...ber 19 October 2017 | Revised: 24 December 2018 | Accepted: 15 February 2019

...10.1002/gj.3498

WILEY

SPECIAL ISSUE ARTICLE

Neoarchaean magmatism through arc and lithosphere melting: Evidence from eastern Dharwar Craton

Jinia Nandy[1,2] | Sukanta Dey[3] | Esa Heilimo[4]

[1]Department of Applied Geology, Indian Institute of Technology (Indian School of Mines), Dhanbad, India

[2]Department of Geology, Ranchi University, Ranchi, India

[3]Department of Earth Sciences, Indian Institute of Science Education and Research Kolkata, Mohanpur, India

[4]Geological Survey of Finland, Ore Geology and Mineral Economics, Kuopio, Finland

Correspondence
J. Nandy, Department of Applied Geology, Indian Institute of Technology (Indian School of Mines), Dhanbad 826 004, India.
Email: jinia.nandy@gmail.com

Handling Editor: C. Manikyamba

The Neoarchaean era is characterized by rapid crustal growth corresponding to some fundamental global changes in geodynamic processes. However, the nature of crustal growth including the mechanism and tectonic setting of the Neoarchaean are controversial issues. The eastern Dharwar Craton (EDC) exposes widespread Neoarchaean granite-greenstone belts, which provide an opportunity to evaluate the various models proposed for Neoarchaean crustal growth. In this study, we present field, petrographic, and geochemical data and discuss the petrogenesis and significance for crustal evolution for a suite of previously undescribed banded gneisses, TTG (tonalite–trondhjemite–granodiorite), biotite granites, alkali feldspar granite and gabbro. These rocks are associated with Neoarchaean metavolcanic and metapelites rocks of the Tsundupalle greenstone belt, in the eastern fringe of the EDC. Whole-rock major and trace element geochemical data are consistent with diverse sources, including both crust and enriched mantle in an evolving subduction zone. A convergent orogenic setting is proposed for interpreting the association of various granitoids in the Tsundupalle area. Finally, intrusion of crustally derived, highly silicic, alkali-rich granite, and mantle-derived gabbro emplaced in a post-subduction regime is proposed. Lithospheric delamination and attendant mantle melting are suggested as possible mechanisms for generation of these rocks. The understanding of generation of the different granitoid types along with gabbro provides significant insights into the mechanism of Neoarchaean crustal growth.

KEYWORDS

crustal evolution, Dharwar Craton, geochemistry, granitoids, Neoarchaean

1 | INTRODUCTION

A large proportion of Earth's continental crust was formed at the end of the Archaean Eon ca. 2.7–2.5 Ga ago (Reymer & Schubert, 1986; Taylor & McLennan, 1985). The rate of crustal growth appears to have culminated at 2.7 Ga through a combination of vertical and lateral accretion processes, plume-arc interaction, and subduction-driven mechanisms. The period 2.5–2.4 Ga marked the stabilization of almost all Archaean cratons with intrusion of diverse granitoid plutons. Crustal growth in the eastern Dharwar craton (EDC) occurred from 2.7–2.5 Ga, and different authors have proposed different tectonic scenario on the EDC (Chadwick et al., 2001; Dey, 2013; Jayananda et al., 2013, 2018; Manikyamba & Kerrich, 2012; Manikyamba, Ganguly, Santosh, & Subramanyam, 2017). Many changes have been documented across the Archaean–Proterozoic boundary, including mantle-derived signatures, although these are often obscured due to major crustal mixing (Jayananda, Moyen, Peucat, Auvray, & Mahabaleswar, 2000). Crustal rocks change geochemical character from Na-rich to more calc-alkaline and K-rich. These changes highlight the importance of the Neoarchaean period which preserves evidence of both juvenile and reworked crust (Belousova et al., 2010; Condie & Aster, 2010; Dhuime, Hawkesworth, Cawood, & Storey, 2012;

International Journal of Emerging Technology and Advanced Engineering
Website: www.ijetae.com (ISSN 2250-2459, UGC Approved List of Recommended Journal, Volume 8, Issue 4, April 2018)

An overview of apatite ore mineralization associated with alkalic-carbonatitic magmatism in Purulia district, West Bengal and their bearing on Nb-Ta mineralization.

Melvin A. Ekka[1], Jugnu Prasad[2], D.K. Bhattacharya[3]

[1]*University Department of Geology, Ranchi University, Ranchi, Jharkhand, India.*
[2]*University Department of Geology, Ranchi University, Ranchi, Jharkhand, India.*
[3]*University Department of Geology, Ranchi University, Ranchi, Jharkhand, India.*
[1]melvin.017@gmail.com
[2]jugnuprasad3476@gmail.com
[3]dkbprofru78@gmail.com

Abstract— **Beldih situated in South Purulia Shear Zone (SPSZ) forms a prominent landmark for alkalic-carbonatitic magmatism associated with apatite magnetite ores. The shear zone is characterised by prominent effect of chloritisation, mylonitisation and brecciation of all these rocks. Alkaline rocks represented by alkali pyroxenite occur in close association with apatite magnetite rock and exhibit intrusive relationship. Carbonatites occur as intrusives within alkali pyroxenites and apatite magnetite rock. Field together with microscopic observations signify a hydrothermal origin for apatite ores. Apatite ores contain appreciable amount of Nb and Ta and gradually grade into carbonate rocks at depth attesting a genitic link between two. The stages of formation of apatite ores is suggested as sodic metasomatism of the host rock followed by carbonisation resulting in the formation of calcite, dolomite and apatite. Progressive carbonation causes enrichment in apatite content which are located in the central part of the hydrothermal flow. Nb enrichment is suggestive of peralkaline intrusive body at depth. Shear zone serves as a channelway for REE and apatite magnetite rich fluid flow generated in the mantle/to deep rooted which in turn precipitate REE, Ce, P, Fe with decreasing Temperature and Pressure.**

Keywords—**Apatite magnetite, Beldih, Carbonatite, Niobium, South Purulia Shear Zone.**

I. INTRODUCTION

Niobium and tantalum have similar ionic radii and occur mostly in the quinquevalent state. Niobium is most abundant in alkalic rocks such as alkali ultramafic rocks. Tantalum generally accompanies niobium with an abundance of one-tenth to one-fifteenth that of niobium. In the study area Beldih (Latitude 23°03'25" N; Longitude 86°17'68" E) alkalic-carbonatitic magmatism represented by alkali pyroxenite and carbonatite associated with apatite magnetite ores contain significant amounts of Nb and Ta.

In the present paper the authors have dealt with the petrography and trace element chemistry of these significant rock types viz. apatite magnetite, alkali pyroxenite and carbonatite. An attempt has been made to throw light on the significance of Nb-Ta occurring in these rocks and their implication on genesis of these rocks.

II. GEOLOGICAL SETUP

The South Purulia Shear Zone (SPSZ), a prominent tectonic feature in Eastern Indian Shield, is a roughly 100 km long ENE-WSW to EW to ESE-WNW trending curvillinear lineament that extends from Tamar, Ranchi district of Jharkhand in the west to Porapahar, Bankura district of West Bengal in the east (Mazumdar[1], 1988; Acharyya et al.[2], 2006; Basu[3], 1993). The main rock types exposed in the South Purulia Shear Zone include gneissic rocks of Chotanagpur Granite Gneiss Complex (CGGC), granitoids within Singhbhum group, felsic volcanics, mafic-ultramafic suite, metasedimentary suite, tourmalinite, alkaline suite including alkali feldspar granite and syenite, carbonatite and silicified rocks such as quartz breccia and mylonites represented mainly by quartzite mylonite (Acharyya et al.[2], 2006).

The different lithounits in and around Beldih is represented by metaultramafic rocks (represented by chlorite–sericite schists), chlorite-mica schists, quartzites, alkali granites, alkali pyroxenites, amphibolites, carbonatites and Chotanagpur granite gneisses of Precambrian age (Acharyya et al.[2], 2006; Vapnik et al.[4], 2007). The Geological map of the study area is given in Figure-1(Bhattacharya and Dasgupta[5], 1992).

