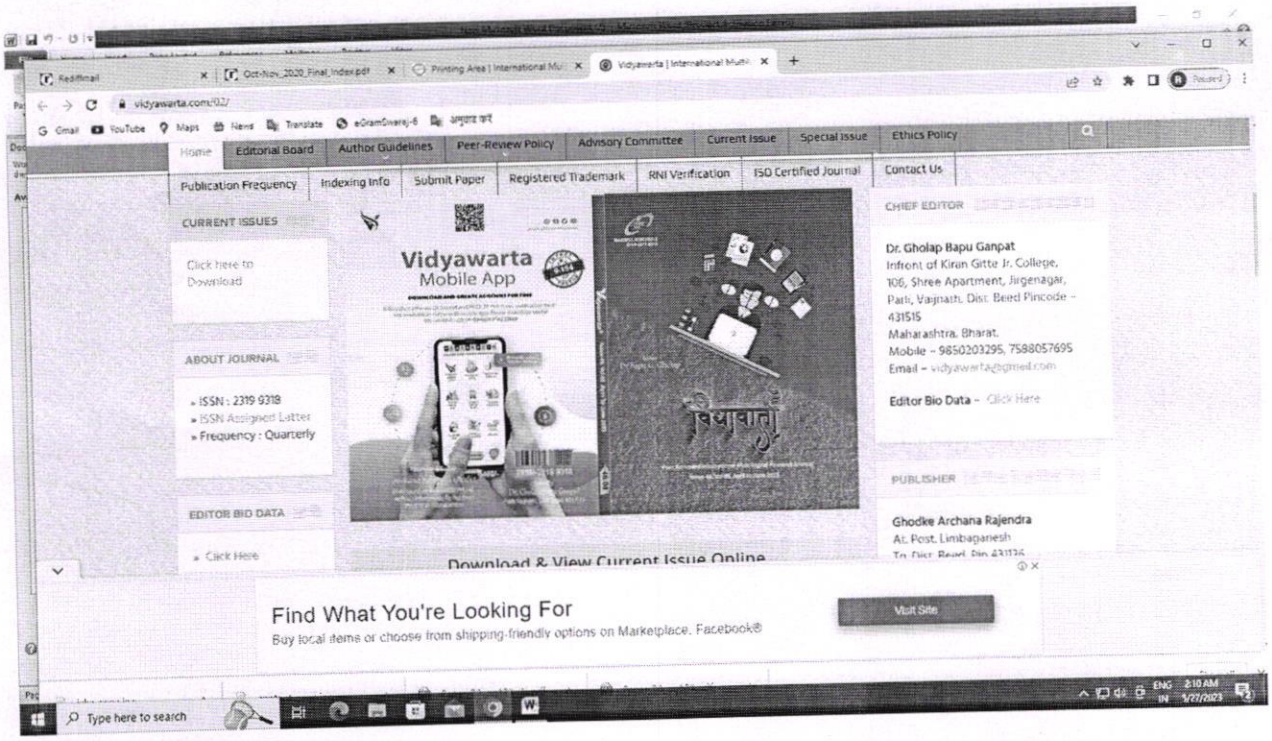
ACKNOWLEDGEMENT

One of the authors M. N. Narule is thankful to Head, Department of Pharmaceutical Science Nagpur University for screening anti-microbial activities, Head RSIC, CDRI, Lucknow for providing the spectral data of the compounds.

REFERENCES

[1]. Z. J. Jain, P. S. Gide, R. S. Kankate, *Arabian J. Chem.*, **2013**, doi:10.1016/j.arabjc. 2013.07.035
[2]. J. S. Mojjarad, Z. Zamani, H. Nazemiyeh, S. Ghasemi, D. Asgari, *Adv. Pharm.Bull*, **2011**, 1, 9.
[3]. A. Deep, S Jain, P.C. Sharma, *Acta Pol. Pharm. Drug Res*. **2010**, 67, 63.
[4]. M. S.Yar, Z. H. Ansari, *Acta Pol. Pharm. Drug Res.*, **2009**, 66, 387.
[5]. N. Sachan, S. Thareja, R. Agarwal, S. S. Kadam, V. M. Kulkarni. *Int. J.Chemtech. Res.*, **2009**, 1, 1625.
[6]. G. Ruggero, C. K. Jones, K Hemstapat, Y.Nong, N. G. Echemendia, L. C. Williams, T. D. Paulis, *Conn, P. J.; J. Pharmacol.Exp.Ther.*, **2006**, 318, 173.
[7]. A. Deep, S. Jain, P. C. Sharma, P. Verma, M. Kumar, C. P. Dora, *Acta Pol.Pharm. Drug Res.*, **2010**, 67, 225.

