3.2.1 Number of papers published per teacher in the Journals notified on UGC website during the year 2024-25

Sr. No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Date of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal
1.	Cleistanthus deekshabhoomiana (Phyllanthaceae) a new species from India	Dr. J. V. Gadpayale	Botany	The Indian Forester	2024-25	0019-4816 eISSN: 2321-094X	https://ugccare.unipune.ac.in/Apps1/User/WebA/ViewDetails?JournalId=101001133&flag=Search
2.	Morphotaxonomic study of Sida L., species from Bhandara District Maharashtra, India	Dr. J. V. Gadpayale	Botany	The Indian Forester	2024-25	0019-4816 eISSN: 2321-094X	https://ugccare.unipune.ac.in/Apps1/User/WebA/ViewDetails?JournalId=101001133&flag=Search
3.	Influence of La substitution on the structural and magnetic properties of CuCdCo spinel nanoferrite	Dr. A. M. Shahare	Physics	Inorganic Chemistry Communications	2024-25	1387-7003	https://doi.org/10.1016/j.inoche.2025.114455
4.	Bhandara jilyatil durlkshit parytan sthale	Dr. Aruna Shivshankar Bawankar	Geography	संशोधक (Print Only)	2024-25	2394-5990	https://ugccare.unipune.ac.in/Apps1/User/WebA/SearchList
5.	Geographical study of River Wainganga watershed in Bhandara district-areal aspect	Dr. Aruna Shivshankar Bawankar	Geography	Journal of East-west Thought (online)	2024-25	2168-2259	https://ugccare.unipune.ac.in/Apps1/User/WebA/ViewDetails?JournalId=101000946&flag=Search
6.	'Rice Field Agro-Ecosystem's Arthropod Complex in Central India'	Madhukar F. Jadhao	Zoology	*International Journal of Creative Research* Thoughts (IJCRT)	2024-25	2320-2882	https://www.ijcrt.org/

7.	'Occurrence of leaf folder, *Cnaphalocrosismedinalis* (lepidoptera: pyralidae)-A major pest of rice in eastern Vidarbha'	Madhukar F. Jadhao	Zoology	*International Journal of Entomology Research*	2024-25	2455-4758	Journal Link: https://www.entomologyjournals.com/board Paper Link: https://www.entomologyjournals.com/assets/archives/2024/vol9issue8/9209.pdf
8.	महात्मा गांधींचे अहिंसेसंबंधी विचार आणि राष्ट्रीय एकात्मता समकालीन परिप्रेक्ष	Dr. Rajendra Onkar Belokar	Political Science	Akshargatha	2024-25		https://ugccare.unipune.ac.in/Apps1/User/WebA/ViewDetails?JournalId=101002778&flag=Search
9.	Abundance of predatory Heteropteran water bugs in rice agro-ecosystem in Vidarbha, India	Arati A. Salwe	Zoology	International Journal of Entomology Research	2024-25	2455-4758	Journal Link: https://www.entomologyjournals.com/board
10.	Detection of Hg (II) And Pb (II) ions in Drinking Water Using Urease Based Nanostructured Metal Oxide Electrochemical Biosensors", (Page No: 325-335)	Dr. V.V.Warhate	Physics	Journal of Xi'an University of Architecture & Technology	2024-25	1006-7930	https://www.scopus.com/sourceid/37099 https://doi.org/10.37896/JXAT16.8/34625
11.	जगदंबा प्रसाद दीक्षित के कथा साहित्य में वर्ग संघर्ष	लक्ष्मण के. पेटकुले	Hindi	संशोधक (Print Only)	2024-25	2394-5990	https://ugccare.unipune.ac.in/Apps1/User/WebA/SearchList

Indian Forester, 150 (8) : 816-818, 2024
DOI: 10.36808/if/2024/v150i8/170273

ISSN: 0019-4816
eISSN: 2321-094X

(1)

(V)
Cleistanthus deekshabhoomiana (Phyllanthaceae) a new species from India

Cleistanthus Hook. f. ex Planch., is an important genus of family - Phyllanthaceae (tribe – Bridelieae) has its diversity in the Old World tropics and represented by 134 species (Dressler, 1999; Chakrabarty *et al*., 2002, 2018 and Mabberley, 2017). In India it is represented by eight species of which five (*C. andamanicus, C. balakrishnanii, C. nokrensis, C. malabaricus, C. travancorensis,*) are endemic (Chakrabarty, 1984; Sivarajan *et al.*, 1985; Chakrabarty *et al*., 2002; Chakrabarty, 2004; Balakrishnan and Chakrabarty, 2007; Balachandran *et al*., 2010; Udayan and Chakrabarty, 2012; Singh *et al*., 2014 and Girishkumar and Sunojkumar, 2020).

During the taxonomic exploration of the Bhandara district, Maharashtra (MS), India, authors found an interesting population of *Cleistanthus* specimen along with *C. collinus* which is most commonly found in forests of Ambagad village, Bhandara district. The collected specimen shows the most typical character of the genus *Cleistanthus* belonging to family - Phyllanthaceae (tribe – Bridelieae).

During the field exploration of Bhandara district for the floristic study the studied specimen was collected. The observations and measurements of morphological characters of the specimen were carried out in the field and in laboratory through microscopic study of living specimens. Morphological comparisons with related species based on the specimens from the Kew- Plants of the Worlds online (https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:15213-1) and JSTOR Global Plants. The herbarium specimen is deposited and preserved in the Department of Botany S. N. Mor College of Arts & Commerce & Smt. G.D. Saraf Science College, Tumsar Dist. – Bhandara, Maharashtra, India (JVGFBD-1427), and BSI Western region Pune (holotype - BSI!).

Photographic images of live plants (Fig. 1) and a comparison chart (Table 1) depicting the morphological differences of this new species are provided for easy identification.