Integrated analysis of fold structures along this shear zone reveals two phases of deformation (Ghosh, S. and

International Journal of Engineering Science Invention (IJESI)
ISSN (Online): 2319 – 6734, ISSN (Print): 2319 – 6726
www.ijesi.org ||Volume 7 Issue 4 Ver. VI|| April 2018 || PP 06-10

Occurrence of Phlogopite in Carbonatite and Associated Alkaline Rocks at Beldih, Purulia District, West Bengal, India.

Melvin A. Ekka[1], Jugnu Prasad[2] And D. K. Bhattacharya*[3]
[1,2,3] *University Department Of Geology, Ranchi University, Ranchi, Jharkhand ,India*
Corresponding Author: Melvin A. Ekka

Abstract: *Beldih Apatite-Magnetite Mine, Situated In The South Purulia Shear Zone Is Characterised By Alkali Pyroxenite Associated With Carbonatites And Intruded Within Phyllites And Schists Of The Proterozoic Singhbhum Group Of Rocks. Mineralogically Alkali Pyroxenite Is Composed Of Augite, Aegirine Augite, Amphiboles, Phlogopitic Biotite, Calcite And Apatite As Major Constituents With Minor Amounts Of Opaque Minerals Whereas Carbonatite Is Composed Of Calcite Grains With Subordinate Amounts Of Apatite, Phlogopite, Tetra-Ferriphlogopite, Magnetite And Ilmenite. These Rocks Contain Appreciable Amounts Of Phlogopites With* Sio_2 *Ranging From 33.08-40.18 Wt%,* Al_2O_3 *From 6.84-11.41 Wt%,* $Feo_{(Total)}$ *From 5.42-16.30 Wt%, Mgo From 14.34-21.38 Wt%,* K_2o *From 8.36-10.14 Wt%,* Na_2o *From 0.04-0.20 Wt%, Cao From 0.02-0.08 Wt%,* Tio_2 *From 0.01-0.07 Wt%, Whereas Mno, Bao And* Cr_2O_3 *Are Negligible. . The Occurrence Of These Minerals Are Considered To Be A Result Of Alkali Metasomatism (Or Phlogopitisation) Induced By The Alkali Rich Carbonatite Magma During The Process Of Its Crystallisation And Emplacement Within The Host Rocks.*

Keywords- *Alkali Pyroxenite,Carbonatites, Fenitization,South Purulia Shear Zone, Tetra-Ferriphlogopite*

Date of Submission: 10-04-2018 Date of acceptance: 26-04-2018

I. Introduction

The Study Area Beldih (Latitude 23°03'25" N; Longitude 86°17'68" E) Forms A Part Of The South Purulia Shear Zone (SPSZ) Which Trends ENE-WSW To EW To ESE –WNW And Extends From Tamar, Ranchi District Of Jharkhand In The West To Porapahar , Bankura District Of West Bengal In The East.The Shear Zone Roughly Marks The Contact Between Two Distinct And Geologically Different Domains- The Chhotanagpur Granite Gneissic Complex (CGGC) In The North And The North Singhbhum Proterozoic Mobile (NSMB)In The South. Alkaline Rocks Exposed In The Study Area Are Represented By Alkali Pyroxenite Which Are Associated With Carbonatites And Exhibit Intrusive Relationship With The Phyllites And Schists Of The Proterozoic Singhbhum Group Of Rocks. Within The Alkali Pyroxenite And The Carbonatites Of The Area Typical Occurrence Of Phlogopite And Tetra-Ferriphlogopite (Complex Hydrayed Silicates Of K, Mg And Al) Have Been Recorded. The Composition Of These Minerals Is Sensitive To Changes In Temperature, Pressure And Chemistry Of Their Crystallization Environment Which In Addition To Their Long Crystallization Span In Many Rock Types (Including Kimberlites And Carbonatites), Makes Them An Important Petrogenetic Indicator (Bagdasarov Et Al.[1],1985; Tischendorf Et Al.[2], 2001).In The Present Paper The Authors Have Dealt With The Petrography And Chemistry Of These Significant Mineral And An Attempt Has Been Made To Suggest Its Implication On The Genesis Of These Rocks.

II. Geological Setup

In The Regional Setup The Main Rock Types Exposed Along The Shear Zone (SPSZ) Include Granitoids Within The Singhbhum Group, Felsic Volcanics, Mafic-Ultramafic Suite, Metasedimentary Suite, Tourmalinite, Alkaline Suite Including Alkali Feldspar Granite And Syenite And Carbonatite And Silicified Rocks Such As Quartz Breccia And Mylonites Represented Mailly By Quartzite Mylonite (Acharyya Et Al.[3], 2006).The Nature Of The Shear Zone Has Been Described As Ductile To Brittle-Ductile (Pyne[4], 1992; Bhattacharya[5], 1989). Quartz-Apatite Rocks, Carbonatite And Syenites Are Significant Rocks Reported From Beldih Regions Along SPSZ (Baidya[6], 1992; Basu[7], 1993; Ghosh Roy And Sengupta[8], 1993; Vapnik Et Al.[9], 2007).The Study Area Comprises Of Ultramafic, Carbonatite, Metabasics, Tuffaceous Phyllites, Chlorite Mica Schist, Quartzite, Alkali Granite And Quartz-Magnetite-Apatite Rocks (Basu[7], 1993; Gupta And Basu[10], 2000; Acharyya, Et Al.[3], 2006; Vapnik , Et Al.[9], 2007;Fig.1).The Stratigraphic Sequence Of The Beldih Area Is Represented By Precambrian Rocks Which Are Mostly Ultramafic, Chlorite–Sericite Schists, Chlorite-Mica Schists, Quartzites, Alkali Granites, Amphibolites, And Chotanagpur Granite Gneisses (Acharyya Et Al.[3], 2006; Vapnik Et Al.[9], 2007).

www.gondwanageo.org.in

Research Article

ISSN : 2455-1953

JGSR

Journal of Geosciences Research

Vol. 8, No.1, January, 2023, pp. 29-37

Geochemical Signatures of Platinum Group Elements in Ultramafic Rocks of Chotanagpur Gneissic Terrain, Eastern India and Their Genetic Control

Jugnu Prasad and Deepak Kumar Bhattacharya

University Department of Geology, Ranchi University, Ranchi-834008(JH), India.

(Corresponding author; E-mail: dkbhowfiu78@gmail.com)*

Abstract

Ultramafic rocks occur as intrusives in the form of lensoid bodies in the northwestern part of Chotanagpur Gneissic Terrain and consist mainly of olivine, orthopyroxene and clinopyroxene and are devoid of plagioclase. Based on distinct geochemical characteristics, the rocks have been identified as komatiites. The rocks are geochemically analogous to Al-undepleted Munro type (Al_2O_3/TiO_2=17.88-54.73) with distinctly high MgO (26.2-35.62 wt%), Ni (958-1902 ppm) and Cr (21.32-3320 ppm) contents. These rocks are characterised by low CaO/Al_2O_3, $(Gd/Yb)_n$, $(La/Yb)_n$ with positive Zr, Hf, Ti anomalies suggesting high degree partial melting of mantle under anhydrous conditions at shallow depth with garnet as a residual phase in the mantle restite. These high MgO volcanic rocks having elevated concentrations of Ni and Cr are potential hosts for Platinum Group Elements (PGE) owing to their primitive mantle origin and eruption at high temperatures. These rocks have low ΣPGE (29-269.02ppb) content with Ir (0.1-0.8ppb) and Ru (1.05-5.78ppb) among Iridium group PGE (IPGE); and Pt (5.04-18.72ppb), Pd(3.5-18.0ppb), Rh (0.22-0.84ppb) among Platinum group PGE (PPGE). The PGE abundances in komatiites were controlled by olivine fractionation. The Major, trace, REE and PGE composition of the rock suggest melting under anhydrous condition at shallow depth above the garnet stability field under S-undersaturated condition. Anhydrous melting associated with mantle plume activity gave rise to the rock which subsequently contaminated by lower crustal materials during magma ascent and emplacement.