[8]. A. Madhkar, N. Kannappan, A. Deep, P. Kumar, M. Kumar, P. Verma, *Int. J.Chemtech. Res.*, **2009**, 1, 1376.
[9]. H. H. Andrade, J. H. Santos, M. C. Gimmler-Luz, M. J. F. Correa, *Lehmann, M. Reguly, M. L. Mutat. Res.*, **1992**, 279, 281.
[10]. T. Ohta, *Crit. Rev.*, **1993**, 23,127.
[11]. K. Akagi, M. Hirose, T. Hoshiya, Y. Mizoguchi, N. Ito, *Shrai, T. Cancer.Lett.*, **1995**, 94, 113.
[12]. H. Tsuda, N. Uehara, Y. Iwahori, Y. Asamoto, M. Iigo, M. Nagao, K. Matsumoto, M.Ito,; *Hirono, I. J. Cancer Res.*, **1994**, 85, 1214.
[13]. D. L. Gustafson, H. R. Franz, A. M .Ueno, J. Smith, D. J. Doolittle, C. A. Waldren, *Mutagenesis*, **2007**, 15, 207.
[14]. H. Korthou, Verpoorte, R. Flavours, *Fragrances-Chemistry*, **2007**, 9, 203.
[15]. P. Cerrutti, S. M. Alzamora, Vidales, *S.L. J. Food Sci.*, **1997**, 62, 608.
[16]. S. Sardari, S.Nishibe, M. Daneshtalab, *Stud. Nat. Prod. Chem.*, **2000**, 23, 335.
[17]. N. J. Walton, M. J. Mayer, Narbad, *A. Vanillin Phytochem.*, **2003**, 63, 505.
[18]. S. Rollas, *Küçükgüzel,S.G. Molecule*, **2007**, 12,1910.
[19]. N. P. Belskaya, W. Dehaen, V. A. Bakulev, *Arch. Org. Chem*, **2010**, 1, 275.
[20]. A. J. Xavier, M. Thakur, J. M. Marie, *J. Chem Pharm Res*, **2012**, 4, 986.
[21]. J. W. Britton, *cornell vet.*, **1941**, 31, 1-12; *Chem. Abstr.*, **1941**, 35, 75408.
[22]. A. J. Elliott, H. Guzik, *J. Hetero. Chem.*, **1981**, 18, 861.
[23]. P. Karel, P. Miroslav, H. Frantisek Czech., **1958**, 127, 337.
[24]. E. Antono Ger. often 2407, 938 *Chem. Abstr.*, **1974**, 81, 169554s .
[25]. B. N. Halper; *Compt. rend. Soc. Biol.*, **1946**, 140, 363.
[26]. M. J. Vanderbrook, K. J. Olson, M. R. Richmend, M. H. Kuizenea; *J. Pharmacol. Exptl. Therap.*, 94, **1948**, 197.
[27]. B. N. Halper, S. Ruchaud, *Compt rend*, **1947**, 225, 1194.



Dr. R. G. Bhoyar Arts, Comm. & Sci. College ★ SELOO

PRINCIPAL
Dr. R. G. Bhoyar Arts, Comm.
& Science College, SELOO

INDEX

of which may be more stable and trait-like, whereasothers may be more context-dependent and changeable over time.

Conclusion:

There are three layers of moral identity that develop across the lifespan. Future theory and research on moral identity need to consider these three layers and that it is important and possible to nurture thedevelopment of each layer of moral identity beginning in middle childhood in order tobetter predict moral behavior. In our current political global climate, it is increasinglyimportant to cultivate moral citizens who are accepting and understanding of others andthus are more likely to disengage from immoral acts.

References..

1.Gupta .S.P and Gupta Aloka (2013) Advance Educational Psychology - saradaPuastakBhavan , Allahabad .

2. ChakrabortyPranab Kumar (2018) Childhood and Growing up- Rita publication, Kolkata -700006

3.Pal,Dhar,Dash (2013) shikerdarsanic and samazicdristibhungi -Rita publication, Kolkata -700006.

4.Pandeyodr.ramsakal (2012) uddiyamanbharitiyasamaj me shiksakagrabal publication - agra -2.

5.Sengsavang Sonia (2018) Moral identity development across middle childhood and adolescence-Wilfrid Laurier University.

❑❑❑

04

Bibliometrics And Bibliometrics Law

Mr. Kishor S. Dambhare
Vidyabharati College, Seloo, Wardha

Abstract :

Bibliometrics have these days won a spot and is thought to pact with quantification of written verbal exchange-books and other media. This suggests tallying or estimating the recurrence of the writing is the fundamental two different ways. Via an extension or the period time, we're nonetheless with Ranganathan's coined period time, librametry, on the grounds that bibliometric considers incorporating measurable ways to deal with the investigation of library and its administration. In this paper presenting the biblometrics and its law.