Taxonomy

Cleistanthus deekshabhoomiana Gadpayale JV,

Table 1: Morphological comparison of the *Cleistanthus deekshabhoomiana* and *Cleistanthus collinus*

Character	Sub character	*C. deekshabhoomiana*	*C. collinus*
Habitat		Medium size tree 2.5 – 4.5 m tall	Large tree 2.5 – 12 m tall
Branches		Terete, reddish brownish or brownish- red or yellowish green with fusiform lenticels, slightly zigzag, with sparse appressed hairs	Terete, whitish or ash colored with lenticels, slightly zigzag without hairs.
Leaf	Type Stipule Leaf petiole	Simple Linear, 1–1.7 mm long, pubescent 5–10 × 1–1.5 mm, with tawny pubescence	Simple Linear, 1.5 mm – 7 mm, not pubescent 5–10 × 1–1.5 mm, without tawny pubescence
Fruit/ Capsule	Pedicel Shape Fruit size Colour	0.3 – 0.5 mm long Ellipsoid, smooth, without prominent reticulate venation prominently 3- lobed, c. 0.5 – 3.5 × 1.5 cm, Cherry red when young, dark reddish - brown on maturity	Sessile to sub - sessile Sub-globose or widely oblong, glossy, glabrous, with prominent reticulate venation 3- 4 lobed, c. 0.5 – 2.2 × 2 cm, Yellowish-green when young, dark blackish blue on maturity
Seed	Size & Shape Colour	c. 7 × 5 mm, rounded without notch on one side. Brownish - red	c. 7 × 5 mm, rounded with a notch on one side. Black

Indian Forester, **151** (1) : 74-77, 2025
DOI: 10.36808/if/2025/v151i1/170399

ISSN: 0019-4816
eISSN: 2321-094X

(III)
Morphotaxonomic study of *Sida* L., species from Bhandara District Maharashtra, India

The genus *Sida* Linnaeus taxonomically controversial due to morphological variations in shape, size, and surface of mericarps (Ugborogho, 1980; Fryxell, 1985; Sivarajan *et al.*, 1992; Sivarajan and Pradeep, 1996), includes approximately 250 species distributed in the pantropical and subtropical regions (Mabberley, 2017; POWO, 2024; Nimbalkar *et al.*, 2021). In India, the genus is represented by 23 species (Tambde *et al.*, 2016 a & b, 2020; Gavade *et al.*, 2020; Ettickal *et al.*, 2021) and 17 species in peninsular India (Sivarajan and Pradeep, 1996) grouped under 6 sections. Almeida (1996) reported seven species and two varieties, whereas in Flora of Maharashtra state by Singh *et al.* (2001) reported 8 species and one infraspecific taxon for Maharashtra state. However, very recently Tambde *et al.* (2016 a & b) have reported 11 species and one variety of the genus for the state of Maharashtra while recent study in Maharashtra represents 14 species (Tambde *et al.*, 2016 a & b, 2020; Gavade *et al.*, 2020; Govekar *et al.*, 2019 and Nimbalkar *et al.*, 2021).

The recent work of Humane *et al.* (2011) from Bhandara district listed only five *Sida* species with reference to medicinal plant study. But during our field exploration in Bhandara district found that the 13 species are reported and documented in this communication.

The present paper represents the morphology, phenology along with the distribution of specimens in Bhandara district, Maharashtra India.

The plant specimens were collected, examined and identified with the help of available recent literature and floras like floras of Hooker (1897); Cooke (1958); Alemida (1996); Naik (1998) and Flora of Maharashtra state by Singh *et al.* (2001); Tambde *et al.* (2016 a & b, 2020); Gavade *et al.* (2020); Govekar *et al.* (2019); Ugemuge (1986) and Nimbalkar *et al.* (2021).

Morphotaxonomic Enumeration of *Sida* L., species

Sida acuta Burm. f., Fl. Ind. 147. 1768; Cooke, Fl. Pres. Bombay 1: 98. 1958; Fryxell, Syst. Bot. Monogr. 25: 380. 1988; Almeida, Fl. Maharashtra 1: 123. 1996; Venkanna & Das in Singh *et al.*, Fl. Maharashtra St. (Dicot.) 1: 325. 2000. *S. carpinifolia* Mast. in Hook f., Fl. Brit. India 1: 323. 1874 non L. f., 1781; Kshirsagar & Patil, Fl. Jalgaon district, pp 60, 2008. *S. lanceolate* Retz., Observe Bot. 4:28. 1786.

Branched undershrubs, pubescent at young, glabrescent later. Leaves ellipticlanceolate or ovateoblong, with serrate margins. Flowers solitary, axillary or in clusters of 2-3; calyx slightly accrescent; corolla light yellow. Mericarps 6-10, Seeds dark brown.

Flowering and Fruiting- September- December.

Distribution: Commonly found throughout the in waste places and along road side.

Sida angustifolia Mill. Gard. Dict., ed. 8. n. 3. 1768.

Annual or perennial herbs or suffrutices, erect or prostrate, glabrous or pubescent or pilose to densely tomentose or velutinous. Leaves usually undivided, serrate or crenate-serrate, occasionally 3-lobed, cuneate to cordate at the base, usually petiolate. Flowers small to medium-sized, usually cream or orange, long- pedicelled to sub-sessile or solitary, clustered or fasciculate in the leaf-axils or arranged in racemes (sometimes subcapitate or subumbellate) or spikes. Epicalyx absent. Calyx shallow- campanulate to saucer-shaped; lobes ovate or triangular, generally acute to acuminate. Petals not clawed. Staminal tube dilated at the base, divided at the apex into several to many free filaments; free parts of filaments terete. Ovary of 5 to many carpels; each with a single pendulous ovule; style terete or sub-clavate; stigmas capitate or truncate. Fruit of 5 to many mericarps ultimately separating from the torus, dehiscent at the apex (or rarely at the base) or indehiscent, smooth, transversely ribbed, glabrous or hairy, usually acute, beaked or awned. Seeds triangular; cotyledons folded; endosperm scanty or absent.

Flowering and Fruiting: September- January.

Distribution: Commonly found throughout the in waste places and along road side.

Note: New addition to flora of Bhandara District, Maharashtra.

Sida cordata (Burm. f.) Borss. in Blumea 14: 182. 1966; Paul & Nayar in Nayar *et al.* Fasc. Fl. India 19: 206, f. 50. 1988; Paul in Sharma *et al.* Fl. India 3: 283, f.

