Ref.No.

Date :.............................

Dr. Amiya Kumar Das. M.A.Ph.D
Principal

Declaration

This is to certify that the number of papers published per teacher in the Journals notified on UGC by the teachers of this institutions during the sessions 2018-19 2019-20, 2020-21, 2021-22, 2022-23 are as follows

Session	No. of Activities
2018-19	1
2019-20	2
2020-21	7
2021-22	5
2022-23	5

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Ref.No.

Date :................................

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3.3.1 Number of research papers published per teacher in the journals notified on UGC care list during last five years

Title of paper	Name of the author/s	Name of journal	Year of publication	ISSN number
On Generalized ISI Index of the Crystallographic structure of Tin Dioxide.	Sri Bijit Bora	Science & Technology Asia	January-March 2023	P.ISSN 2586-9000 E.ISSN 2586-9027
Education for women Empowerment	Mrs Progati Borthakur Barua	Pragyanjyoti	2023	2348-9626
Human Resource Development and Application of Six Sigma in Libraryand Information Science	Dr Deepa Baruah	Journal of Emerging Technologies and Innovative Research.	October,2022	2349-5162
Research on Human Resource Development and Need of structuring competency for working LIS professionlas.	Dr Deepa Baruah	Granthakuti	2022	2349-7386
Multiset Topology and its Applications : A Survey	Sri Bijit Bora	Advances and Applications in Mathematical Science	2022	0974-6803
On Degree Based Topological Indices of TiO2 Crystal via M-Polynomial	Sri Bijit Bora	Trends in Sciences	2022	2774-0226
Synthesis and characterization of Co(II)- C0(III) LDH and Ac@Co(II)-Co(III)LDH	Dr Pinky Saikia	Results in Chemistry	2022	2211-7156

nanohybrid and study of its application as bactericidal agents				
Molecular graph theory based study on Lin cluster: a correlation between physical property and topological descriptors	Sri Bijit Bora	Bulletin of Materials Science	2021	0973-7669 (web) 0250-4707 (print)
River water quality assessment by Bio-monitoring working party score of Macro inverterbate.	Dr Janmoni Moran	Indian Journal Environmental Protection	2021	0253-7141
A Study on effectiveness of Mid-day Meal Programme in the Development of primary Education in Chilakola Panchayat, under Majuli District, Assam	Dr Amol Goswami	International Journal of All Research Education and ScientiicMethods(IJARESM)	2021	2455-6211
A Study on Environmental Awareness of Secondary level Students with special reference to Kathalguri (Central) Development Block of Golaghat, Assam	Dr Amol Goswami	Journal of Research on Humanities and Social Science	2021	2321-9467 (online)
Alga- mediated facile green synthesis of silver nanoparticles: photophysical,catalytic and antibacterial activity	Dr Pampi Sarmah	Applied Organometallic Chemistry Vol. 34 (5)	2020	1099-0739 (online) 0268-2605(print)
Quantitative document of traditionally used medicinal plants and their significane to healthcare amongthe Mishing community of Northeast India.	Dr. Deiji Narah	Ecological Questions 32(4) :1-62	2021	DOI:10:12775/EQ .2021.034
Rediscovery of Pseudobartsia glandulosa (Orobanchaceae) ,a little known, critically endangered herb after	Dr. Deiji Narah	Phytotaxa 451(1): 097-102	2020	DOI:10.11646/PHYTOTAXA.451.1.10

179 years from India and first report from Eastern Himalayan state ArunachalPradesh				
Zingiber flavofusiform (Zingiberaceae),a New Record fro the Flora of India	Dr. Deiji Narah	Journal of Japanese Botany 95(2):102-105	2020	0022-2062
Non- Aligned movement: its Historical background and theoretical perspective	Mrs Jyoti Rekha Gogoi	ACTA Journal XLI,	2019	2229-693X

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ADDITIONAL INFORMATION OF JOURNAL PUBLICATION

Original research article

On Generalized ISI Index of the Crystallographic Structure of Tin Dioxide

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ABSTRACT
Topological indices are molecular descriptors that help in understanding the physical, chemical and biological properties of molecular structures. The generalization of the Inverse Sum Indeg (ISI) index can be used to obtain many standard degree-based topological indices. In this paper, we have computed the generalized ISI index and its associated topological indices for the crystallographic structure of Tin dioxide, SnO_2. These indices are expressed in terms of three variables (l, m, n) such that each corresponds to a particular direction in the growth of the SnO_2 crystal. The variation of the topological indices with respect to the three parameters is also studied graphically.