Keyword : bibliometrics, Bradford law, Zips Law ,Lotka's Law

1. Introducton

Historically the beginnings of the use of statistical technique were in vogue 1917 by Cole and Eales who conducted a study by counting and categorizing publications by country of origin and by field. The study analyzed the data by counting the number of titles, both books and journals, articles and grouping them by country. In 1922, Hume introduced the term "Statistical Bibliography". The term was unspecific and scarcely used. The technique was explained as 'to shed light on the process of written communication and of nature and course development of discipline through counting and analyzing the various fact of written communication'.

SELOO

PRINCIPAL
Vidyabharti College, Seloo

MAH/MUL/03051/2012
ISSN-2319 9318

विद्यावार्ता

International Peer reviewed Referred Research Journal

Issue-37, Vol-07 Jan. to March 2021

Editor
Dr.Bapu G. Gholap

PRINCIPAL
Dr. R. G. Bhoyar Arts, Comm.
& Science College, SELOO

Dr. R.G. Bhoyar Arts, Comm. & Sci. College SELOO

MAH/MUL/ 03051/2012 ISSN :2319 9318

आंतरविद्याशाखीय बहुभाषिक शोध पत्रिका

विद्यावार्ता™

Jan. To March 2021
Issue 37, Vol-07

Date of Publication
01 Feb. 2021

Editor
Dr. Bapu g. Gholap
(M.A.Mar.& Pol.Sci.,B.Ed.Ph.D.NET.)

विद्येविना मति गेली, मतीविना नीति गेली
नीतिविना गति गेली, गतिविना वित्त गेले
वित्तविना शूद्र खचले, इतके अनर्थ एका अविद्येने केले

-महात्मा ज्योतीराव फुले

"Printed by: **Harshwardhan Publication Pvt.Ltd.** Published by **Ghodke Archana Rajendra** & Printed & published at Harshwardhan Publication Pvt.Ltd.,At.Post. Limbaganesh Dist,Beed -431122 (Maharashtra) and Editor **Dr. Gholap Bapu Ganpat.**

Reg.No.U74120 MH2013 PTC 251205
Harshwardhan Publication Pvt.Ltd.
At.Post.Limbaganesh,Tq.Dist.Beed
Pin-431126 (Maharashtra) Cell:07588057695,09850203295
harshwardhanpubli@gmail.com, vidyawarta@gmail.com
All Types Educational & Reference Book Publisher & Distributors / www.vidyawarta.com

MAH MUL/03051/2012
ISSN: 2319 9318

Vidyawarta®
Peer-Reviewed International Journal

Jan. To March 2021
Issue-37, Vol-07

INDEX

7

GREEN MARKETING EXECUTION IN INDIA – A CURRENT SCENARIO

Dr. Parag R. Kawley
(M.Com.,Ph.D.)
Assistant Professor,
Vidyabharti College, Seloo
Ta. Seloo, Dist. Wardha.

Dr. Preeti. W. Nanotkar
(M.Com.,M.A.(Eco.),Ph.D.)
Lecturer, Vidyabharti College, Seloo
Ta. Seloo, Dist. Wardha

ABSTRACT

Newly environmental issues are playing a vital role in the marketing scenario of India. Different studies by environmentalists indicate that Indian people are more anxious about the environment and are changing their behavior patterns to be less unfriendly towards it. Currently, Indian customers are appropriate more afraid of environment-friendly products which are useful for reducing the deprivation of the environment. Most of them believe that environment-friendly products are harmless to use. At present is the era of recyclable, non-toxic, and environment-friendly goods. This has happened to the new mantra for marketers to satisfy the requirements of consumers and earn better profits. This object introduces the phrase and concepts of green marketing, briefly discuss why going green is necessary to observe several of the reason that organizations are adopting a green marketing belief. It also focuses on some of the problems with green Marketing from an Indian outlook.

Keywords: Green Marketing, Concept, Execution, Environment, India.

INTRODUCTION

It is regularly thought that green marketing refers to the endorsement or publicity of products with environmental uniqueness only. In common green marketing is a much wide conception, one that can be useful to consumer goods, industrial goods, and yet services. For example, in India, various resorts are inauguration to encourage themselves as "ecotourism" amenities, i.e., facilities that concentrate on experiencing nature or working in a fashion that minimizes their environmental impact. Hence green marketing incorporates a large assortment of performance, as well as product variation, changes to the manufacturing procedure, wrapping changes, as well as modifying promotion. The expressions used in this area has different, it includes Green Marketing, Environmental Marketing, and Ecological Marketing.

India is growing at 7% annually and is predictable to double its energy consumption between 2012 and 2030, is under pressure to take action for providing a clean environment for all future generations to come. (Sarunya, 2011) Many Indian companies have come ahead for the reason of environmental concerns and issues requiring instant consideration like global warming, Water and Air pollution, E-waste.