Inorganic Chemistry Communications 178 (2025) 114455

Contents lists available at ScienceDirect

Inorganic Chemistry Communications

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

Research Article

Influence of La substitution on the structural and magnetic properties of CuCdCo spinel nanoferrite

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ARTICLE INFO

Keywords:
Structural
Magnetic properties
Sol-gel combustion
Cubic spinel
Coercivity
Magnetic moment

ABSTRACT

This study presents modifications of the structural and magnetic properties of $Cu_{0.5}Cd_{0.25}Co_{0.25}La_xFe_{2-x}O_4$ where x = 0.0, 0.02, 0.04, 0.06, 0.08, 0.1 nano-structured spinel ferrites through doping La^{3+} ions. The analyzed ferrites powder were produced via the sol–gel combustion process and characterized using X-ray Diffraction (XRD), High Resolution Transmission Electron Microscopy (HRTEM), Field Emission Scanning Electron Microscopy (FESEM), Energy Dispersive X-ray Analysis (EDAX), Fourier Transform Infrared Spectroscopy (FTIR), and Vibration Sample Magnetometer (VSM). The creation of a single-phase nanostructure in the produced material was verified by XRD analysis. The influence of La^{3+} ions on crystallite size, grain size, lattice constant, dislocation densities, bulk densities, porosity, and hoping lengths was assessed. XRD analysis confirms that all samples exhibit the formation of the cubic spinel structure with Fd3m space group. The crystallite size (23 nm-8 nm) and lattice dimension (8.4610 Å-8.3690 Å) showed a significant random nature corresponding to the doping Fe^{3+} (0.67 Å) by small La^{3+} (1.06 Å). The IR absorption spectra recorded in the 350–2500 cm^{-1} range, with the tetrahedral complexes showing higher frequency band (υ_1) at 536–666 cm^{-1} and the octahedral complexes generating the lower frequency band (υ_2) at 390–428 cm^{-1}, and they are the characteristic feature of spinel structure. The images obtained through FESEM and HRTEM reveal the existence of particles characterized by spherically cubic shaped crystallites. The measurement of the magnetic parameters was conducted through VSM. The observed M–H loop, with saturation magnetization (26.82 emu/g-41.61 emu/g), remanent magnetization (4.92 emu/g-14.00 emu/g), coercivity (190.68 Oe-857.24 Oe), and Magnetic Moment (1.2339–1.8895) show the soft magnetic pseudo-single domain structure. The initial incorporation of La^{3+} leads to an increase in Ms, Mr, Hc, and η_B followed by a subsequent decrease.

1. Introduction

Spinel ferrites are special magnetic materials with semiconductor and ferromagnetic characteristics that can be ceramic or semiconductor material. These magnetic materials have shown potential applications, i.e., high-frequency applications, magnetic fluids applications, high-density magnetic recording, biosensors, hyperthermia, 5G wireless communication system, drug delivery [1–8]. The recent surge in interest surrounding these materials can be attributed to their potential technological applications in device manufacturing. This includes advancement in sensors, magnetic field sensors, multistate memories, intelligent sensors, phase shifters, and electric field adjustable filters[9]. In spinel ferrites, the structure comprises oxygen ions that surround all metal ions in tetrahedral (A) or octahedral (B) arrangements. The properties of ferrites are determined by the arrangement of metal ions in two different locations. The selection of cations for the A site and B site is influenced by their ionic radius, configuration, and ionic polarization [10]. The ferrite samples' physical properties, including density, morphology, structural parameters, saturation magnetization, coercivity, remanence, and electric-dielectric properties like resistivity and

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https://doi.org/10.1016/j.inoche.2025.114455
Received 3 February 2025; Received in revised form 20 March 2025; Accepted 30 March 2025
Available online 31 March 2025

(4)

UGC CARE LISTED
ISSN No.2394-5990

संशोधक

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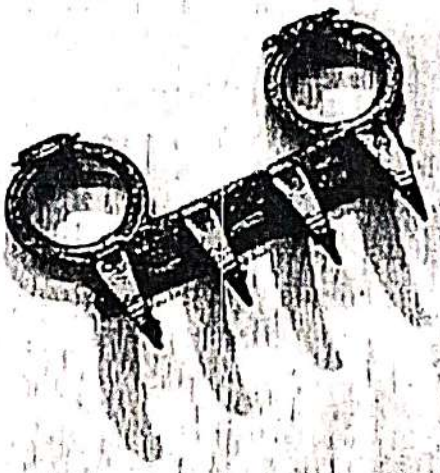

अन्यायाचा सामर्थ्याने ! मग असा संहार केला
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संशोधक

भंडारा जिल्ह्यातील दुर्लक्षित पर्यटन स्थळे

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सारांश :

पर्यटन व्यवसाय हा एक जागतिक स्तरावरील महत्त्वाच्या आर्थिक व्यवसाय म्हणून उद्यास आला आहे. पर्यटन व्यवसायाद्वारे आज मोठ्या प्रमाणावर परकीय चलन उपलब्ध होत आहे, तसेच मोठ्या प्रमाणात रोजगार निर्मिती होत आहे. भारतात पर्यटन व्यवसायाच्या विकासाची मोठी संभाव्यता आहे. परंतु आजही भारतातील अनेक पर्यटन स्थळे विकासाच्या मुख्य प्रवाहापासून दूर आहेत. महाराष्ट्रातील भंडारा जिल्हा पर्यटन व्यवसायाच्या विकासाची उत्तम संभाव्यता असलेला जिल्हा आहे. भंडारा जिल्ह्यामध्ये अनेक महत्त्वाची पर्यटन स्थळे आहेत, परंतु ती अद्यापही दुर्लक्षित आहेत. अशाच काही दुर्लक्षित पर्यटन स्थळांचा अभ्यास प्रस्तुत लघु शोधनिबंधात केला आहे. भंडारा जिल्हा हा महाराष्ट्रातील तलावांचा जिल्हा म्हणून ओळखला जातो. भंडारा जिल्हा वनस्पर्तीनी समृद्ध आहे. हा परिसर पूर्वी गोंडवानाच्या नावाने विख्यात होता. वैनगंगा नदीच्या खो-यांनी आणि वनांनी नटलेला भंडारा जिल्ह्यात लहान-लहान तलाव असल्याने याला 'तलावांचा जिल्हा' या नावाने ओळखले जाते. सध्या हे भूक्षेत्र झाडीपट्टीच्या नावाने प्रसिद्ध आहे. राजे रघुजी भोसल्यांच्या दस्तऐवजात 'वैनगंगा प्रांत' या नावाने या प्रदेशाचा उल्लेख आहे.