Keywords: Chotanagpur Gneissic Terrain, Komatiite, Platinum Group Elements, Sulphur Undersaturation, Plume

Introduction

Platinum Group Elements (PGE: Pt, Pd, Rh, Ir, Os, Ru) show strong chalcophile and siderophile affinity and tradionally they are subdivided into two groups- the compatible IPGEs (Os, Ir, Ru) and the incompatible PPGEs (Rh,Pd,Pt; Fiorentini *et al.*, 2011). The IPGEs often have a refractory characters and are mainly associated with spinel where as PPGEs tend to concentrate in base metal sulphides. PGE compositions in mantle-derived ultramafic-mafic magmas are considered as sensitive indicators to understand their petrogenetic evolution and sulphide saturation history. The behavior of PGEs and their abundance is controlled by several factors like mantle heterogeneity, enrichment-depletion, processes of the mantle, partial mantle melting, melt percolation, sulphide segregation and crystal fractionation (Mondal, 2011 and references therein). Higher concentration of PGE in ultramafic rocks in comparison to other rock types not only suggest their economic significance but their lower concentration are also useful as geochemical tools to evaluate chemical evolution of mantle through time and their role in crust forming processes (Condie and Kroner, 2013). The appearance of Platinum Group of Minerals (PGMs) is rare phenomena and usually develops due to high abundance of PGE concentration and favorable sulfur fugacity condition in the magma (Maier, 2005). The PGMs usually occur as disseminated grains in ultramafics and are mainly associated with either sulphides of Ni or Cu or in intergranular spaces between olivine and pyroxene. PGE abundances in mantle derived rocks especially komatiites have been documented by various workers. These rocks reflect degree of partial melting of hot and dry peridotite, sulphur saturation history, rate of ascent, degree of differentiation and contamination prior to eruption which in turn suggest their ability to extract compatible elements and thereby provide information on PGE abundances of mantle (Fiorentini *et al.*, 2011; Said *et al.*, 2011; Zhou *et al.*, 2014; Balaram *et al.*, 2013; Tushipokla and Jayananda, 2013; Manikyamba and Saha, 2014; Saha *et al.*, 2015; Guo *et al.*, 2020; Dora *et al.*, 2022).

Worldwide occurrences of PGE are very limited and confined to plutonic or hypabyssal magmatic intrusions of Archaean-Palaeoproterozoic age. In India three old cratonic blocks *viz* Dharwar in southern India, Singhbhum in Eastern India and Bundelkhand in central India are the Archean terrain where plutonic to hypabyssal ultramafic intrusions of Archaean as well as early Proterzoic age are present. There are three well documented chromite bearing PGE prospects are reported in association with ultramafic complex at (a) Baula Nausahi in Odisha (b) Sittampundi anorthosite complex in Tamil Nadu and (c) Channagiri and Hanumalapura in Karnataka. Recent studies show that there is

(Received : 04 April 2022 ; Revised Form Accepted : 28 September 2022)

https://doi.org/10.56153/g19088-022-0102-22

Peer Reviewed Journal for M.Phil., Ph.D. & Appointment of Teacher in Universities & College

ISSN : 2454-4655 VOLUME - 7 No. : 8, Sep. - 2021

International Journal of Social Science & Management Studies

Peer Reviewed & Refereed Journal

Indexing & Impact Factor 5.2

International Conference On

The Global Impact of Tourism

Date 26 September 2021, Sunday

Venue Mandsaur University, Mandsaur (M.P.), INDIA

INTERNATIONAL JOURNAL OF SOCIAL SCIENCE & MANAGEMENT STUDIES

I.J.S.S.M.S

Indian Tech

GLOBAL CERTIFICATION SERVICES

ISRA International

International Journal of Social Science & Management Studies

CONTENTS

International Journal of Social Science & Management Studies - I.J.S.S.M.S.
Peer Reviewed-Refereed Research Journal, Indexing & Impact Factor - 5.2, Ex - UGC S.N. 5351
ISSN : 2454 - 4655, Vol. - 7, No. - 8, Sep. - 2021, Conference Special Issues
2021

Geotourism and its potential in Jharkhand

Dr. Binita Kumari
Assistant Professor, Geology, P. P. K. College Bundu under Ranchi University, Ranchi

Abstract :- Geotourism is a form of natural area tourism that specially focuses on geology and landscape, which is not as developed as any other form of tourism and is mostly unknown in our country. We have tried to define this new form of tourism, which has not been promoted the way conventional form of tourism has been promoted. The basis of this form of tourism is identifying Geosites.

Geosites include areas like caves, springs, waterfalls, mountains & viewscapes, mining and mineral sites, rock forms etc. If one looks at other countries, which have invested in geotourism, following names immediately come to our mind, Grand Canyon- U.S.A, West Coast Fossil Park- South Africa, Undara Geotour- Australia, UNESCO Global Geopark-United Kingdom, Luray Cavern- Virginia, U.S.A

The above referred countries have developed those sites and have also developed other related infrastructure to make them attractive and sustainable. Jharkhand being a mineral rich state, with abundance of forest, water falls, mines is an ideally suited state where Geotourism can easily be introduced, which will be economically viable, will preserve local culture and environment. This will also add to the revenue of the state as well as income of the local population.

This paper covers areas which can be developed as geotourism sites, within the state of Jharkhand and also mentions the infrastructure required and change in policies.

Introduction :- The National Geographic Society defines Geotourism as "tourism that sustains or enhances the geographical character of a place, its environment, culture, aesthetics, heritage, and the well-being of its residents. A common man visualises tourism spot as a place, which has beautiful flora and fauna (natural or manmade), has history, has beaches, easily accessible, has good hotels/restaurants, recreational facilities etc. Dubai is a case in point, which is an attractive tourist destination for Indians, because of its shopping attractions, hotels, sky scrapers, recreational facility and is 100% man made. This is a traditional form of tourism, whereas, Geotourism is visit to landscapes with high geological and geographical value.

UNESCO has added Geoparks as a vehicle for development of Geotourism. Geoparks are geographic areas which foster sustainable grass roots economic development. They are based on an area's geology (hence the 'geo' component of geoparks). Therefore, they must contain landscapes, landforms or geological sites of significance. These then form the basis of a geopark which is a vehicle to foster regional sustainable economic development. Geotourism focuses on the preservation and interpretation of earthly features. These geosites have immense potential in educating the masses about earth, past climatic changes, how it progressed, catastrophic events, evolution of life and role of paleo vegetation in making our planet liveable. These sites are like an open record of geological phenomena that helps in understanding the evolution of earth and its history of 4600 million years.

India has a lot of potential to showcase its geological and geomorphological features. However, these sites are poorly documented, there is no law to preserve them and hence are suffering continuous damage. One major aspect for the success of any Geotourism is involvement of local population, without affecting their culture and other economic activities. It is also essential to pay attention to the geology of the area and generate interest in scientists and tourists through media campaigns.