Ø OBJECTIVES :

The objective of this paper is to observe the concept of Green Marketing and to appraise the reasons behind, initiatives empty, problems faced by the Indian companies for green marketing.

Ø MARKETING MIX OF GREEN MARKETING :

When companies approach up and doing with innovations like eco-friendly products, they can right to use new markets, improve their market shares, and increase profits. Now as we have 4Ps product prices, place, and promotion in marketing, we have 4ps in green marketing else, but they are a speck different.

· **Products**

The products have to be developed depending on the requirements of the consumers who rather environment-friendly products. Competent products not only save water, energy, and money but also diminish damaging effects on

Impact Factor-7.675 (SJIF) ISSN-2278-9308

B.Aadhar

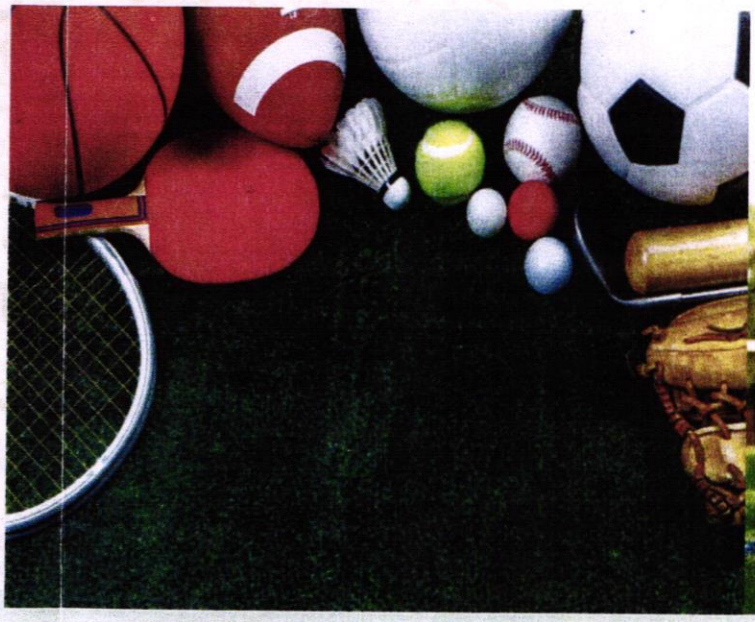
Peer-Reviewed & Refreed Indexed

Multidisciplinary International Research Journal

March -2021

ISSUE No- (CCLXXVIII) 278 (A)

'CONTEMPORARY APPROACHES AND APPLICATIONS IN PHYSICAL EDUCATION & SPORTS SCIENCES'



Chief Editor
Prof. Virag S. Gawande
Director
Aadhar Social Research & Development Training Institute Amravati

Editor:
Dr. Vijay Dhote and Dr. A P Joshi

This Journal is indexed in :
- Scientific Journal Impact Factor (SJIF)
- Cosmos Impact Factor (CIF)
- International Impact Factor Services (IIFS)

For Details Visit To : www.aadharsocial.com

Aadhar PUBLICATIONS

(SJIF) Impact Factor-7.675 ISSN-2278-9308

B.Aadhar

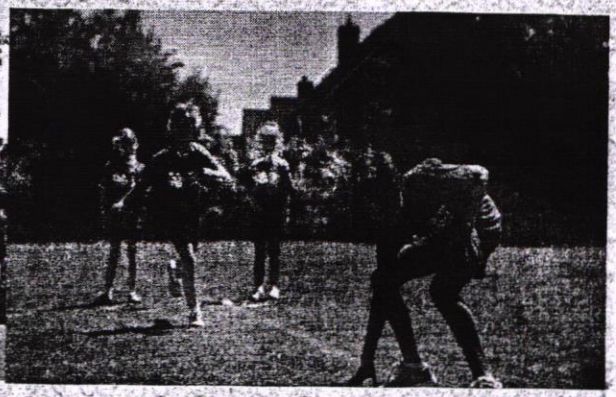
Peer-Reviewed & Refreed Indexed

Multidisciplinary International Research Journal

March -2021

ISSUE No- CCLXXVIII (278) -A

'CONTEMPORARY APPROACHES AND APPLICATIONS IN PHYSICAL EDUCATION & SPORTS SCIENCES'



Chief Editor

Prof. Virag S. Gawande

Director

A. S.R.& D. T.

Institute Amravati

Editors

Dr. Vijay Dhote and Dr. A P Joshi

The Journal is indexed in:

Scientific Journal Impact Factor (SJIF)

Cosmos Impact Factor (CIF)

International Impact Factor Services (IIFS)

Aadhar International Publication

For Details Visit To : www.aadharsocial.com

INDEX

B.Aadhar International Peer-Reviewed Indexed Research Journal
Impact Factor - (SJIF) -7.675,Issue NO, 278 (CCLXXVIII) A
ISSN : 2278-9308
March, 2021