बीजसंज्ञा : भंडारा जिल्हा, दुर्लक्षित पर्यटन स्थळे, समस्या, उपाय.

प्रास्ताविक :

पर्यटन व्यवसाय हा एक जागतिक स्तरावरील महत्त्वाच्या आर्थिक व्यवसाय म्हणून उद्यास आला आहे. पर्यटन व्यवसायाद्वारे आज मोठ्या प्रमाणावर परकीय चलन उपलब्ध होत आहे, तसेच मोठ्या प्रमाणात रोजगार निर्मिती होत आहे. भारतात पर्यटन व्यवसायाच्या विकासाची मोठी संभाव्यता आहे. परंतु आजही भारतातील अनेक पर्यटन स्थळे विकासाच्या मुख्य प्रवाहापासून दूर आहेत.

महाराष्ट्रातील भंडारा जिल्हा पर्यटन व्यवसायाच्या विकासाची उत्तम संभाव्यता असलेला जिल्हा आहे. भंडारा जिल्ह्यामध्ये अनेक महत्त्वाची पर्यटन स्थळे आहेत, परंतु ती अद्यापही दुर्लक्षित आहेत. अशाच काही दुर्लक्षित पर्यटन स्थळांचा अभ्यास प्रस्तुत लघु शोधनिबंधात केला आहे.

भंडारा जिल्हा हा महाराष्ट्रातील तलावांचा जिल्हा म्हणून ओळखला जातो. भंडारा जिल्हा वनस्पर्तीनी समृद्ध आहे. हा परिसर पूर्वी गोंडवानाच्या नावाने विख्यात होता. वैनगंगा नदीच्या खो-यांनी आणि वनांनी नटलेला भंडारा जिल्ह्यात लहान-लहान तलाव असल्याने याला 'तलावांचा जिल्हा' या नावाने ओळखले जाते. सध्या हे भूक्षेत्र झाडीपट्टीच्या नावाने प्रसिद्ध आहे. राजे रघुजी भोसल्यांच्या दस्तऐवजात 'वैनगंगा प्रांत' या नावाने या प्रदेशाचा उल्लेख आहे.

उद्दिष्टे :

प्रस्तुत शोध निबंधासाठी भंडारा जिल्ह्यातील दुर्लक्षित पर्यटन स्थळांचा अभ्यास खालील उद्दिष्टांना अनुसरून केलेला आहे.

१. भंडारा जिल्ह्यातील दुर्लक्षित पर्यटन स्थळांचा अभ्यास करणे.
२. भंडारा जिल्ह्यातील संभाव्य पर्यटन विकासाचा अभ्यास करणे.
३. भंडारा जिल्ह्यातील दुर्लक्षित पर्यटन स्थळांच्या समस्यांचा शोध घेणे.
४. भंडारा जिल्ह्यातील पर्यटन स्थळांच्या विकासासाठी उपाय सुचविणे.

अभ्यास क्षेत्र :

भंडारा जिल्ह्याचे भौगोलिक स्थान हे २१०७१' अंतर अक्षांश आणि ७९०६५' पूर्व रेखांशावर वसलेले असून एकूण क्षेत्रफळ ३७१६ चौ.कि.मी. आहे. भंडारा जिल्ह्यात एकूण ७ तालुके आहेत. भंडारा जिल्ह्याच्या पूर्वेला गोंदिया व पश्चिमेला नागपूर जिल्हा आहे. उत्तरेला मध्य प्रदेश तर दक्षिणेला गडचिरोली

Journal of East-West Thought
ISSN: 2168-2259 (online)
(https://jetjournal.us/)
Volume 15, Issue 1, Jan-March – 2025 Special Issue 2
Impact Factor: 7.665, Peer Reviewed and UGC CARE I

(5)

GEOMORPHOLOGICAL STUDY OF RIVER WAINGANGA WATERSHED IN BHANDARA DISTRICT-AREAL ASPECT

Dr. Aruna Bawankar, Head of Geography Department, S. N. Mor College, Tumsar

Abstract

Watershed Region is one of the most important landforms on Earth. Rainfall Drainage Density, stream frequency, Average slope, Absolute & Relative Relief etc. It plays an important role in the special distribution of elements. Morever all the characteristics of a watershed are related to the size of the watersheds. In the study and analysis of watershed between there is a relationship between circumferences and size of river basin, special aspects of watersheds refers to the geographic structure of watersheds, such as climate, vegetation cover, stream development as well as topographic features. The catchment area is demarcated on the basin of watersheds. In the real aspect of catchment areas are studied. The areal aspect of a watershed area is related to size of the streams flowing through it. Areal aspect of watershed can be used in water Conservation projects like collection, Conservation.

Keyword: Watershed, Areal aspect, Wainganga, shape, size, Elongation.

Study Area

The area selected for this short research paper is from the Bhandara Districts upper watershed of rivers Wainganga. This watershed area extends from 21^0 4' 09" N to 21^0 35' 42" N latitude, and 79^0 27' 31" E to 79^0 55' 49" E longitude. This watershed area covers the total area of Bhandara District (27.69%) covering an area of 1132.20 sq.km. This watershed area sq.km. is negligibly triangular in shape. The waingang is the major river in Bhandara is District.

Objectives

1. The objectives of the present short research paper are to study the right bank of river wainganga and its watershed.
2. Study the range of different flow system in watershed. (River Pattern)
3. Study the various main areal aspect of the watershed area and geomorphological elements.

Research methods and data collection

A base map making of the Wainganga river system and watershed arre Bhandara district through Indian topographical Map No. $55\frac{0}{6}$, $55\frac{0}{7}$, $55\frac{0}{8}$, $55\frac{0}{10}$, $55\frac{0}{11}$, $55\frac{0}{12}$, $55\frac{0}{14}$, $55\frac{0}{15}$ and watershed area is to be classified. It has been made to study geological feature of the area. Data collection, Sampling, Maps, Diagrams, Graphs, Measurements were used to display the data.