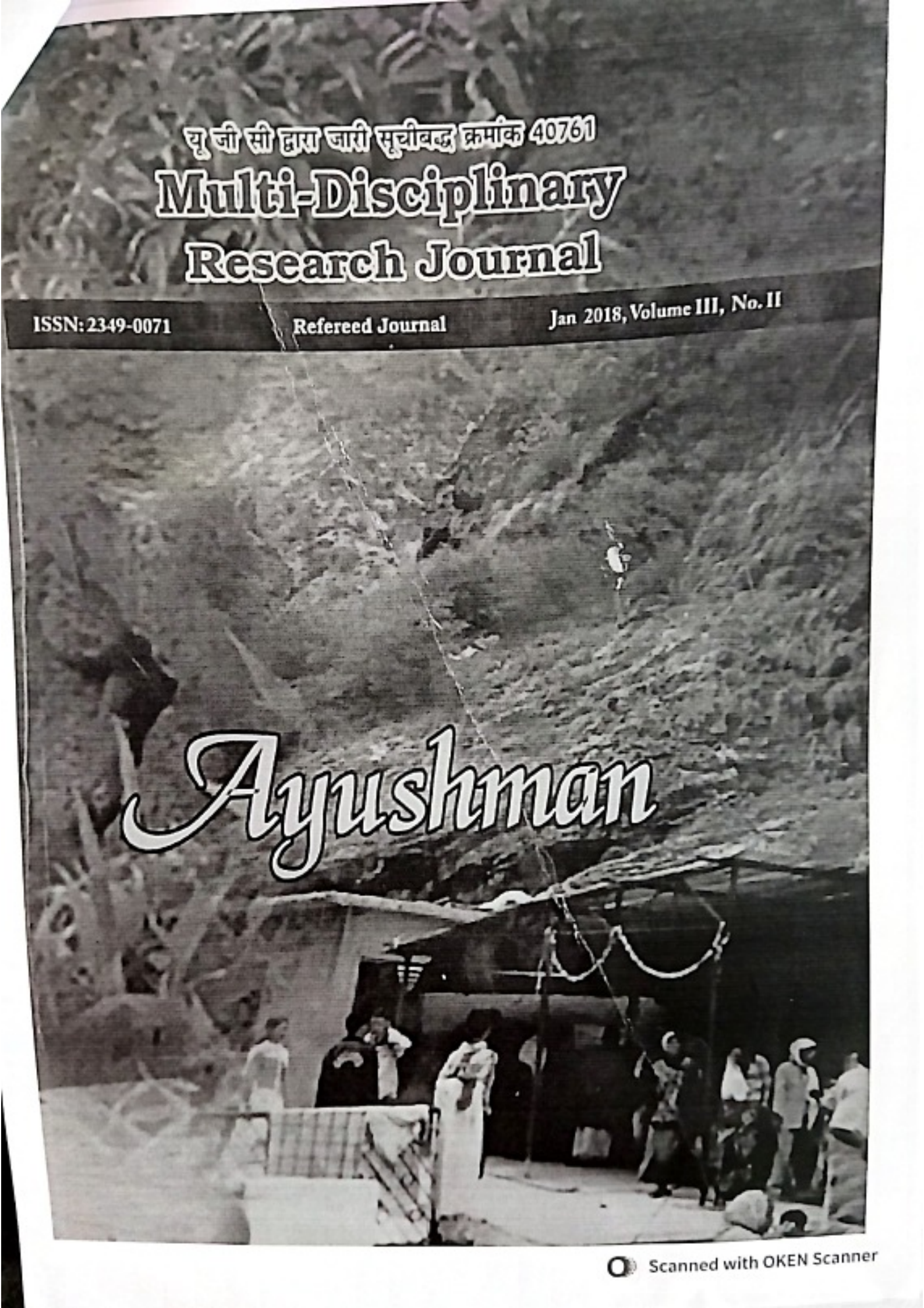
In certain pockets local administration does try to protect these sites, with help from the local population, but, as a country we need to do more. We must provide a legal framework to

यू जी सी द्वारा जारी सूचीबद्ध क्रमांक 40761

Multi-Disciplinary Research Journal

ISSN: 2349-0071 Refereed Journal Jan 2018, Volume III, No. II

Ayushman



© Ayushman Publication House
Multi-Disciplinary Research Journal *Ayushman*
Vol. 3 No. II Page 178 - 192 Jan 2018
ISSN 02349-0071

भीष्म साहनी के उपन्यासों की वस्तुभूमि

*छदू राम

स्वतंत्रता के पश्चात् सामाजिक उपन्यासों में जीवन संबंधी व्यापक दृष्टि एवं सूक्ष्म अंकन की ओर अधिक ध्यान दिया जाने लगा। "पाश्चात्य संस्कृति की वैज्ञानिकता के प्रभाव से एक ओर प्रगति की दृष्टि से वर्गगत संगठन व रचनात्मक कार्यों की ओर लोगों का ध्यान गया तो दूसरी ओर व्यक्तिगत विघटन और सामाजिक विघटन में वृद्धि हुई। इस कारण सामाजिक उपन्यासों की ओर प्रत्येक उपन्यासकार का ध्यान आकृष्ट हुआ।"[1]

नये सामाजिक मूल्यों ने पुराने मूल्यों को पूरी तौर पर नकार दिया है। भीष्म साहनी ने मध्यवर्गीय समाज में रहकर इन सामाजिक मूल्यों को अनुभव के आधार पर उपन्यासों का विषय बनाया है। सामाजिक रहन-सहन, परम्परागत संस्कारों, आचार-विचारों, परिवर्तनीय सामाजिक परिवेश को भीष्म साहनी ने अपने उपन्यासों 'झरोखे,' 'कड़ियाँ,' 'बसंती,' 'कुंतो' आदि के माध्यम से प्रस्तुत किया है। 'मय्यादास की माड़ी' यूँ तो ऐतिहासिक दस्तावेज़ है परन्तु सामाजिक मूल्यों में शनैः शनैः होना हुआ परिवर्तन इसमें भी देखा जा सकता है। सामाजिक विडम्बनाओं, अन्तर्विरोधी विचारधाराओं से जूझने वाला मध्यवर्गीय, निम्नवर्गीय जीवन के अनेक पात्र सामाजिक यथार्थता से हमारी पहचान कराते हैं। "सतह पर देखने से शायद यहाँ शराब और औरत, अतृप्त लालसाएं और संभोग, कुण्ठाएं और उच्छृखल अनैतिक आचरण या ज्यादा व्यर्थतावोध और अकेलापन ही दिखाई दे, पर जरा गहरे से झाँकने पर लगेगा कि यह सब इस उपन्यास के ऊपरी अर्थ हैं जो संवेदना की जटिल प्रकृति से जुड़े होने पर भी उसे टँके हुए हैं। इन अर्थों के नीचे अर्थों की अन्य कई परतें हैं जिनके खुलने के साथ-साथ संवेदना भी खुलती चलती है और यह संवेदना है आधुनिक मनुष्य की स्थिति और मानव नियति।"[2]

सामाजिक यथार्थ

सामाजिक उपन्यासों के अन्तर्गत केवल ऐसे ही उपन्यास आते हैं जो सामाजिक समस्याओं, पीड़ित समाज की दयनीयता को उद्घाटित करते हों। इन आधारों पर भीष्म जी के उपन्यास आस-पास के प्रभावों से आगे निकलकर सामाजिक यथार्थता से रचनात्मक रिश्ता कायम करते हैं। बल्कि यह कहना चाहिए कि "खुद की घेरेबंदी से मुक्त होकर वे जीवन की व्यापकता से अपनी रचना-प्रक्रिया के प्रेरक तत्व को ढूँढते हैं। इसका सुखद परिणाम यह हुआ कि वे जीवन को उसकी समग्रता में देख सके हैं और उस एकांगिता का खंडन करते हैं जहाँ साहित्य की रचना-प्रक्रिया के लिए विशुद्ध भावना की हिमायत की जाती है।"[3]

अतिथी शिक्षक, हिन्दी विभाग, मार्खम कालेज आफॅ कामर्स, हजारीबाग झारखण्ड

Vol. 5
Apr. - Jun.

No. 2
2018

ISSN 2349 - 9710
UGC Approved Journal

JOURNAL FOR SOCIAL REALITY

A Quarterly of ISDR

PEER REVIEWED JOURNAL OF ARTS AND HUMANITIES

Institute for Social Development and Research
Gari Hotwar, Ranchi - 835217 (Jharkhand)

ISSN - 2320 - 7116
Vol 11.1 (January ,2023)

Resonance

National Journal of Value Education

Bilingual (English / Hindi) Half Yearly Peer Review Referred Journal

INDEXING & IMPACT FACTOR - 3.9
(2023 - 24)

Published
By
Truecare Research & Development
Regd. under Societies Reg Act- 21 (1860) No. 756

ISSN - 2320 - 7116

Vol 10.2, A (JULY, 2022)

Resonance

National Journal of Value Education

Bilingual (English / Hindi) Half Yearly Peer Review Referred Journal

INDEXING & IMPACT FACTOR - 3.2
(2021 - 22)

Published
By
Truecare Research & Development
Regd. under Societies Reg Act- 21 (1860) No. 756

© Ayushman Publication House
Multi-Disciplinary Research Journal Ayushman
Vol. 6 No. 1 Page 138-144 Jan 2021
ISSN 02349-0071 Peer Review Journal

संयुक्त राष्ट्र सुरक्षा परिषद और भारत

*सुरेश कुमार गुप्त

संयुक्त राष्ट्र सुरक्षा परिषद संयुक्त राष्ट्र के छः प्रमुख अंगों में से एक अंग है, जिसका उत्तरदायित्व है अन्तरराष्ट्रीय शान्ति और सुरक्षा बनाए रखना। परिषद को अनिवार्य निर्णयों को घोषित करने का अधिकार भी है। ऐसे किसी निर्णय को संयुक्त राष्ट्र सुरक्षा परिषद प्रस्ताव कहा जाता है। इसे विश्व का सिपाही भी कहते है क्योंकि वैश्यिक शान्ति और सुरक्षा का उत्तरदायित्व इसी के पास में है