A Study of Diurnal Variation of Agility of Kabaddi Players

Dr. Shashank G. Nikam
Director of Physical Education
Vidyabharti College, Seloo, Wardha (MS)

Abstract

The purpose of the study was to compare thediurnal variation of agility of kabaddi players. For this purposes researcher has selected fifteen male (15) kabaddi players from various mandals and clubs of Seloo, Wardha with the help of simple random sampling method. The age of the kabaddi players were ranged between 18 to 25 years. Players did not use any ergogenic aids or supplementations and also they were all free from any injuries during the collection of data. The necessary data was collected at different time of a day the following timing is as follows: 6:00 AM – 7:00 AM, 12:00 PM – 01:00 PM and 6:00 PM – 7:00 PM. The performance of agility was measured with the help of shuttle run. Statistical analysis was done on the basis of One-way analysis of variance (ANOVA) in order to determine the difference if any in diurnal variation of Agility (Shuttle run) of kabaddi players. When the difference was found to be significant the LSD Post-hoc test was applied to assess the paired mean difference among the group.shows that there is significant difference between shuttle run at different time of a day because calculated value F is 14.84 which is greater than tab F0.05(2,42) = 3.219. Since the F ratio is found to be significant, the Least Significant Difference (LSD) Post hoc test shows that the mean difference values 1.12 and 1.47 are greater than the critical difference value 0.907. Hence, the mean difference of morning and afternoon as well as afternoon and evening was found to be significant, whereas the mean difference values 0.35 is lesser than the critical difference value 0.907. Hence, the mean difference of morning and evening is found to be insignificant. It is conclude that the diurnal variation of agility of kabaddi players was found to be significant. The mean performance of agility of kabaddi players at evening time is better than morning time followed by afternoon time. The reason for this difference may be attributed to the nature of the kabaddi players. As the kabaddi players were most probably practice at various clubs and mandals. The practice time of various clubs and mandals are seen at morning and evening. Hence the performance during the evening time better as compared to morning and afternoon time.

Keywords: Diurnal Variation, Agility, Kabaddi Players, etc.

Introduction

Thermoregulation (temperature control) is part of a homeostatic mechanism that keeps an individual at optimum operating temperature, as the temperature affects the rate of chemical reactions. The average internal temperature of human being is about 37.0 °C (98.6 °F), though it fluctuates around this point by 0.5 to 1 °C. However, not a single person has exactly the same temperature at every moment of the day. The temperature of human body is not fixedit fluctuate up and down through the day, as it is controlled by the person's circadian rhythm. Diurnal variation is biological functions are known to occur in almost all living beings, they are controlled by what is called the limbic system, one of the oldest brain section in phylogenic history. The duration of such diurnal variation cycles ranges from a few hours to much longer periods. The 24 hours rhythm is one of the most prominent cycles, which controls variations in body temperature, the pulse rate, the respiratory rate, the hormonal secretion and the amount composition if urine excreted by a person. Body temperature is usually at its lowest (about 36°C) in the early morning hours and at its highest (about 37.4°C) in the late afternoon or in the early evening. These variations can be reversed by merely changing one's daily living habits such as eating and sleeping. According to experts, this variation is credited to the circadian rhythm seen in other areas of physiology and is affects by daily routines such

as sleeping, eating, light and time; it also appears that long periods of travel will cause cycle changes. For instance, evidence is available to indicate that when a person travel in an aero plane for 8 to 10 hours it may take the cycle 3 or 4 days to actually read just workers to reduce the amount of these variations.

Agility is the capacity to change trajectory, controlling the direction and position of your body while one's body is in momentum. Changing the direction of kho-kho players while chasing and running is an example of agility. Agility is the capabilityof an individual to change the direction rapidly with control. Some viewed that, agility is dependent on strength, reaction time, speed of movement and muscular co-ordination. Agility is the ability of an individual to change the body position quickly with speed and consistency. It can give the outburst ability to a performer which will help to gain an advantage over his/her opponent.

Materials and Methods

The purpose of the study was to compare the diurnal variation of agility of kabaddiplayers. For this purposes researcher has selected fifteenmale (15) kabaddi players from various mandals and clubs of Seloo, Wardha with the help of simple random sampling method. The age of the kabaddi players were ranged between 18 to 25 years. Players did not use any ergogenic aids or supplementations and also they were all free from any injuries during the collection of data.

Timing of the day

The necessary data was collected at different time of a day the following timing is as follows

6:00 AM – 7:00 AM

12:00 PM – 01:00 PM

6:00 PM – 7:00 PM

- The performance of agility was measured with the help of shuttle run.