Introduction

Ariel Aspect

Watershed Region is one of the most important landforms on Earth. Rainfall Drainage Density, stream frequency, Average slope, Absolute & Relative Relief etc. It plays an important role in the special distribution of elements. Morever all the characteristics of a watershed are related to the size of the watersheds. In the study and analysis of watershed between there is a relationship between circumferences and size of river basin, special aspects of watersheds

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

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Rice Field Agro-Ecosystem's Arthropod Complex In Central India

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Summary

A survey was made on the farmers' rice fields to study the insect pests and their natural enemy complex in rice ecosystem of eastern Vidarbha of Maharashtra, India. In both *kharif* (wet) and *rabi* (dry) seasons a pest complex of 23 insect pests belonging to 7 orders and 14 families was recorded and identified. Of all these, 4 pest species viz., yellow stem borer, *Scirpophaga incertulus* (Walker), leaf folder, *Cnaphalocrocis medinalis* (Guen.), brown planthopper, *Nilaparvata lugens* (Stal.) and whitebacked planthopper, *Sogatela furcifera* (Horvath) were infesting rice crop very commonly and thus representing major pest status. The incidence of *S. incertulus* in the *rabi* season was much higher than that of the *kharif* season. The peak density of *C. medinalis* in the *kharif* season was much higher than that of the *rabi* season. The incidence of *N. lugens* and *S. furcifera* during *rabi* season were much lower as compared to the *kharif* season. The infestation of *S. furcifera* was noticed at an early stage of the crop growth whereas the BPH appeared in appreciable number at the grain filling stage of crop causing heavy loss.

About 11 parasitoids and 23 predatory insects and spiders were active and effectively regulating the populations of all the four major pests. Among the parasitic wasps *Apantales* spp., *Trichomma cnaphalocrosis*, *Ophius* spp. and *Temelucha* spp. appeared frequently in the rice fields and out of 23 predators, dragonflies, damselfly, *Agriocnemis femina*, lady bird beetles, *Micraspis discolor* and *Hormonia octamaculata*, rove beetle, *Paederus fuscipes* and ground beetle, *Ophionia indica* were found to be abundantly predating on immature and mature stages of major and minor pests. Among the 4 species of spiders recorded as non-insect predators, *L. pseudoannulata* was found to be predominant species predating on all types of pests. The abundance of dragonflies, lady bird beetle, *M. discolor* and rove beetle, *P. fuscipes* was more in *rabi* than in *kharif* season whereas spiders and ground beetle, *C. indica* were dominant during *kharif* season. The findings of present study may help in Integrated Pest Management technique to control the major insect pests of rice ecosystem.

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www.entomologyjournals.com
ISSN: 2455-4758
Received: 05-07-2024, Accepted: 05-08-2024, Published: 20-08-2024
Volume 9, Issue 8, 2024, Page No. 109-112

Ocurrence of leaf folder, *Cnaphalocrosis medinalis* (lepidoptera: pyralidae)-A major pest of rice in eastern Vidarbha (Maharashtra)

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Abstract
A pest complex of about 23 insect pests belonging to 7 orders and 14 families was recorded and identified during both *kharif* and *rabi* seasons. Among the lepidopteran pest species, a leaf folder, *Cnaphalocrosis medinalis* was infesting rice crop very commonly causing major damage and thus representing major pest status. The peak density of *C. medinalis* in the *kharif* season was much higher than that of the *rabi* season. The damage was severe in the later stage of the crop growth, particularly in shady areas.

The correlation analysis study showed that *C. medinalis* and its damage had significantly positive correlation with maximum and minimum temperatures and wind velocity during *rabi* season, whereas *it* showed highly significant negative correlation with minimum temperature and relative humidity during *kharif* season. The linear regression equations derived from the present study may helpful in predicting the occurrence of this pest in rice ecosystem of this region.

Keywords: Correlation, *Cnaphalocrosis medinalis*, linear regression, peak density, rice pests, Vidarbha

Introduction

The insect pests are one of the major yields limiting biotic factors for rice crop throughout the world. About 300 species of insects in India have been reported to attack rice crop, of which 20 have been reported as the major pests (Pathak, 1977, Arora and Dhaliwal, 1996) [12, 16] causing 21 to 51 percent yield losses (Singh and Dhaliwal, 1994) [20]. Some attempts have been made to study the incidence of rice pests and their natural enemies in other states of India such as Andhra Pradesh, Punjab, Gujarat, Karnataka, Bihar and Uttaranchal (Brar *et al*., 1994; Pandya *et al*., 1995; Naganagoud *et al*., 1999; Rai *et al*., 2000; (Pushpakumari & Tiwari, 2005) [5, 12, 13, 17, 18], but there was no information on the occurrence of minor pest, *Cnaphalocrosis medinalis* in relation to climatic conditions of eastern Vidarbha (Maharashtra), especially Bhandara and Gondia districts, rice bowls of state. The present paper describes the occurrence of a major pest, *C. medinalis* and its population fluctuations in relation to climatic conditions of this region.

Materials and Methods

Rice crop in eastern Vidarbha is grown in monsoon and summer seasons one after the other and called as *kharif* and *rabi*, respectively. The survey of leaf folder, *Cnaphalocrosis medinalis* was carried out in the farmer's fields of Bhandara and Gondia districts during both *kharif* (monsoon crop) and *rabi* (summer crop) rice seasons from 2019 to 2020.

Regular monitoring of the occurrence and abundance of leaf folder, *C. medinalis* in rice fields was made visually as well as by hand collection or by hand in 1 x 1 quadrate sample from five randomly selected spots in the field.

The population *C. medinalis* was estimated at weekly interval in 1x1m quadrate from five randomly selected spots in each field site under study. Its population and damage were assessed by counting the adults and folded leaves per m^2. Simultaneously information on weather parameters was also collected from near by meteorological department. The statistical analysis of the data and weather parameters were carried out by Pearson correlation and bilinear regression by using software SPSS 7.0 version.

Results and Discussions

During both *rabi* and *kharif* seasons, a pest complex of about 23 insect pests belonging to 7 orders and 14 families was recorded and identified. It consisted of 11 lepidopteran, 5 homopteran, 2 each of heteropteran and coleopteran and 1 each of dipteran, thysanopteran and orthopteran species. Among the defoliators, leaf folder, *Cnaphalocrosis medinalis* (Fig. 13,14,15, and 16) was observed as the major pests during both *rabi* and *kharif* seasons causing considerable damage to rice crop as a leaf folder. The larva folds the leaf and scrapes the green tissues from within and cause scorching and leaf drying. One larva can destroy several leaves by its feeding. Under heavy infestation, each rice plant has several rolled leaves, which severely restricts the photosynthetic activity. In Gujarat the major pests during summer and wet-season crop were *S. incertulas* and *C. medinalis* while *Pelopidas mathias* and *Dicladispa armigera* were minor pests (Pandya *et al*., 1995) [13].