Keywords: Crystallographic structure; ISI index; SnO_2; Topological index

1. Introduction

Graph theory plays a significant role in the study of chemical structures. This theory is used for mathematically modeling chemical structures to get an idea of the physical and chemical properties of the chemical compounds. It is also used to design complex networks. A molecular graph is represented by vertices and edges where the vertices denote atoms and the edges denote the molecular bonds between them. Chemical graph theory is a branch of mathematical chemistry that applies combinatorial and geometrical graph theory to model the structure of molecules. Chemical compounds have several applications in chemical graph theory, drug design, etc.

Topological indices (TIs) are molecular descriptors used in chemical graph theory. They are graph invariants that depict some useful information regarding the topology of a molecule. They are an important tool in mathematical chemistry, especially in the development of QSAR and QSPR studies [1-5]. They correlate the chemical structures with many physicochemical properties. The last few

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MULTISET TOPOLOGY AND ITS APPLICATIONS: A SURVEY

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Abstract

In real life, a number of situations occur where we have to deal with collections of elements in which duplicates are significant. There are enormous repetitions in nature like many hydrogen atoms, many strands of DNA, repeated roots of a polynomial equation representing a physical phenomenon etc. A useful mathematical model for representing multi attribute objects is a multiset (mset) or a bag. Multiset topology (M-topology) is the generalization of general topology in multiset setting. In this article, a detailed investigation is done on evolution of multiset topology till date. Some of the applications of multiset and its topology in DNA and RNA mutations are also discussed.

1. Introduction

Theory of sets plays a very important role in mathematics. Every branch (field) of mathematics use set theoretic concepts in some way or the other. Set is very helpful in formulating various mathematical structures with limitation that no elements in the set is repeated. But in real life, we face a number of situations or problems where we have to deal with collection of elements or objects where duplicates are significant. The advances in science and technology have also given rise to many problems (or situations) where the objects under analysis are characterized by many qualitative and/or

HUMAN RESOURCE DEVELOPMENT AND APPLICATION OF SIX SIGMA IN LIBRARY AND INFORMATION SCIENCE.

Dr . Deepa Baruah, Librarian
Joya Gogoi College, Khumtai

Abstract

Human Resource development is an important aspect of the management of every institutions and organisations. It is human factor who plays an important role in fulfilling the objevtive of an institution and organization specially in case of the service oriented organizations like libraries. Giving stress on the human resource development , the paper has discussed various issues of human resource development in the context of libraries. The paper has also discussed the need of competency development as a part of human resource development. The trend of studing human resource development in the modern management techniques has been studied. The paper has also highlighted on the modern management techniques of human resource development ,especially the six sigma techniques in the context of Library and Information science.

Key Words:- Libraries, Human Resource Development, Competency Development, Six Sigma Techniques .

INTRODUCTION:-

"Human Resource" is relatively a new concept in the field of management and organization and became popular during the early 1970's. The term signifies the humanistic approach in solving social problems and also shows that managing people as resources rather than factors of production.

Human as resource is the important and vital component for an organization. The success of the organizations is solely depend on the human resources especially when they are service

Research on Human Resource Development and Need of Structuring Competency for Working LIS Professionals

Dr. Deepa Baruah

Abstract

Librarianship is a dynamic profession due to the adoption of Information and Communication technology in it. The dynamic nature of this professions demands new competencies to be acquired by the professionals specially the working professional to face the challenges of the time. The paper as highlight the issues of Human Resource Development (HRD) in the context of Library and Information Science (LIS) Professionals and the trend of research on HRD in the context of LIS professionals . It has also discussed the need of structuring competencies required for the professional to provide service to meet the demands of the three 'C's i.e. Customer, Competition and Change. Structuring competency is a newly evolving concept of HRD which could be applied in case of the LIS professionals too. Like any other professions the LIS profession has also been facing challenges of being replaced by the other professional specially the IT and Computer Science people. Therefore there is a need to develop the competencies of the LIS people for the sake of the Profession.