Statistical Analysis

Statistical analysis was done on the basis of One-way analysis of variance (ANOVA)in order to determine the difference if anyin diurnal variation of Agility (Shuttle run) of kabaddi players. When the difference was found to be significant the LSD Post-hoc test was applied to assess the paired mean difference among the group.

Mean of shuttle runat 6:00am-7:00am is 10.15, mean at 12:00pm-01:00pm is 11.27 and mean at 6:00pm-7:00pm is 9.8 on the basis of mean there is a difference between their agility,to see these difference is significant or not researcher has calculated ANOVA.

Table no – 1

Comparison of diurnal variationof shuttle run

SV	SS	df	MS	F
between	17.7	2	8.85	14.84*
error	25.04	42	0.596	

*significance at 0.05 level

tabulated $F_{0.05(2,42)} = 3.219$

Above table shows that there is significant difference between shuttle run at different time of a day because calculated value F is 14.84 which is greater than tab $F_{0.05(2,42)} = 3.219$. Since the F ratio is found to be significant, the Least Significant Difference (LSD) Post hoc test is applied to assess the paired mean difference among the group means which is shown on table no-2

Table no – 2

Paired mean difference of different time

06:00 - 07:00 AM	12:00 - 01:00 PM	06:00 - 07:00 PM	MD	CD

Dr. R. G. Bhoyar Arts, Comm. & Sci. College SELOO

PRINCIPAL
Dr. R. G. Bhoyar Arts, Comm. & Science College, SELOO

B. Aad
Impact Factor–7.675(SJIF) ISSN-2278-9308

B.Aadhar

Peer-Reviewed & Refreed Indexed

Multidisciplinary International Research Journal

April-2021, ISSUE No - (CCLXXXIII) 283

"Review of India's Education Policy"

Jointly Published By

Shri Saibaba Lok Prabodhan Arts College, Wadner. Dist - Wardha. &
Aadhar Social Research & Development Training Institute, Amravati.

Chief Editor
Prof. Virag S. Gawande
Director
Aadhar Social Research & Development Training Institute, Amravati

Editor
Dr. Vinod M. Mude
HOD. Dept. of Pol. Sci.
Shri Saibaba Lok Prabodhan Arts College, Wadner. Dist - Wardha.

Executive Editor
Dr. Uttam B. Parekar
Principal
Shri Saibaba Lok Prabodhan Arts College, Wadner. Dist - Wardha.

For Details Visit To: www.aadharsocial.com

Aadhar Publications

Impact Factor–7.675(SJIF) ISSN-2278-9308

B.Aadhar

Peer-Reviewed & Refreed Indexed

Multidisciplinary International Research Journal

April-2021, ISSUE No - (CCLXXXIII) 283

"Review of India's Education Policy"

Jointly Published By

Shri Saibaba Lok Prabodhan Arts College, Wadner. Dist – Wardha. &
Aadhar Social Research & Development Training Institute, Amravati.

Chief Editor
Prof. Virag S. Gawande
Director
Aadhar Social Research & Development Training Institute, Amravati.

Editor
Dr. Vinod M. Mude
HOD. Dept. of Pol. Sci.
Shri Saibaba Lok Prabodhan Arts College, Wadner. Dist – Wardha.

Executive Editor
Dr. Uttam B. Parekar
Principal
Shri Saibaba Lok Prabodhan Arts College, Wadner. Dist – Wardha.

For Details Visit To: www.aadharsocial.com

Aadhar Publications

INDEX

B.Aadhar International Peer-Reviewed Indexed Research Journal

Impact Factor - (SJIF) -7.675, Issue NO, 283 (CCLXXXIII)

ISSN : 2278-9308 April, 2021

E-learning Resources in Rural Development: Current Scenario

Dr. Shashank G. Nikam

Director of Physical Education Vidyabharti College, Seloo, Wardha (MS)

Email: shashanknikam2@gmail.com Mob:9049932199

ABSTRACT

The field of education emerge now information and communication technology and techniques that shows now terms of teaching and E-learning. Educational institutes had developed learning management system to facilitate e-learning. There areoutstanding digital separate among urban and rural areas. In this paper, we present a model for providing e-learning services inrural areas in order to promote and facilitate most recent education. Anenthusiastic resource center, hosting the learning management system, facilitates e-learning centers through Internet. The generally goal of this model is to include a cost-effective learning environment setby latest technologies to provide learners an opportunity to get coming into new information and communication technologies and e-learning environment. The model offers new teaching methodology with improveoperation of learning management system in teaching and learning. Essential characteristics and technical aspects will be considered as well. The study will also encourage development and usage of open-source technologies.

Keywords

E-learning, ICTs, Educational Technology, Learning Management System, Open-source Software/Technology.