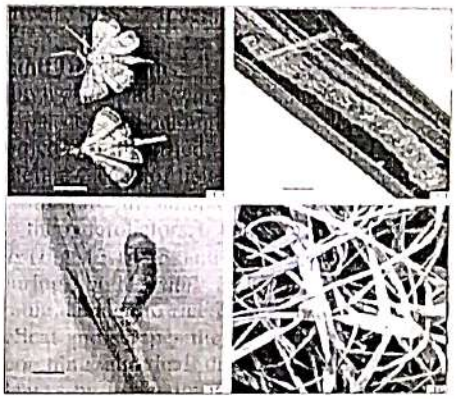

Fig 1: Leaf folder- 13. Adult mot, 14. Caterpillar larva, 15. Pupa, and 16. Damage caused by larva

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साहित्य, कला, संशोधन व परिवर्तनवादी
पुरोगामी विचारांशी बांधिलकी ठेवणारे त्रैमासिक

शब्दगंधा

वर्ष : पंधरावे । अंक : दुसरा
जुलै-ऑगस्ट-सप्टेंबर २०२४

महात्मा गांधींचे अहिंसेसंबंधी विचार आणि राष्ट्रीय एकात्मता समकालीन परिप्रेक्ष

प्रा. विकास वसराम आडे
डॉ. राजेंद्र ओंकार बेलोकार

विषय प्रवेश :

प्रस्तुत शोधनिबंधाचा विषय हा महात्मा गांधींचे 'अहिंसेसंबंधी विचार आणि राष्ट्रीय एकात्मता' समकालीन परिप्रेक्ष्य हा असून या शोधनिबंधात महात्मा गांधीजींचे 'अहिंसेसंबंधी विचार आणि राष्ट्रीय एकात्मता' यावर प्रकाश टाकण्यात येईल, महात्मा गांधी यांनी आपल्या विचारांची आणि तत्त्वज्ञानाची मांडणी केवळ राजकीय नाही, तर मानवतावादी दृष्टिकोनातून केली आहे. आजच्या सामाजिक, राजकीय, आर्थिक परिस्थितीकडे बघितले असता असे दिसून येते की, आज भारताच्या राष्ट्रीय एकात्मतेला भेडसावणाऱ्या अनेक समस्या ह्या डोके वर काढत आहेत. त्यामध्ये जातीयवाद, भाषावाद, प्रांतवाद, नक्षलवाद, दहशतवाद आर्थिक विषमता, आंदोलनाची बदलते हिंसक स्वरूप गरिबी-बेरोजगारी; वाढते गुन्हेगारीकरण यांसारख्या समस्यांनी राष्ट्रीय एकात्मतेसमोर प्रश्नचिन्ह निर्माण केलेले आहे. अलीकडील काळात तर राजकारणाचे स्वरूप हे दिवसेंदिवस बदलत चाललेले आहे राजकारण आणि जात, राजकारण आणि धर्म, राजकारण आणि भाषा, राजकारण आणि प्रांतवाद असे राजकारणाचे समीकरण झाले असून यामुळे कुठेतरी राष्ट्रीय एकात्मतेला तडा जाऊ शकतो, यात तिळमात्र शंका नाही. आजच्या या विषमतापूर्ण काळात महात्मा गांधींचे 'अहिंसेसंबंधी तत्त्वज्ञान व विचार' हे उपयुक्त व प्रासंगिक आहेत. भारतीय राष्ट्रीय एकात्मता ही कायम टिकून ठेवायची असेल, तर महात्मा गांधींचे अहिंसे संबंधी विचारच एक पर्याय होऊ शकतो. महात्मा गांधीजींनी केवळ विचारांची मांडणी केली नाही, तर त्याला कृतिरूप दिले व अनेक जाती, धर्म, पंथ, भाषा व वर्ग असणाऱ्या भारतीयांना एकतेच्या सूत्रामध्ये बांधून ब्रिटिश साम्राज्यवादाविरुद्ध स्वातंत्र्य आंदोलनाचे रणसिंग फुंकले व स्वतंत्र भारत जगाच्या नकाशावर उदयास आला.

प्रस्तावना :

आधुनिक भारतीय विचारसरणीमध्ये महात्मा गांधी यांचे स्थान अनन्यसाधारण स्वरूपाचे आहे. महात्मा गांधीजी हे राजकीय विचारवंतांच्या कसोट्यांवर खरे उतरत नसले, तरीही राजकीय विचारात त्यांनी मोलाची भर घातली आहे. महात्मा गांधी यांनी केवळ राजकीय नाही, तर सामाजिक, शैक्षणिक, धार्मिक, आर्थिक अशा विकासाच्या सर्व घटकाला छेद देणाऱ्या विचारांची मांडणी केली आहे. आज भारताला स्वातंत्र्य मिळून ७५ वर्ष पूर्ण झाली, तरीही देशांमध्ये राष्ट्रीय एकात्मतेला आव्हान ठरणाऱ्या अनेक समस्या डोके वर काढत आहेत. त्यामध्ये जातीयवाद, भाषावाद, प्रांतवाद, नक्षलवाद, दहशतवाद, बेकारी व बेरोजगारी, दारिद्र्य व कुपोषण, आर्थिक विषमता, वाढत्या शेतकऱ्यांच्या आत्महत्या, महिला हिंसाचार,

International Journal of Entomology Research
www.entomologyjournals.com
ISSN: 2455-4758
Received: 17-08-2024, Accepted: 16-09-2024, Published: 01-10-2024
Volume 9, Issue 10, 2024, Page No. 4-8

Abundance of predatory Heteropteran water bugs in rice agro-ecosystem in Vidarbha, India

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Abstract
Study on predatory heteropteran water bugs from four different sites of rice fields in east Vidarbha during Rabi and kharif seasons from 2021 to 2023 by quadrant method. These were *Limnogonus fossarum* (Fabricius), *Hydrometra* species, *Microvelia douglasi* (Scott) and *Anisops ogasawarensis* (Matsumura). These water bugs were first recorded in the field at about 15 DAT (day after transplantation) and high abundance were found at 30 DAT during Rabi and kharif seasons. Density of all water bugs was high in both the kharif and Rabi season in all study sites. Among four water bugs, *A. ogasawarensis* was found to be the most abundant in all study sites of rice fields of east Vidarbha.