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EDUCATION FOR WOMEN EMPOWERMENT

Progoti Borthakur Barua(Education Deptt)
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Introduction :

Women constitute almost half of the population in the country. But the hegemonic masculine ideology made them suffer a lot as they were not able to get equal opportunities in different parts of the country. They play a great role in everyone's life without them nobody imagines the success of life. They are the highly responsible for the successful development of the life on this universe. Earlier they were considered as only wives and mother who have to cook food and clean home and take care of the family members. But, now the condition has been improved a little bit, they have started taking part in the many activities other than these. In many countries, women have been granted equal rights to men, and they have been able to participate in all aspects of society, including the workforce. However, there are still many societies in which women are not treated equally to men, and their roles are more limited. But if we compare the current status of women with the ancient time, we can say that really the condition is improving gradually. Women are being professional, bread-earners for their families and an independently thinking individual of the country. Traditional Indian women have started proving themselves more skilled and competent in many professions than men. And, day by day the situation is improving fast by breaking all the barriers of the way.

Objectives of the Study: The objectives of the study of women empowerment through education are stated precisely as follows:

Synthesis and characterization of Co(II)–Co(III) LDH and Ac@Co(II)–Co(III) LDH nanohybrid and study of its application as bactericidal agents

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ARTICLE INFO

ABSTRACT

The present study reports the green synthesis of a highly mesoporous Co(II)–Co(III) LDH and its nanohybrid through a sol–gel route with non-aqueous ethanol: acetone mixture as greener reagents. The compounds were characterized using PXRD, FESEM, HRTEM, FTIR, XPS, TGA-DTA, etc. It was observed that the synthesized Co (II)–Co(III) LDH and its nanohybrid showed well-organized LDH structures similar to that of the Mg-Al hydrotalcite material, bearing mesopores and crystalline structures highly as confirmed by PXRD, FESEM, and HRTEM studies. FTIR, XPS, and TGA-DTA studies also showed that the synthesized compounds formed a typical LDH –OH shared construction, containing di and trivalent cobalt with a 3:1 divalent: trivalent LDH ratio, and exhibited a common three-step thermal degradation behavior. Zeta potential and BET analysis showed that the synthesized materials bear a positive charge typical of LDH composition; the surface area and pore volume were found to be 88 $m^2.g^{-1}$ and 1.37 $cm^3.g^{-1}$ (cobalt LDH), and the intercalated nanohybrid as 169 $m^2.g^{-1}$ and 1.26 cm^3/g, respectively.

Furthermore, antibacterial evaluation studies using a well-diffusion method, broth serial dilution method (MIC/MBC), and time-kill efficacy test showed the synthesized compounds are effective bactericidal agents against the two bacterial strains viz *S. aureus*(gram-positive) and *E.coli*(gram-negative). The results showed that the synthesized Ac@Co(II)–Co(III) LDH nanohybrid showed better activity than Co(II)–Co(III) LDH. The inhibition activity of cobalt LDH and its nanohybrid were found to be higher against *E.coli* than *S.aureus*. This higher inhibition activity might be due to the factors like particle size, high surface area, and positively charged active cobalt LDH nanoparticles with acetylacetone molecule, which act on the negatively charged host cell membrane, resulting in the damage of bacterial cell wall.

1. Introduction

Layered double hydroxides (LDHs) are well-known nanosized or nanostructured inorganic compounds containing metal hydroxide in the main layers characterized by the stacking of double hydroxide sheets, separated by the space containing ions called interlayer anions [1,2]. The chemical composition and formula of layered double hydroxides (LDHs) can be represented as follows; $[M^{2+}_{1-x} M^{3+}_x (OH)_2] (A^{n-})_{x/n}.yH_2O$, wherein the M^{2+} (Mg, Ca, Ni, Fe, Co, etc.) and M^{3+} (Al, Co, Fe, Cr, etc.) denote divalent and trivalent metal ions, and A^{n-} and yH_2O represent the interlamellar ions and water molecules [3]. LDHs exhibit excellent properties, including ion exchange, intercalation, memory effect, catalytic, etc. Besides the properties shown by LDHs, the material can be used as important precursors in many applications such as electrochemical, adsorption, thermal, photocatalytic, and biological applications such as drug carriers, antimicrobial agents, etc. The fact about LDHs, which makes it more interesting, is that they are built up with highly positively charged metal hydroxide sheets, high surface area, and high ion exchange capacity. These diverse properties make the LDHs potential candidates for various applications [4,5].