सुरक्षा परिषद में 15 सदस्य है: पाँच स्थायी और दस अस्थायी (प्रत्येक 2 वर्ष के लिए), पाँच स्थायी सदस्य हैं चीन, "रांस, रूस, ग्रेट ब्रिटेन और संयुक्त राज्य अमेरिका। इन पाँच देशो को कार्यविधि मामलों में तो नहीं पर विधिगत मामलों में प्रतिनिषेध शक्ति है। बाकी के दस सदस्य क्षेत्रीय आधार के अनुसार दो साल की अवधि के लिए सामान्य सभा द्वारा चुने जाते है। सुरक्षा परिषद का अध्यक्ष हर महीने वर्णमालानुसार बदलता है। संयुक्त राष्ट्र संघ के छह अंग होते हैं: 1. सुरक्षा परिषद् 2.अन्तरराष्ट्रीय न्यायालय 3.महासभा 4.सचिवालय 5.आर्थिक और सामाजिक परिषद् 6. न्यासिता परिषद्

सदस्य

हर वक्त परिषद के किसी सदस्य को संयुक्त राष्ट्र के मुख्यालय में होना आवश्यक है। अन्तरराष्ट्रीय कानून द्वारा केवल सुरक्षा परिषद के पाँच स्थायी सदस्यों को नाभिकीय योग्यताएँ अनुमोदित हैं। इन सदस्यों को प्रतिनिषेध शक्ति भी दी गई है। इसका मतलब है कि सुरक्षा परिषद के बहुमत द्वारा स्वीकृत कोई भी प्रस्ताव इन पाँच में से किसी भी एक के असहमत होने पर उस प्रस्ताव को रोका जा सकता है।

सुरक्षा परिषद के बाकी के दस सदस्य दो वर्ष की अवधि के लिए चुने जाते है। प्रत्येक वर्ष इन दस में से पाँच चुने जाते है। यह चुनाव क्षेत्रीय आधार पर होते है। अफ्रीकी गुट तीन सदस्य चुनता है। जम्बू द्वीपीय गुट, पश्चिम यूरोपीय गुट और लैटिन अमेरिका व कैरिबियन गुट सब दो

*सहायक प्राध्यापक, राजनीत विभाग, प्रभात-पांच परगना किसान कालेज, बुंदू रांची झारखण्ड

सदस्य चुनते हैं। पूर्वी यूरोपीय गुट एक सदस्य चुनता है। इनमें से किसी एक सदस्य का अस्थ होना भी आवश्यक है।

सुरक्षा परिषद के स्थायी सदस्यों की संख्या को बढ़ाने के बारें में बहुत विवाद है। विशिष्ट है चार राष्ट्र (ब्राजील, भारत, जर्मनी और जापान) जिनको G4 कहा जाता है। जापान और जर्मनी संयुक्त राष्ट्र की बहुत आर्थिक सहायता करते हैं और ब्राजील तथा भारत जनसंख्या में बड़े होने के कारण संयुक्त राष्ट्र के विश्व शान्ति के लक्ष्य के लिए सैन्य-दल के सबसे बड़े योगदान करनेवालों में से हैं। 21 सितम्बर 2004 को, जी4 राष्ट्रों ने स्थायी सदस्य बनने के बारें में आपसी समर्थन घोषित किया। यूनाइटेड किंगडम और "रांस ने भी इस घोषणा को स्वीकार किया है। चारन के लिए 128 मतों की आवश्यकता है।

युक्त राष्ट्र सुरक्षा परिषद (United nations protection Council and america) वैश्विक सुरक्षा प्रबंधन का सबसे बड़ा मंच माना जाता है। सुरक्षा परिषद पर विश्व में शांति-व्यवस्था को बनाए रखने और सामूहिक सुरक्षा के सिद्धांत का अनुपालन सुनिश्चित कराने का उत्तरदायित्व रहता है। समय-समय पर संयुक्त राष्ट्र सुरक्षा परिषद की अस्थायी सदस्यता में परिवर्तन होता रहता है। हाल ही में भारत सुरक्षा परिषद का अस्थायी सदस्य (Non and everlasting individuals) चुना गया है। भारत, वर्ष 2021-22 के बीच सुरक्षा परिषद के अस्थायी सदस्य के तौर पर अपनी उपस्थिति दर्ज कराएगा।

इस आलेख में संयुक्त राष्ट्र सुरक्षा परिषद के इतिहास, संगठन, उसकी भूमिका, अस्थायी सदस्यता तथा सुरक्षा परिषद की संरचना में सुधार की आवश्यकता और भारत की दावेदारी के संदर्भ में विभिन्न पहलूओं पर विमर्श करने का प्रयास किया जाएगा।

सुरक्षा परिषद: पृष्ठभूमि

सुरक्षा परिषद, संयुक्त राष्ट्र की सबसे महत्वपूर्ण इकाई है, जिसका गठन द्वितीय विश्व युद्ध के दौरान वर्ष 1945 में हुआ था। सुरक्षा परिषद के पाँच स्थायी सदस्य अमेरिका, ब्रिटेन, फ्रांस रूस और चीन हैं।

मूल रूप से सुरक्षा परिषद में 11 सदस्य थे जिसे वर्ष 1965 में बढ़ाकर 15 कर दिया गय

गौरतलब है कि इन स्थायी सदस्य देशों के अलावा 10 अन्य देशों को दो वर्ष के लिये अस्थ सदस्य के रूप में सुरक्षा परिषद में शामिल किया जाता है।

सुरक्षा परिषद के स्थायी सदस्यों के पास वीटो का अधिकार होता है। इन देशों को सदस दूसरे विश्व युद्ध के बाद के शक्ति संतुलन को प्रदर्शित करती है।

क्या है अस्थायी सदस्यता?

अस्थायी सदस्यों का चुनाव दो वर्ष के लिये होता है। अस्थायी सदस्य देशों को चुनने का उद्देश्य सुरक्षा परिषद में क्षेत्रीय संतुलन कायम करना है।

इस अस्थायी सदस्यता के लिये सदस्य देशों में चुनाव होता है। इसमें पाँच सदस्य एशियाई या अफ्रीकी देशों से, दो दक्षिण अमेरिकी देशों से, एक पूर्वी यूरोप से और दो पश्चिमी यूरोप व अन्य क्षेत्रों से चुने जाते हैं। अफ्रीका और एशिया महाद्वीप के लिये निर्धारित पाँच सीटों में से तीन सीट अफ्रीका के लिये और दो सीट एशिया के लिये निश्चित की गई हैं।

अफ्रीका और एशिया महाद्वीप क्षेत्रों में परस्पर सहमति के आधार पर अरब देशों के लिये 1 सीट आरक्षित करने का भी प्रावधान है। दोनों महाद्वीप के द्वारा प्रत्येक दो वर्ष में क्रमशः 1 अरब देश की सदस्यता का अनुमोदन करना होता है।

चुनाव की प्रक्रिया

सम संख्या से प्रारंभ होने वाले वर्षों में अफ्रीका महाद्वीप से 2 सदस्य देश और पूर्वी यूरोप, एशिया-प्रशांत क्षेत्र, लैटिन अमेरिका व कैरीबियाई क्षेत्र से एक-एक सदस्य देश चुने जाते हैं।

वहीं विषम संख्या से प्रारंभ होने वाले वर्षों में पश्चिमी यूरोप और अन्य क्षेत्रों से दो सदस्य, एशिया-प्रशांत क्षेत्र, अफ्रीका महाद्वीप, लैटिन अमेरिका व कैरीबियाई क्षेत्र से एक-एक सदस्य देश चुने जाते हैं।

जून 2019 में एशिया-प्रशांत क्षेत्र से 1 सदस्य के लिये सर्वसम्मति से भारत का अनुमोदन किया गया था। ध्यातव्य है कि इस अनुमोदन को चीन पाकिस्तान का पूर्ण समर्थन प्राप्त था।