Keywords: Abundance, heteropteran water bugs, Vidarbha, rice crop, kharif and rabi seasons

Introduction
Heteroptera is a diverse group of insects that have adapted to a wide variety of habitats, including terrestrial, aquatic and semi-aquatic environments. (Richards and Davies, 1979) [12].

Heteroptera are major predators on crop pests and are useful biological control agents (Schaefer and Panizzi, 2000 and Triplehorn and Johnson, 2005) [14, 15]. Predatory bugs feed on the eggs, immature stages, and adults of injurious pest insects and control pest populations naturally (Schaefer, 1996; De Clercq, 2000) [3, 13]. In recent years predatory bugs received more attention due to naturally controlled pest populations in fields. Some attempts have been made to study population fluctuation of predatory water bugs in different regions of India like Tamil Nadu (Kandiben *et al.*, 2007). Rice is the most important staple food crop for more than 65% of world population and two third of India populations. The rice crop is infested by various pests, causing low yield (Mathur *et al.*, 1999) [7]. To know naturally available rice pest enemies, an attempt has been made and studied the abundance of predatory heteropteran water bugs in rice fields in east Vidarbha.

Materials and methods
The present study was carried out in the east Vidarbha region of Maharashtra state, India. East Vidarbha lies between the latitudes 19^0.56' and 21^0.38' north and longitudes 79^0.17' and 80^0.42' east and includes four districts namely Gondia, Bhandara, Gadchiroli and Chandrapur

Samples were collected during both rabi (February- May) and kharif (July- November) crop seasons of rice fields from 2021 to 2023 by frequent field visit at an interval of 15 days. Total four sites, from east Vidarbha Maharashtra, were selected for study. Fields selected with a common variety of rice in this region. About one hectare fields were fixed for study of bug abundance. Morning hours were preferred for sample collection in all experimental fields. From 15 days after transplantation (DAT) observation was started and continued till up to the harvesting of crops.

For the study of abundance, the quadrat method was used, 1×1 m quadrat placed in a selected field in 5 different spots (four in the corner and one in the center of the field) and each quadrat was observed properly. The collected insects were placed in a plastic container and brought to the laboratory for counting and preserved in 70% alcohol. Collected bugs were counted and data noted in the prepared table. The species diversity, abundance and evenness were calculated by using Past software.

Fig 1: Map showing study sites in east Vidarbha region, Maharashtra

Results
Predatory heteropteran water bugs *Limnogonus fossarum, Hydrometra species, Microvelia douglasi* and *Anisops ogasawarensis* were collected from four sites of rice fields in east Vidarbha during rabi and kharif seasons from 2021 to 2023. Water bugs *L. fossarum, Hydrometra* sp., *M. douglasi* and *A. ogasawarensis* were first recorded in the field at about 15 DAT during both the seasons (rabi and kharif) and high abundance of these water bugs was found at 30 DAT in both the seasons. After that the population of bugs started to decline. Among four water bugs, *A. ogasawarensis* was found to be the most abundant in all

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Detection of Hg (II) And Pb(II) ions in Drinking Water Using Urease Based Nanostructured Metal Oxide Electrochemical Biosensors

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Abstract:

In present days growing industrialization and the use of chemicals in agriculture have contributed to the mixing up many toxic compounds in air, soil, and water, which cause environmental pollution. Out if which Hg(II) and Pb(II) in drinking water are found to be more harmful for living organisms. And hence accurate detection of these heavy metal ions is challenging task for the scientists. For this we have developed two electrochemical biosensors PANI/ZnO/Urease and PANI/MnO2/Urease biosensors, which are nanostructured metal oxide Polyaniline nanocomposites using Urease as biological element. The resulting optimum value of concentration of enzyme substrate was 5 mM for both the ions. The optimization of inhibition time of PANI/ZnO/Urease biosensors was found to be 20 minutes and that of PANI/MnO_2/Urease biosensor was 22 minutes.

The PANI/ZnO/Urease biosensor developed in this work show a sensitive chronoamperometric response to the enzyme substrate, Urea. This signal is considerably affected by the presence of Hg (II) and Pb(II) ions that produce an increase in the recorded chronoamperometric response. Similar response can be observed with PANI/MnO_2/Urease biosensor, but the value of ΔI was smaller than that of PANI/ZnO/Urease. This clearly indicates more sensitive and precision detection of Hg (II) ions by PANI/ZnO/Urease biosensor and Pb(II) ions by PANI/MnO_2/Urease biosensor.

The relative response of constructed biosensors for the detection of same ion show that the response of PANI/ZnO/Urease biosensor to Hg (II) ions detection is 5 times more compared to that of PANI/MnO_2/Urease biosensor. Also the response of PANI/MnO_2/Urease biosensor to Pb (II) ion detection is 4.7 times more than that PANI/ZnO/Urease biosensor.

Kewwords: Electochemical biosensors, Heavy metal ion detection, metal oxide nanocomposite, Hg(II) , Pb(II).

Introcuction:

The pollutants such as Hg(II) and Pb(II) can be identified and quantified by classical analytical techniques such as gas chromatography (GC/MS) or high performance liquid chromatography (HPLC/MS). These techniques are time consuming because of sample preparation and need for pre-concentration, expensive, and, in case of water samples, cannot be performed easily outside the laboratory. In addition, sometimes they are restricted to a limited set of substances. The selection of target compounds may completely fail to recognize the most harmful toxic constituents.

UGC CARE LISTED
ISSN No. 2394-5990

(11)

इतिहासाचार्य वि. का. राजवाडे मंडळ, धुळे
या संस्थेचे त्रैमासिक

।। संशोधक।।

पुरवणी अंक २७ – जून २०२४ (त्रैमासिक)

- शके १९४६
- वर्ष : ९२
- पुरवणी अंक : २७

* प्रकाशक *

श्री. संजय मुंदडा

कार्याध्यक्ष, इ. वि. का. राजवाडे संशोधन मंडळ, धुळे ४२४००१

दूरध्वनी (०२५६२) २३३८४८, ९४२२२८९४७१, ९४०४५७७०२०

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सकाळी ९.३० ते १.००, सायंकाळी ४.३० ते ८.०० (रविवारी सुट्टी)

लेख सदस्यता वर्गणी : रु. २५००/-

विशेष सूचना : संशोधक त्रैमासिकाची वर्गणी चेक/ड्राफ्टने 'संशोधक त्रैमासिक राजवाडे मंडळ, धुळे' या नावाने पाठवावी.