The present study emphasizes a green synthesis of Co(II)–Co(III) LDH or Ac@Co(II)–Co(III) LDH nanohybrid using the non-aqueous Sol-Gel route. The greenness of the present methodology is that it uses non-

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River Water Quality Assessment By Bio-Monitoring Working Party Score Of Macroinverterbate

Jenmoni Moran*

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An assessment of river water affected by oil refinery effluent was carried out by biological water quality criteria (BWQC) of macroinverterbate (organisms retained by mesh sizes of ~ 200-500 mm) community of 2 rivers Dhansiri and Kaliani of Golaghat district of Assam. A total of 39 families of macroinverterbate were recorded during the study period. The point of effluent discharge showed heavy pollution with the water quality class D and all the control stations of upstream showed water quality class B indicating slight pollution, whereas the downstream of contaminated area of the 2 rivers showed water quality class C indicating moderate pollution.

KEYWORDS

Assam, Community, Effluent, Macroinverterbate, Pollution, Refinery

1. INTRODUCTION

Allan reported that the lotic waters are amongst the most threatened ecosystems in the world [1]. The effects of human activities have resulted in degradation of stream and river ecosystem which ultimately alter structure and function of stream biota [2,3]. According to Bag, Aghaino as a result of ineffectiveness of purification systems, wastewater may become seriously dangerous, leading to the accumulation of toxic products in the receiving water bodies with potentially serious consequences on the ecosystem [4,5]. To assess the actual health of water bodies, Central Pollution Control Board (CPCB) has derived a biological water quality criteria (BWQC) for water quality evaluation [6]. This system is based on the range of saprobic values and diversity scores of the macro-invertebrate families with respect to water quality (Table 1).

2. MATERIAL AND METHOD

The 3 MMTPA Numaligarh Refinery Limited (NRL) is located at Numaligarh in the district of Golaghat, Assam (Figure 1). To know the changes of water quality from March 2012 - February 2014, one area located upstream to the point of effluent discharge was considered as control area (S1, S2, S3, S4 and S5) and 5 stations (S7, S8, S9 and S10) including the point of effluent discharge or S6 were considered as contaminated area (Figure 2).
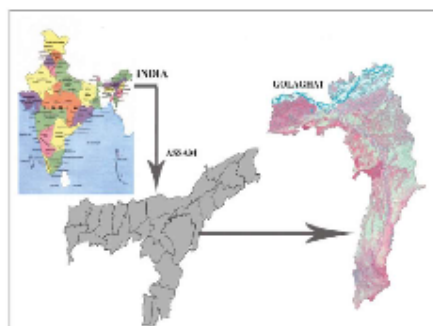

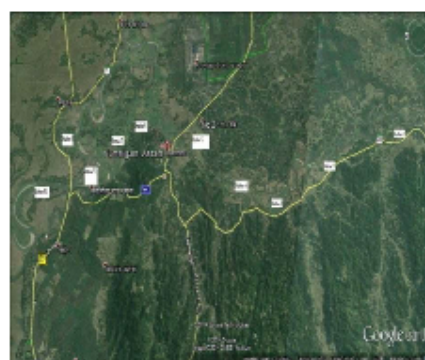Figure 1. *Location map of Golaghat district of Assam*

Figure 2. *Satellite imagery of sampling stations*

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On Degree Based Topological Indices of TiO₂ Crystal via M-Polynomial

Tapan Kumar Baishya[1,*], Bijit Bora[2], Pawan Chetri[3] and Upashana Gogoi[4]

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Abstract

Topological indices (TI) (descriptors) of a molecular graph are very much useful to study various physiochemical properties. It is also used to develop the quantitative structure-activity relationship (QSAR), quantitative structure-property relationship (QSPR) of the corresponding chemical compound. Various techniques have been developed to calculate the TI of a graph. Recently a technique of calculating degree-based TI from M-polynomial has been introduced. We have evaluated various topological descriptors for 3-dimensional TiO₂ crystals using M-polynomial. These descriptors are constructed such that it contains 3 variables (m, n and t) each corresponding to a particular direction. These 3 variables facilitate us to deeply understand the growth of TiO₂ in 1 dimension (1D), 2 dimensions (2D), and 3 dimensions (3D) respectively.