पश्चिमी यूरोप और अन्य क्षेत्रों से दो सदस्य के चयन हेतु कनाडा, आयरलैंड व नार्वे ने दावेदारी प्रस्तुत की थी।

लैटिन अमेरिका व कैरीबियाई क्षेत्र से एक सदस्य के लिये मैक्सिको का सर्वसम्मति से अनुमोदन किया गया था।

अफ्रीका महाद्वीप से एक सदस्य के चयन के लिये केन्या और जिबूती ने दावेदारी प्रस्तुत की थी।

यदि कोई देश सर्वसम्मति से उम्मीदवार बना है और उसके समूह द्वारा उसे पूर्ण समर्थन प्राप्त है तो भी उसे वर्तमान सत्र में उपस्थित और मतदान करने वाले दो-तिहाई सदस्यों के वोट सुरक्षित करने की आवश्यकता है जो कि न्यूनतम 129 वोट हैं, यदि सभी 193 सदस्य राज्य भाग लेते हैं।

भारत ने जनवरी 2021 से दिसंबर 2022 तक की समयावधि के लिये मतदान करने वाले 192 देशों के सापेक्ष 184 देशों का समर्थन प्राप्त किया।

इससे पूर्व भी भारत वर्ष 1950-51, 1967-68, 1972-73, 1977-78, 1984-85, 1991-1992 और 2011-12 में सुरक्षा परिषद का अस्थायी सदस्य रहा है।

वर्ष 2011-12 में कजाखस्तान द्वारा अपनी दावेदारी से पीछे हटने के बाद भारत ने मतदान करने वाले 190 देशों के सापेक्ष 187 देशों का समर्थन प्राप्त कर लिया था।

जहाँ अफ्रीका महाद्वीप ने तीन सीटों की दावेदारी को लेकर रोटेशन की पद्धति को अपनाया है, वहीं एशिया-प्रशांत क्षेत्र में इस तरह के समन्वय का अभाव दिखता है। सुरक्षा परिषद में दावेदारी को लेकर एशिया-प्रशांत क्षेत्र के देशों में अक्सर प्रतिस्पर्धा देखने को मिलती है।

वर्ष 2018 में अस्थायी सदस्यता की दावेदारी को लेकर मालदीव और इंडोनेशिया के बीच आपसी प्रतिस्पर्धा देखने को मिली थी।

अमूमन, आपसी प्रतिस्पर्धा के कारण अस्थायी सदस्यता की दावेदारी को लेकर चुनाव कई दौर तक चल सकते हैं।

वर्ष 1975 में अस्थायी सदस्यता की दावेदारी को लेकर भारत और पाकिस्तान के बीच प्रतिस्पर्धा देखने को मिली और चुनाव आठ राउंड तक चला, जिसमें अंततः पाकिस्तान को सुरक्षा परिषद की अस्थायी सदस्यता प्राप्त हुई।

सुरक्षा परिषद की भूमिका तथा शक्तियाँ

सुरक्षा परिषद संयुक्त राष्ट्र का सबसे शक्तिशाली निकाय है जिसकी प्राथमिक जिम्मेदारी अंतर्राष्ट्रीय शांति और सुरक्षा कायम रखना है।

इसकी शक्तियों में शांति अभियानों का योगदान, अंतर्राष्ट्रीय प्रतिबंधों को लागू करना तथा सुरक्षा परिषद के प्रस्तावों के माध्यम से सैन्य कार्रवाई करना शामिल है।

यह सदस्य देशों पर बाध्यकारी प्रस्ताव जारी करने का अधिकार वाला संयुक्त राष्ट्र का एकमात्र निकाय है।

संयुक्त राष्ट्र चार्टर के तहत सभी सदस्य देश सुरक्षा परिषद के निर्णयों का पालन करने के लिये बाध्य हैं।

मौजूदा समय में संयुक्त राष्ट्र सुरक्षा परिषद के पाँच स्थायी सदस्यों के पास वीटो पॉवर है। वीटो पॉवर का अर्थ होता है 'निषेधाधिकार'।

©Ayushman Publication House
Multi-Disciplinary Research Journal *Ayushman*
Vol. 6 No. 2 Page 137-147 Jun 2021
ISSN 02349-0071 Peer Review Journal

पंचायती राज विकास और राजनीति

*सुरेश कुमार गुप्ता

पंचायती राज

ग्रामीण विकास पंचायती राज के मुख्य उद्देश्यों में से एक है और यह नागालैंड, मेघालय और मिजोरम को छोड़कर भारत के सभी राज्यों में, दिल्ली को छोड़कर सभी केंद्र शासित प्रदेशों में स्थापित किया गया है। और कुछ अन्य क्षेत्र इन क्षेत्रों में शामिल हैं:

अ राज्यों में अनुसूचित क्षेत्र और जनजातीय क्षेत्र।

ब मणिपुर का पहाड़ी क्षेत्र जिसके लिए एक जिला परिषद मौजूद है और।

स. पश्चिम बंगाल का दार्जिलिंग जिला जिसके लिए दार्जिलिंग गोरखा हिल काउंसिल मौजूद है।

पंचायती राज का विकास

भारत में पंचायती व्यवस्था पूरी तरह से स्वतंत्रता के बाद की घटना नहीं है। वास्तव में, ग्रामीण भारत में प्रमुख राजनीतिक संस्था सदियों से ग्राम पंचायत रही है। प्राचीन भारत में, पंचायतें आमतौर पर कार्यकारी और न्यायिक शक्तियों वाली निर्वाचित परिषदें होती थीं। विदेशी प्रभुत्व, विशेष रूप से मुगल और ब्रिटिश, और प्राकृतिक और मजबूर सामाजिक-आर्थिक परिवर्तनों ने ग्राम पंचायतों के महत्व को कम कर दिया था। हालाँकि, स्वतंत्रता-पूर्व काल में, पंचायतें गाँव के बाकी हिस्सों पर उच्च जातियों के प्रभुत्व के लिए साधन थीं, जो सामाजिक-आर्थिक स्थिति या जाति पदानुक्रम के आधार पर विभाजन को आगे बढ़ाती थीं।

हालाँकि, संविधान का मसौदा तैयार होने के बाद स्वतंत्रता प्राप्ति के बाद पंचायती राज व्यवस्था के विकास को गति मिली। भारत के संविधान के अनुच्छेद वितजल में कहा गया है: "राज्य ग्राम पंचायतों को संगठित करने के लिए कदम उठाएगा और उन्हें ऐसी शक्तियां और अधिकार प्रदान करेगा जो उन्हें स्वशासन की इकाइयों के रूप में कार्य करने में सक्षम बनाने के लिए आवश्यक हों"।

*सहायक प्राध्यापक, राजनीत विभाग, प्रभाग-पांच परगना किसान कालेज, बुंडू रांची झारखण्ड

प्राथीण स्तर पर स्वशासन के कार्यान्वयन का अध्ययन करने और इस लक्ष्य को प्राप्त करने के लिए कदमों की सिफारिश करने के लिए भारत सरकार द्वारा कई समितियाँ नियुक्त की गईं। नियुक्त समितियाँ इस प्रकार हैं:

* बलवंत राय मेहता समिति
* अशोक मेहता समिति
* जीवीके राव समिति
* एलएम सिंघवी समिति

बलवंत राय मेहता समिति एवं पंचायती राज

सामुदायिक विकास कार्यक्रम और राष्ट्रीय विस्तार सेवा के बेहतर कामकाज के लिए उपायों की जांच करने और सुझाव देने के लिए 1957 में समिति की नियुक्ति की गई थी। समिति ने एक लोकतांत्रिक विकेन्द्रीकृत स्थानीय सरकार की स्थापना का सुझाव दिया जिसे पंचायती राज के नाम से जाना गया।

समिति की सिफारिशें:

* त्रिस्तरीय पंचायती राज व्यवस्था: ग्राम पंचायत, पंचायत समिति और जिला परिषद।
* ग्राम पंचायत के गठन के लिए प्रत्यक्ष रूप से निर्वाचित प्रतिनिधि और पंचायत समिति और जिला परिषद के गठन के लिए अप्रत्यक्ष रूप से निर्वाचित प्रतिनिधि।
* योजना एवं विकास पंचायती राज व्यवस्था का प्राथमिक उद्देश्य है।
* पंचायत समिति कार्यकारी निकाय होनी चाहिए और जिला परिषद सलाहकार और पर्यवेक्षी निकाय के रूप में कार्य करेगी।
* जिला कलक्टर को जिला परिषद का अध्यक्ष बनाया जायेगा।
* इसने संसाधनों का प्रावधान करने का भी अनुरोध किया ताकि उन्हें अपने कार्यों और जिम्मेदारियों का निर्वहन करने में मदद मिल सके।

बलवंत राय मेहता समिति ने देश में पंचायतों के विकास को और पुनर्जीवित किया, रिपोर्ट ने सिफारिश की पंचायती राज संस्थाएँ पूरे देश में सामुदायिक विकास कार्यक्रमों में महत्वपूर्ण भूमिका निभा सकती हैं। इस प्रकार पंचायतों का उद्देश्य सुनियोजित कार्यक्रमों की सहायता से स्थानीय लोगों की प्रभावी भागीदारी के माध्यम से लोकतांत्रिक विकेंद्रीकरण करना था। यहा तक कि भारत के

तत्कालीन प्रधानमंत्री, पंडित जवाहरलाल नेहरू ने भी यह कहकर पंचायत प्रणाली का समर्थन किया, गाँवों में लोगों को अधिकार और शक्ति दी जानी चाहिए आइए हम पंचायतों को सशक्त करें।

हालाँकि राज्यों में भिन्नताएँ हैं, फिर भी कुछ विशेषताएँ समान हैं। उदाहरण के लिए, लगभग सभी राज्यों में, ग्राम स्तर पर पंचायतें, ब्लॉक स्तर पर पंचायत समितियाँ और जिला स्तर पर जिला परिषदों सहित एक त्रि-स्तरीय संरचना को संस्थागत बनाया गया है। नागरिक समाज संगठनों, बुद्धिजीवियों और प्रगतिशील राजनीतिक नेताओं के निरंतर प्रयास के कारण, संसद ने संविधान में दो संशोधन पारित किए ग्रामीण स्थानीय निकायों (पंचायतों) के लिए 73 वां संविधान संशोधन और शहरी स्थानीय निकायों (नगर पालिकाओं) के लिए 74 वां संविधान संशोधन को संस्थाएँ' बनाना। एक वर्ष के भीतर सभी राज्यों ने संशोधित संवैधानिक प्रावधानों के अनुरूप अपने-अपने अधिनियम पारित किये।

अशोक मेहता समिति एवं पंचायती राज

भारत में गिरती पंचायती राज व्यवस्था को पुनर्जीवित करने और मजबूत करने के उपाय सुझाने के लिए 1977 में समिति की नियुक्ति की गई थी।

प्रमुख सिफारिशें हैं-

* त्रि-स्तरीय प्रणाली को दो-स्तरीय प्रणाली से प्रतिस्थापित किया जाना चाहिए, जिला परिषद (जिला स्तर) और मंडल पंचायत (गाँवों का एक समूह)।
* राज्य स्तर के बाद पर्यवेक्षण का पहला स्तर जिला स्तर है।
* जिला परिषद को कार्यकारी निकाय होना चाहिए और जिला स्तर पर योजना के लिए जिम्मेदार होना चाहिए।
* संस्थानों (जिला परिषद और मंडल पंचायत) को अपने स्वयं के वित्तीय संसाधन जुटाने के लिए अनिवार्य कराधान शक्तियां प्राप्त होंगी।

जीवीके राव समिति एवं पंचायती राज

समिति की नियुक्ति 1985 में योजना आयोग द्वारा की गई थी। इसने माना कि चौकड़ाही के कारण जमीनी स्तर पर विकास नहीं देखा गया, जिसके परिणामस्वरूप पंचायत राज संस्थानों को 'बिन बढ़ी वाली घास' के रूप में संबोधित किया जाने लगा। इसलिए, इसने कुछ प्रमुख सिफारिशें की जो इस प्रकार हैं:

ISSN No. (E) 2455 - 0817
ISSN No. (P) 2394 - 0344
RNI : UPBIL/2016/67980
VOL-3* ISSUE-12* (Part-1) March- 2019
Monthly / Bi-lingual

Multi-disciplinary International Journal

Remarking
An Analisation

Peer Reviewed / Refereed Journal

Impact Factor (2015)
GIF = 0.543
Impact Factor (2018)
IIJIF = 6.134
Indexed-with
Google scholar
Impact Factor (2018)
SJIF = 6.11

P. ISSN NO. 2394-0344
E. ISSN NO : 2455-0817
RNI No.UPBIL/2016/67980
VOL-3* ISSUE-12* (Part-1) March- 2019
Remarking An Analisation

Language as A Strong Medium of Social Communication: A Perspective

Sumant Kumar Jha
Assistant Professor
Deptt. of English,
P.P.K. College,
Bundu, Ranchi
India

Abstract

This article aims to understand the function of language as a profound medium of expression inherent in all human beings to share and express themselves in a particular socio-cultural panorama. As words are vital for sending and receiving messages similarly language is necessary to express the emotions. It is means of conveying ideas. Not only the verbal communication reflects the ideas and thoughts but the non-verbal mode of communication is equally significant to convey a message to the larger audience. This article further tries to explore the role of language in the academic sphere where the pupils learn the attributes and aspects of language to become a good communicator. The paper also emphasizes the importance of language and communication skills for grooming a personality and the effect it creates upon the social members. Language, a social phenomenon helps the speakers to communicate by virtue of their participation in the system of codified values. These values are learned by an individual in the process of language learning. Communication and language are complimentary to each other where the primary aims to connect and express effectively and the latter provides all necessary tools for the same. An effective communication is the backbone of all civilized society. It has also been highlighted in the article that the relationship between individuals in society is the dimension of communication which further establishes the link between language and thought in the individual's linguistic act which serves as the dimension of expression.

Keywords: Language Dynamics, Effective Communication, Non-Verbal expression, Social Influence.

Introduction

Language is important to human's daily-life since they have to communicate with others. With globalizing economic environment, language is vital for any business or professional success. Some may analyze the notion of national identity through it, but it is somehow mistakenly overlooking the usage of language, which is closely linked with communication. The medium for people to communicate is, whether written or spoken, languages. The primary function of languages is undoubtedly to facilitate interaction among people who may or may not come from different cultural background.

The basic structure of Language allows the concepts to expand its horizon. It provides us the power to think and utilize it in our day to day cores. Since a man is dumb without a language hence language enhances the ideas and thoughts to such an extent that it is not possible to practice any event of affair in our lives. In the normal transaction of words we are unable to resist and reframe our ideas skillfully and strongly in the absence of language.

The more significant role of language is witnessed in our social and personal behavior. Man is a social animal and as such an intrinsic part of the social fabric. Therefore his direct engagement with various other subjects cannot be denied. In this context John Delamater remarks, "social psychology, including exchange, bargaining, justice, socialization, deviance, health, ethnic relations, and collective behavior, necessarily involve interactive speech processes, which makes language use perhaps the most basic of social psychological phenomena." This idea takes the lead in all academic spheres because language is not only a mode of communication but it is also a storehouse of various other actions and activities. Performing daily activities includes numerous actions such as debating, scolding, quarrelling, demanding, thanking, greeting etc.