अक्षरजुळणी : सौ. सीमा शिंत्रे, पुणे.

जगदंबा प्रसाद दीक्षित के कथा साहित्य में वर्ग संघर्ष

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प्रस्तावना :

वर्ग संघर्ष कुछ वर्षों पहले की समस्या नहीं है। अपितु भारत में वर्ग संघर्ष यह एक अति प्राचीन परंपरा है। वैसे ही वह एक वैश्विक समस्या के रूप में भी देखी जाती रही है। प्राचीन काल में दास प्रथा के अंतर्गत दास और राजा या शासक, मध्यकाल में सामंत प्रथा के अंतर्गत जमींदार और किसान तथा आधुनिक काल में पूँजीवादी व्यवस्था के अंतर्गत मील मजदूर और कारखानदार आदि में जो संघर्ष चला आ रहा है। उसमें बदलाव या परिवर्तन अवश्य हुए हैं किंतु शोषण का तरीका वही है। अर्थात् अपने शब्दों में कहूँ तो कम दाम और परिश्रम ज्यादा। अपने आर्थिक मुनाफे के लिए शोषक (पूँजीपति) शोषतों (श्रमिक) का शोषण कर जादा-से-जादा मुनाफा कमाने का तरीका। प्राचीन काल से लेकर आज तक चल रहा है अब तक के इतिहास में जो भी सामाजिक परिवर्तन हुए हैं उनमें पुराने वर्ग समाप्त होते नजर आए हैं और नए वर्ग अस्तित्व में आए। परंतु शोषण के मूल ढाँचे में कोई परिवर्तन नहीं हुआ अर्थात् शोषक और शोषित रूप बदल-बदलकर कायम रहे।

समाज में वर्ग संघर्ष सदैव से चला रहा है और आज भी है। वर्तमान में एक ओर मील मालिक, साहुकार, व्यापारी, राजनीतिक, जमिंदार आदि पूँजीपति दिखाई देते हैं जो संख्या में कम है। तो दूसरी ओर मजदूर, नौकर, किसान, निर्धन आदि शोषक है जो संख्या में सर्वाधिक है। इन दोनों वर्गों में हमेशा से संघर्ष होता रहा है। पूँजीपति निर्धारित समयसिमा से अधिक काम लेकर तथा मजदूरों का शोषण कर जादा मुनाफा कमाना चाहता है, इसी बात को लेकर विश्व में कई संघर्ष हुए हैं। इस में 1831 में 'लियो' में मजदूरों का सर्वप्रथम आंदोलन था। सन 1838 में और 1842 के बीच मजदूरों का पहला राष्ट्रीय आंदोलन हुआ। अक्तुबर 1884 को साडे तीन लाख लोगों ने कॅनड़ा में 1 मई 1986 को शिकागो में आंठ घटे काम करने की मांग को लेकर संघर्ष किया गया। इतना ही नहीं सन 1890 में इंग्लंड, फ्रांस, रूस आदि देशों में श्रमिकों की मांग को लेकर हड़ताल कर दी गई।[1] इससे ज्ञात होता है कि आधुनिक समाज में शोषण अपनी चरण सीमा की ओर उन्मुख हो रहा है। चाहे वह राजनीतिक अथवा धार्मिक संस्था हो, सामाजिक अथवा शैक्षणिक संस्थाएँ हो, सभी जगह वर्ग संघर्ष अथवा वर्ग भेद दिखाई देता है।

वर्ग संघर्ष की मूल भावना का मूल स्रोत कार्ल मार्क्स है। उन्होंने इस संबंध में कहा है - अभी तक घटित सभी समाजों का इतिहास वर्ग संघर्ष का इतिहास है।[2] वर्ग संघर्ष के सिद्धांत के प्रतिपादन का श्रेय कार्ल मार्क्स और फ्रेड्रीख एंगेल्स को है। इनमें से भी प्रमुख रूप से कार्ल मार्क्स ही है। मार्क्स ने वर्ग शब्द का प्रयोग एक विशेष अर्थ में किया है - ऐसे व्यक्तियों का एक समूह जिनका आर्थिक स्वार्थ एक सा हो, जिनके कमाने के, धन पैदा करने के एक से ही रास्ते हों और समाज में जिनको समान आर्थिक और राजनीतिक स्थान प्राप्त हो।[3]

डॉ. मुजुलता सिंह ने वर्ग वैषम्य एवं सामाजिक विकृति का कारण एकमात्र धन को मानते हुए लिखा है - धन के ही कारण समाज में वर्ग संघर्ष है और धन ही सामाजिक शक्ति सबलता का परिचालक है।[4]

उपरोक्त कथनों से स्पष्ट है कि सामाजिक वर्ग संघर्ष के मूल में अर्थ कारण ही महत्वपूर्ण बताया गया है। दीक्षित के कथा साहित्य में उच्च वर्ग, मध्य वर्ग, निम्न वर्ग आदि वर्गों का चित्रण हुआ है। अर्थात जगदंबा प्रसाद दीक्षित मार्क्स से प्रभावित लेखक है। उनका संपूर्ण कथा साहित्य मार्क्सवादी विचारधारा से प्रेरित है। उनके साहित्य में मिल मालिक, सेठ साहुकार, जमिंदार, राजनेता आदि उच्च वर्ग एक और है तो दूसरी ओर इन्हीं से संघर्ष करने वाले प्रोफेसर मिल मजदूर, हमाल, भिक्षुक, घुमंतुक, वैश्याएँ यह मध्य और निम्न वर्ग दिखाई देता है। जो निम्नलिखित रूप में है।

बीज शब्द : वर्ग, संघर्ष, शोषण, श्रमिक, दैनीय, पूँजीपति, साहुकार, व्यापारी, चमक-दमक, बंगले, आर्थिक, मुनाफा, सामंत, शासक, शोषण, समस्या, उच्च वर्ग, मध्यम वर्ग, निम्न वर्ग, मजदूर, वेश्या, हमाल, भिखारी, घुमंतुक