Keywords: Topological index, M-polynomial, TiO₂, Crystal, Chemical graph

Introduction

Mathematical chemistry is an inseparable part of material science. Here, we analyze some material structures using various mathematical techniques. This technique involves the well-established branch of mathematics known as graph theory. We apply the ideas of graph theory to conceptualize material science mathematically. These studies are also known as molecular graphs [1,2]. A molecular graph is a simple graph in which the edges denote the chemical bonding while vertices denote the atoms in a given material structure [3]. Gao et al. [4] discussed various TI w.r.t a family of anticancer drugs. These anticancer drugs are different kinds of polymers. Wu et al. [5] studied properties of nanostardendrimer and V-phenylenicnanotorous via TI. Shirakol et al. [6] calculated various TI of 68 types of Alkanes. They tried to establish a relation between different physical variables such as boiling point, melting point, heats of vaporization, etc. Kang et al. [7] computed TI of some organic compounds which can be further utilized to predict properties such as boiling point. Zhen-dong et al. [8] calculated 1 TI for the system such as saturated hydrocarbons, unsaturated hydrocarbons, oxygenic organic, methane halide and transition element compounds. Recently, Arockiaraj et al. [9] investigated distance based TI of nanosheets, nanotubes and nanotori of SiO₂. Also, Arockiaraj et al. [10] made a study on distance-based and degree-distance based TIs of pruned quartz and its related structures. All the structures discussed by them are of 2D, i.e., layer structure. Randic et al. [11] computed TI for several number of alkanes. Mujahed and Nagy [12] calculated the Wiener index (a type of TI) of the unit cell of body centered cubic (bcc) system. They studied the TI for the bcc system connected row wise. Kwun et al. [13] investigated TI of 2 Boron nanotube. This is also an example of 2D structure. Munir et al. [14] discussed M-polynomials of a single-walled TiO₂ nanotube. They computed some of the TI of a 2D, 6 layered single-walled TiO₂ nanotube.

Recently, Kaatz et al. [15] worked on various structures of clusters and calculated different TI for those. They worked on a total of 19 cluster types. There, the study was focused on clusters with a variety of layers in them. The study was on 1D structures.

From the literature survey, it is observed that the most of computation of indices is basically done for hydrocarbon and 2D systems. Baig et al. [16] and Yang et al. [17] investigated crystal cubic carbon and TiF₂, Copper (I) Oxide respectively. Both these works are done on 3D systems. Though, both the work did not construct 'M-polynomial'. In this system, a degree-based TI can be expressed as derivatives

On Generalized ISI Index of the Crystallographic Structure of Tin Dioxide

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ABSTRACT

Topological indices are molecular descriptors that help in understanding the physical, chemical and biological properties of molecular structures. The generalization of the Inverse Sum Indeg (ISI) index can be used to obtain many standard degree-based topological indices. In this paper, we have computed the generalized ISI index and its associated topological indices for the crystallographic structure of Tin dioxide, SnO_2. These indices are expressed in terms of three variables (l, m, n) such that each corresponds to a particular direction in the growth of the SnO_2 crystal. The variation of the topological indices with respect to the three parameters is also studied graphically.

Keywords: Crystallographic structure; ISI index; SnO_2; Topological index

1. Introduction

Graph theory plays a significant role in the study of chemical structures. This theory is used for mathematically modeling chemical structures to get an idea of the physical and chemical properties of the chemical compounds. It is also used to design complex networks. A molecular graph is represented by vertices and edges where the vertices denote atoms and the edges denote the molecular bonds between them. Chemical graph theory is a branch of mathematical chemistry that applies combinatorial and geometrical graph theory to model the structure of molecules. Chemical compounds have several applications in chemical graph theory, drug design, etc.