INTRODUCTION

The incredible development in Information and Communication Technologies (ICTs) has covered the way for e-learning. Uses of computers in education sector know how to be traced back to the early 1980s when simple word processors are in use. The Internet has revolutionized the computer and transportation world like no onefacing. This brings us great learning opportunities by having entrance to large amount of information with benefits in expressions of time and cost savings. The modern educational technology facilitates design, captivity and management of educational activities for learners. This can be face-to-face in a lecture hall, online, or combination of both. Imparting education in this way be termed as e-learning (electronic learning) i.e. learning through information and communication technologies. E-learning facilitates reserve learning and provides means to learners to right to use learning material any time and at any place.

A learning management system (LMS) be alive the software application that facilitates e-learning. Multiplicities of commercial as well as open-source LMSs are available today which are being used in educational institutions.

Predictable learning involves setting up infrastructure of school/college and hiring of faculty and staff. Students contain to attend school/college in order to learn. In the rural areas, development of such institute and hiring of full-time faculty requires a lot of resources. Professionally trained educators generally prefer to work and inhabit in urban areas. Accordingly, the population of rural areas is privileged of quality educators and thus quality education. The current work proposes development of e-learning centers based on ICT to provide high-quality education with modern learning material in rural areas. The models employ latest educational technologies that motivation improves the education standard and will be providing means to initiate educational technology to learners. The learners will cover a chance to get familiar through latest technologies which self-

control give them deep understanding and effectiveness in using it. The study will encourage e-learning platforms and moreover the development and usage of open-source technologies.

E-LEARNING

E-Learning is to modernize the learning process by usage of ICT resources. E-learning is generally used in distance learning, but it can also be used in combination with face-to-face learning. Learning models are described below.

Learning Models

There are three main learning models. A short-lived description of each is given below.

1. Traditional learning :

Students have to be present at lectures in a classroom. Present is a head to head interaction between teachers and students. Use of multimedia presentations can develop the learning knowledge of students.

2. Distance learning :

Teachers and students are at unusual places for all or the mass of the time. Students are provided with pre-recorded, packaged learning materials and communication between students and teachers take place through some form of communication technology. This model also requires special secretarial and organizational arrangements in order to provide an effective learning environment.

3. Blended learning :

It is the combination of conventional learning model with e-learning solutions. For example, learners attend a face-to-face session at the commencement and at the end of a program, with learning activities going on online in the middle.

LEARNING MANAGEMENT SYSTEM

LMS is the software used for managing e-learning with a deliverance mechanism, providing access to resources, tracking and assessing the academic activities. LMS provides surroundings in which learning filling are developed and organized by instructors. Interactions between instructors and students take place throughout communication tools. For the most part of LMSs are web-based in order to give support to online access to learning content. Features available by LMS include user management, content management, activity tracking, file storage, storing of grades, reports generation, and communication tools. A distinctive LMS with some features is shown in

Instructors use authoring and publishing tools to create and issue learning filling. Courses are prepared more exciting and easy to understand with the help of enriched multimedia examples. The environment offer shared learning by assigning tasks to students, making assessments, assignment of grades, active contribution with synchronous or asynchronous communication tools, such as chatting, discussion groups, forums, email, video conferencing, and so on. Contact to learning resources is confidential to enrolled students. LMS is the interior of anticipated e-learning model as it will serve as platform for all learning activities.

LMS Resource Center

The central hub of the anticipated model is LMS resource center. The resource center is acknowledged in city/town where ICT resources are available. This center is outfitted with required resources to develop and distribute learning contents throughout Internet. The representation of resource interior is shown in Fig. 2. The main mechanisms of resource center are LMS server, LMS application, content development team and administrator. A brief description of each is given below

Software	Requirements
Operating System	Linux/Windows/Mac
LMS	eFront Open-source version 3.6
Web Server	Apache 2+ recommended, although eFront can work with Apache 1.x, IIS, nginx or lighttpd
Language	PHP version 5.1+ (PHP 5.2+ recommended)
Database	MySQL Server 4+ (MySQL 5 is strongly recommended)

The hardware and software necessities that system must meet in order to install eFront LMS are presented in Table 1 and Table 2 correspondingly. It is complex to install and configure (Apache/MySQL/PHP) AMP manually. The solution is XAMP that is an incorporated server package of Apache, MySQL, PHP and Perl. XAMPP is freeware and configures the AMP environment in acomputerized way. Storage space requirements rise with the increase in number of users as each user requires storage space for files/data storage. The server is competent to support rather a large numbers of registered users and potentially 400–500 corresponding users. Storage space and memory can be enlarged to add sustain for more users.