Topological indices (TIs) are molecular descriptors used in chemical graph theory. They are graph invariants that depict some useful information regarding the topology of a molecule. They are an important tool in mathematical chemistry, especially in the development of QSAR and QSPR studies [1-5]. They correlate the chemical structures with many physicochemical properties. The last few

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Applied
Organometallic
Chemistry

FULL PAPER

Alga-mediated facile green synthesis of silver nanoparticles: Photophysical, catalytic and antibacterial activity

Debasish Borah, Neeharika Das, Nirmalendu Das, Ankita Bhattacharjee, Pampi Sarmah, Kheyali Ghosh, Madhurya Chandel, Jayashree Rout, Piyush Pandey, Narendra Nath Ghosh, Chira R. Bhattacharjee ✉

📄 About | 🔒 Access

Abstract

A facile, convenient and green method has been employed for the synthesis of silver nanoparticles (AgNPs) using dried biomass of a green alga, *Chlorella ellipsoidea*. The phytochemicals from the alga, as a mild and non-toxic source, are believed to serve as both reducing and stabilizing agents. The formation of silver nanoparticles was confirmed from the appearance of a surface plasmon resonance band at 436 nm and energy dispersive X-ray spectroscopy. The transmission electron microscopy images showed the nanoparticles to be nearly spherical in shape with different sizes. A dynamic light scattering study revealed the average particle size to be 220.8 ± 31.3 nm. Fourier transform infrared spectroscopy revealed the occurrence of alga-derived phytochemicals attached to the outer surface of biogenically accessed silver nanoparticles. The powder X-ray diffraction study revealed the face-centred cubic crystalline structure of the nanoparticles. The as-synthesized biomatrix-loaded AgNPs exhibited a high photocatalytic activity for the degradation of the hazardous pollutant dyes methylene blue and methyl orange. The catalytic efficiency was sustained even after three reduction cycles. A kinetic study indicated the degradation rates to be pseudo-first order with the degradation rate being 4.72×10^{-2} min^{-1} for methylene blue and 3.24×10^{-2} min^{-1} for methyl orange. The AgNPs also exhibited significant antibacterial activity against four selected pathogenic bacterial strains.

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Deiji NARAH, Nazir Ahmad BHAT*, Puranjoy MIPUN and Yogendra KUMAR:
Zingiber flavofusiforme (*Zingiberaceae*), a New Record for the Flora of India

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Summary: *Zingiber flavofusiforme* M. M. Aung & Nob. Tanaka (*Zingiberaceae*), is reported here for the first time from India. A detailed description based on the new specimens along with photographs of diagnostic features is provided.

The genus *Zingiber* Mill. (*Zingiberaceae*) consists of about 150 species, mainly distributed in tropical and subtropical Asia from China through Japan to Australia with the highest species diversity in Southeast Asia (Theilade 1999, Larsen 2005, Sabu 2006). In India, it is represented by 31 species out of which 20 are reported from Northeast India (Kumar et al. 2015, Joe et al. 2017, Biseshwori and Bipin 2018). During a floristic exploration in Dirpai Reserved Forest areas in Dhemaji District of Assam, northeastern region of India, the authors collected a few individuals belonging to the family *Zingiberaceae*. On critical examination of the specimens using taxonomic literature (Baker 1892, Sabu 2006, Tanaka and Aung 2017), online flora and expert scrutiny, the species was identified as *Zingiber flavofusiforme* M. M. Aung & Nob. Tanaka, described from northwestern Myanmar, under the section *Dymczewiczia* Horan. with its terminal inflorescence. A total of 12 species has been recorded in the sect. *Dymczewiczia* from Southeast Asia (Tanaka and Aung 2017), out of which two species *Z. capitatum* Roxb. and *Z. marginatum* Roxb. have been described in India (Baker 1892). So far *Z. flavofusiforme* has been reported only from the type locality in Myanmar, and therefore, it represents a

new addition to the Indian flora. The present discovery of this species from Northeast India shows its extended range of distribution from Myanmar. A detailed taxonomic description and illustration are given here to facilitate easy identification. The voucher specimens were deposited in ASSAM (Botanical Survey of India, Eastern Regional Centre, Shillong, Meghalaya, India).