➢ **eFront LMS**

Selection of eFront LMS is based upon the proportional study of open-source learning management systems. Beginning the study, it is experimental that eFront has more visually attractive icon-based user interface that gives a nice look-and-feel and is easy to use. Most of the options are self-explanatory. eFront is accomplished of fulfill a wide range of learning requirements by offering many tools for content management, assignments, projects, reports, chat, forums, file sharing etc. Some of the facial emergences of eFront are shown in Fig. 4. E-Front is user-friendly, extensible and appropriate for both academic and organization use. E-Front offers three user roles in its environment, specifically Administrator, Professor and Student. User roles can be interchanged in different courses. EFront has multilingual support and can support more than forty Five languages.

➢ **Content development team**

This team consists of Subject Leader, Instructor and Teaching Assistant (TA). The subject leader plans and prepare the course summarize. After conversation with the instructor, guidelines are provided to TA for development of learning substance. TA's role is to support the focus leader and instructor in all academic activities. Once learning contents are arranged, the same are reviewed by subject leader and instructor. If there are some revisions required, assigned to TA otherwise forwarded to most important for analysis and final approval. After finalization of course contained by, the same are distorted into content package files which can be read and imported by LMS.

➢ **Administrator**

The administrator can control any portion of the system all the way during an easy to use edge. The LMS Administrator works in association with instructor and reports to Principal. The LMS Administrator oversees operation and preservation of LMS server, resolves user issues and assists with other help-desk duties. Due to the complication of hardware and software that make up the LMS infrastructure, it is the conscientiousness of the LMS Administrator to perform any patches, upgrades, service packs, hot-fixes, and other routine maintenance to ensure the highest possible uptime and consistency of the LMS service.

It is also conditional that in rural areas children often leave study to become skilled workers so that they can contribute to their domestic income. They start doing low paying jobs, mostly laborers, helpers or entourage. The goal is to develop their interest in latest educational technology and equip them with suitable skills. This couldenlarge their capacity to learn, experience and master latest technology and technological applications. By utilizing their basic education and education skills they can find better jobs or start their own small business like computer sales, network design and maintenance, website development, software development etc. By doing so, they can put in well in their income and move up their living standards and accordingly contributing in the largely economy.

CONCLUSIONS

It is sustain of the day that new educational technologies should be adopted in order to present a modern education with new teaching methodologies and shared learning. ICTs can play essential role by introducing new teaching and learning practices thus revolutionizing the educational system. The use of LMSs from higher education to schools is growing day-by-day, and LMSs are future of educational technologies with a great amount of new potential. We present a model for development of e-learning centers in rural areas based upon open-source LMSs with technical outline and features. The study may contribute in promoting education in rural areas by giving latest educational technologies and upward students' interest in e-learning. This will create efficiency and have a say to economy thus improving trade of rural population. The study may also encourage ICTs, e-learning and usage of LMSs. Use of open-source software in anticipated model may notify learners with potential benefits and motivate learning communities for use of open-source technologies. It may also help in encouragement and development of open-source software.

Considering the increasing popularity of e-learning, it is somewhatvaluable to offer such facilities in rural areas in order to decrease the digital divide and to maintain in the process of rural development by causative in the socio-economic factors.

REFERENCES

1. Booth, T. L. Computer Education. Computer, 1984, 17 (10): 56–68.
2. Tavangarian, D., Leypold, M. E., Nölting, K., Röser, M. and Voigt, D. "Is e-Learning the solution for individual learning?" Electronic Journal of E-Learning, 2004, 2 (2): 274–280.
3. Wainwright, K., Osterman, M., Finnerman, C. and Hill, B. Traversing the LMS terrain. In Proceedings of the 35th annual ACM SIGUCCS fall conference (SIGUCCS 2007), 2007, pp.354–359.
4. Horton, W. and Horton, K. E-Learning Tools and Technologies. Wiley Publishing Inc, 2003.
[5] O'Malley, J. and McCraw, H. "Students perceptions of expanse education, online learning, and the traditional classroom", Online Journal of Distance Learning Administration, 1999,
[6] Moore, M. G. and Kearsley, G. Distance Education: A Systems View. Wadsworth Publishing Co, 1997.
[7] Pade, C. I., Mallinson, B., and Sewry, D. An examination of the Categories Associated with ICT assignment Sustainability in Rural Areas of Developing Countries: A Case Study of the Dwesa Project. In Proceedings of South African Institute of Computer Scientists and Information Technologists (SAICSIT 2006), 2006, pp.101–107.
[8] Galloway, L., Mochrie, R., and Deakins, D. "ICT-enabled collectivity as a constructive rural business strategy", International Journal of Entrepreneurial Behaviour& Research, 2004, 10 (4): 246–259.
[9] Cecchini, S., and Raina: The Case of an Indian Rural Community Adopting Information and Communications Technology. Information Technology in Developing Countries, 2002, 12 (1): 12–15.
[10] Sattar, K. "A sustainable model for use of ICTs in rural Pakistan", International Journal of Education and Development using Information and Communication Technology, 2007, 3 (2): 115–124.