Zingiber flavofusiforme M. M. Aung & Nob. Tanaka in Phytotaxa **316**(2): 195 (2017). **Type**: MYANMAR. Htamanthi Wildlife Sanctuary, Sagaing Region, 120 m alt., 12 Sept. 2016, Tanaka & al. MY850 (TNS–holotype; NY, RAF–isotypes). [Figs.1, 2]
Perennial herbs with storage rhizomes, 70–150 cm tall. Rhizome noded, branching horizontally, creamy white with purple tinge in cross-section; outer circle (peripheral) creamy white, 1.5–2.5 cm in diam., inside deep purple, ca. 1 cm in diam. Leafy shoot ca. 1 m tall, with 7–8 leaves; bladeless sheaths 3–4, puberulent, basal sheaths purplish brown, upper brownish green; ligule translucent, green, 2–3 mm long, rounded, broadly covering the shoot; leaf blade ovate to elliptic, plicate, 18–25 × 5–7.5 cm, entire at margins, obtuse at base, apex attenuate, glabrous, tinged with purple shades near the margin, slightly strigose along the midrib; petiole inconspicuous, pulvinus, finely pubescent. Inflorescence terminal, slightly leaning; spike fusiform to horizontally flattened, symmetrical, lanceolate, gradually tapering and apex bifid, 13–20 × 2–3.5 cm and ca. 5 mm

Quantitative documentation of traditionally used medicinal plants and their significance to healthcare among the Mishing community of Northeast India

Dipankar Borah[1]*, Puranjoy Mipun[2], Jintu Sarma[3], Chiranjib Mili[4] and Deiji Narah[5]

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Abstract. Mishing community is one of the major tribal communities residing in Northeastern India. They have adapted their lifestyle with one of the adverse conditions and their reliance on plants for food and medicine is widely prevalent. This article presents an explorative ethnobotanical survey on documentation of plants used by the Mishing community of Assam in treating the common ailments as well as their mode of preparation and administration. Research was conducted in eight villages from four districts of Assam. Various participatory interaction methods, group discussions and semi-structured questionnaires were conducted with a total of 80 respondents. Plant importance analysis was done using four quantitative indices (Use value, Use report, Informant consensus factor and Fidelty level). In total, 153 plants under 126 genera and 62 families are recorded. Fabaceae (11 spp.) was the most dominant family and *Clerodendrum* and *Solanum* (5 spp. each) were the most dominant genera. The highest use values were recorded for *Musa balbisiana* (0.087) followed by *Paederia foetida* (0.075). Kidney stone has the highest Informant Consensus Factor value of 0.97 with 74 use reports for 3 species. A total of 7 species were found to have ≥ 90% Fidelty Level and *Cissus quadrangularis* recorded the highest value, i.e. 93.7% FL for treating bone fracture with 75 use reports. In addition, a review of ethnomedicinal plants published in earlier literature for the community is presented, and 77 plants are reported as new ethnomedicinal records for the community. A list of bioactive compounds found in the presently reported plants is also listed. Though modern health facilities have gained pace in the developing countries like India, traditional medicine still co-exists with tribal communities as these are the nearest and reliable forms of treatment in Assam, exemplified by the high degree of reliance on it.

1. Introduction

1.1. Traditional medicine

Traditional medicine (TM), also known as complementary or alternative medicine, comprises the knowledge, skill, belief, theories and practices of an indigenous community that are used to diagnose, treat and cure any ailment as well as to maintain a healthy life. It has been used for centuries and recently it has gained a lot of attention in the developed countries as well (Mahomooally, 2013). Herbal medicine is also a form of TM and addresses plants as active ingredients. It may be leaves, barks, fruits, seeds, roots, latex, and even complete plants (Pan et

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RESEARCH ARTICLE

New distributional record of two species for the flora of Assam, India

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Additional information

Abstract

Peliosanthes bipiniana D. K. Roy, N. Odyuo & N.Tanaka (Asparagaceae), an endemic plant and *Begonia limprichtii* Irmsch. (Begoniaceae) are recorded herewith as new distributional record for the flora of Assam. Morphological descriptions, phenology, taxonomic notes and field photos along with distribution map are provided for easy identification in the field.

Keywords

Peliosanthes, Begonia, New report, Endemic, Assam

Introduction

During the botanical explorations (2019–2020) in Nambor Wildlife Sanctuary, Garampani Wildlife Sanctuary in Golaghat district of Assam, an interesting species of *Peliosanthes* was observed and collected. Later, again in the month of October 2020 additional collections were made (Fig. 1). After critical taxonomic studies and careful analysis of detailed morphology (Fig. 2) based on the collected fresh specimens and literature (1-21), the taxon was identified as *Peliosanthes bipiniana* D. K. Roy, N. Odyuo & N. Tanaka (21) which was not recorded from Assam before this report. *Peliosanthes* Andrews belongs to the subfamily Nolinoideae (22) under Asparagaceae (23) and comprises of about 72 species, distributed widely over subtropical and tropical Asia covering Nepal, Bhutan, India, Bangladesh, Myanmar, China, Cambodia, Laos, Vietnam, Taiwan, Thailand, Indonesia and Malaysia (1, 2, 24, 25). It is allied to *P. subspicata* N.Tanaka by the compact inflorescence, flowers nodding and large, but differing by perianth segments entire, externally green, internally dark purple, corona convex, 6-denticulate and dark purple. As per the current status from NE India, 13 species and a variety of *Peliosanthes* have been recognized but the number of species may increase if more field surveys are conducted in regions. The currently known species and varieties from North Eastern region of India are *P. ligniradicis* N. Tanaka, Taram & D. Borah (Arunachal Pradesh), *P. khasiana* N. Tanaka (Arunachal Pradesh to Assam), *P. macrophylla* Wall. ex Baker (East Himalaya, Assam), *P. griffithi* Baker (East Himalaya, Assam), *P. ashihoana* D. K. Roy, N. Odyuo & N. Tanaka (Meghalaya), *P. bipiniana* D. K. Roy, N. Odyuo & N. Tanaka (Meghalaya and Assam – current report), *P. nagalandensis* Odyuo, D. K. Roy, N. Tanaka & A. A. Mao (Assam), *P. tobuensis* Odyuo, D. K. Roy, Lytan, N. Tanaka & A. A. Mao (Assam), *P. arunachalensis* D. K. Roy, A. A. Mao & Aver. (Arunachal Pradesh), *P. teta* Andrews (Assam, East Himalaya), *P. pumila* N. Tanaka (Assam), *P. macrostegia* Hance (Assam), *P. subspicata* N. Tanaka (Assam), *P. macrophylla* var. *assamensis* N. Tanaka & D. Borah (Assam) (9, 17 –21).

NON– ALIGNED MOVEMENT: ITS HISTORICAL BACKGROUND AND THEORETICAL PERSPECTIVE

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Abstract :

The Non-Aligned Movement is the most significant event of the post Second World War period which has changed the entire scenario of international politics. It was started with the first Conference at Belgrade in 1961. For the Non-aligned Movement members it was the only answer of that time to the over-ambitious two super powers i.e. United States and Soviet Russia which divided the world into two power blocs. It tried to influence the United Nations and other international organisations in favour of the developing countries and also towards newly independent nations. This paper is mainly to study about the historical background of Non-Aligned Movement.

Introduction :

On September 1 1961, the first conference of Head of States or Government of Non Aligned Countries was held at Belgrade, by which formally started the Non Aligned Movement. It is the most significant event of the post Second World War period which has changed the entire scenario of international politics. It can be considered as one of the major events in the history of contemporary world which marked the emergence in the international politics as a new independent force, capable of influencing the international events. It forms the basis of foreign policies practiced by over hundred countries all over the world which were called Non-Aligned countries. Majority of the countries of Asia, Africa and Latin America became members of Non-Aligned Movement. The Movement, which was born in the backdrop of the Cold war tensions between the two power blocs, worked for peace, security, disarmament, independence, development and cooperation among nations. Starting with only twenty five members in the first summit in Belgrade in 1961, at present there are one hundred and twenty member states and seventeen observer countries and ten observer Organisations.

The term Non- Alignment is commonly used to describe the foreign policies of the newly decolonized nations of Asia, Africa, Latin America and most of the developing nations. It refers to the policy which was mainly adopted by the developing nations and is a coalition of newly independent countries to keep away from the power politics raised by the Cold War. It is a policy of these nations, keeping out of alliances in general and military pacts in particular. A country following such policy need not be neutral under all circumstances. It can actively participate in world affairs under certain circumstances. Such countries are not permanently aligned with any of the power blocs in the context of Cold War and are free to take independent decisions in their foreign policy.

Objective :

The present study makes an attempt to discuss about the historical background of the Non Aligned movement. It is also to analyze the concept of Non Alignment in theoretical perspective.

Methodology :

The present research work is a piece of historical study and adopted methodology is descriptive as well as analytical. The work is based on both primary and