The dimension of language is dynamic. It connects, illustrates, expresses and proposes an individual's thoughts and ideas. It has a

ISSN No-[illegible] - 0817
ISSN No-[illegible] - 0344
RNI : UPBIL/2016/67980
VOL-4* ISSUE-2* (Part-2) May- 2019
Monthly / Bi-lingual

Multi-disciplinary International Journal

Remarking
An Analisation

Peer Reviewed / Refereed Journal

Impact Factor (2015)
GIF = 0.543
Impact Factor (2018)
IIJIF = 6.134
Indexed with Google scholar
Impact Factor (2018)
SJIF = 6.11

P: ISSN NO.: 2394-0344
E: ISSN NO.: 2455-0817
RNI No.UPBIL/2016/67980
VOL-4* ISSUE-2* (Part-2) May- 2019
Remarking An Analisation

Feminist Literature: Empowering Women, Transforming India

Sumant Kumar Jha
Assistant Professor,
Deptt. of English,
PPK College, Bundu,
Ranchi, Jharkhand,
India

Abstract

The present paper attempts to understand the socio-academic stature of women in India with special reference to feminist literature. Literature is not merely a collection of fanciful tales, reflecting emotions of myriad shades but it mirrors a holistic view of the social, economic, political, and educational evolution of the society. Literature is highly influential and productively inspiring, irrespective of gender biasness. Literature is multi-dimensional as it provides vocabulary, vision, values and more significantly, the power to make decisions during all oddities of life. But by and large, it empowers half the population on earth to unshackle themselves from the oppressions of masculine and patriarchal society. This paper also investigates the impact of feminist literature in uplifting the social standards of women who had been victimized since ages. Feminism was a revolution in order to establish equal rights for women in every sphere of life ranging from power to politics, war to worship and fashion to education.Feminist literature opened a new world for women in terms of social equality, literacy, education employment and even added resplendent wings to their dreams and aspirations. The article tries to estimate the active role of literature in the upliftment of women in gender biased society through the literary capacity of feminist writers. It also seeks to analyze and describe the ways in which literature portrays the dominance of male gender. It tries to explore the socio-economic, socio-political and psychological forces engrossed within literature. Furthermore, this studyaims to evaluate the need to liberate feminine gender for the growth and development of a nation like India.

Keywords: Feminist Literature, Women Empowerment, Gender Biasness, Social Liberation, Educative Potential.

Introduction

Women and woes are complimentary to each other. This crude and bitter realityhas been expounded in literature of all times. Literature is multi-dimensional. It replicates life in all its formvoicing not only the saga of extreme suffering but the towering growth of the feminine gender as well.More significantly, literature empowers an individual to make decisions during all oddities of life. Since ages women have been suppressed by the masculine gender. In this context Ajit Kumar Sinha opines, "Women in India are, by and large victim of social, economic andpolitical exploitation".

In January 2019 the United Nations Population Fund released its report which denounced the global priority needs for women and girlsas they are highlyaffected by crisis. The report further illustratesthat 35 million women and girls are required to be prevented from gender-based violence in India. Indian demography proudly utters that women comprise approximately 48.18% of the total population, merely 1.82% less than the masculine gender yet the social status of women is million miles away in terms of holistic development and social justice.The National Crime Records Bureau data reflect how incidents of rapes have gone up by 12-15%, while other crimes have risen by 3-5%.Heinous cases like sex and rapewith women registered asNCRB data states that the year 2018 witnessed 35, 527 cases in UP, 31,126 in Maharashtra,28,135 in Rajasthan and 6,518 in Jharkhand.We can't simply neglect the roughrealities of women exploitation where 11,332 women and girls getting trafficked every year.

But there is other side of the picture as well. Certainly, significant gains have been made over the past decades. There have been considerable developments in the status of women due to the inception of a revolutionary term, Feminism. Feminism is a social movement and ideology that fights for th[illegible] for women and

Certificate of Publication

INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG

An International Open Access, Peer-reviewed, Refereed Journal

ISSN : 2456-4184

The Board of

International Journal of Novel Research and Development

Is hereby awarding this certificate to

Subodh Chandra Shukla

In recognition of the publication of the paper entitled

Anxiety among Working and Non-working Women of Bundu (Jharkhand)

Published In IJNRD (www.ijnrd.org) ISSN Approved & 8.76 Impact Factor

Published in Volume 7 Issue 2, February-2022 | Date of Publication: 2022-02-09

Co-Authors -

Registration ID : 191526 Paper ID - IJNRD2202047 Editor-In Chief

INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT | IJNRD

An International Scholarly, Open Access, Multi-disciplinary, Indexed Journal

Website: www.ijnrd.org | Email: editor@ijnrd.org | ESTD: 2016

IJNRD | ISSN : 2456-4184

PLOS PATHOGENS

RESEARCH ARTICLE

A conserved guided entry of tail-anchored pathway is involved in the trafficking of a subset of membrane proteins in *Plasmodium falciparum*

Tarkeshwar Kumar, Satarupa Maitra, Abdur Rahman, Souvik Bhattacharjee*

Special Centre for Molecular Medicine, Jawaharlal Nehru University, New Delhi, India

* souvik@jnu.ac.in

OPEN ACCESS

Citation: Kumar T, Maitra S, Rahman A, Bhattacharjee S (2021) A conserved guided entry of tail-anchored pathway is involved in the trafficking of a subset of membrane proteins in *Plasmodium falciparum*. PLoS Pathog 17(11): e1009595. https://doi.org/10.1371/journal.ppat.1009595

Editor: Dominique Soldati-Favre, University of Geneva, SWITZERLAND

Received: May 4, 2021

Accepted: October 19, 2021

Published: November 15, 2021

Data Availability Statement: All relevant data are within the manuscript and its Supporting Information files.

Funding: This work was supported by funding from the Science and Engineering Research Board, Department of Science and Technology, Government of India (DST ECR/2015/000387) (SB), Department of Biotechnology Ramalingaswami Re-entry Fellowship (BT/HRD/35/02/2006) (SB) and University for Potential

Abstract

Tail-anchored (TA) proteins are defined by the absence of N-terminus signal sequence and the presence of a single transmembrane domain (TMD) proximal to their C-terminus. They play fundamental roles in cellular processes including vesicular trafficking, protein translocation and quality control. Some of the TA proteins are post-translationally integrated by the Guided Entry of TA (GET) pathway to the cellular membranes; with their N-terminus oriented towards the cytosol and C-terminus facing the organellar lumen. The TA repertoire and the GET machinery have been extensively characterized in the yeast and mammalian systems, however, they remain elusive in the human malaria parasite *Plasmodium falciparum*. In this study, we bioinformatically predicted a total of 63 TA proteins in the *P. falciparum* proteome and revealed the association of a subset with the *P. falciparum* homolog of Get3 (PfGet3). In addition, our proximity labelling studies either definitively identified or shortliste the other eligible GET constituents, and our *in vitro* association studies validated associations between PfGet3 and the corresponding homologs of Get4 and Get2 in *P. falciparum*. Collectively, this study reveals the presence of proteins with hallmark TA signatures and the involvement of evolutionary conserved GET trafficking pathway for their targeted delivery within the parasite.

Author summary

Tail-anchored (TA) membrane proteins are known to play essential cellular functions in the eukaryotes. These proteins are trafficked to their respective destinations by post-translational translocation pathways that are evolutionarily conserved from yeast to human. However, they remain unidentified in the malaria parasite *Plasmodium falciparum*. We have used bioinformatic prediction algorithms in conjunction with functional validation studies to identify the candidate TA repertoire and some of the homologs of the trafficking machinery in *P. falciparum*. Initially, we predicted the presence of 63 putative TA proteins localized to distinct compartments within this parasite, including a few confirmed TA homologs in other eukaryotic systems. We then identified and characterized PfGet3 as a

Excellence-II (Project ID 245) (SB). The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Competing Interests: The authors have declared that no competing interests exist.

central component in the Guided-Entry of TA (GET) translocation machinery, and our bacterial co-expression and pulldown assays with two selected recombinant TA proteins, PfBOS1 and PfUSE1, showed co-association with PfGet3. We also identified PfGet2 and PfGet4 as the other two components of the GET machinery in *P. falciparum* using proximity biotinylation followed by mass spectrometry. Interestingly, we also found six TA proteins in the parasite enriched in this fraction. We further validated the direct interactions between a few TA candidates, PfGet4 and PfGet2 with PfGet3 using recombinant-based pulldown studies. In conclusion, this study classified a subset of membrane proteins with the TA nomenclature and implicated a previously unidentified GET pathway for their translocation in this apicomplexan parasite.

Introduction

Integral membrane proteins constitute ~20–30% of the total eukaryotic proteome where they serve essential cellular functions including vesicular sorting, solute transport, protein homeostasis and organelle biosynthesis. Thus, precise targeting of membrane proteins to their respective subcellular destinations is often dictated by the evolutionary conserved and sophisticated trafficking mechanisms. Most membrane proteins are inserted through the chaperone-assisted and co-translational pathway, which involves recognition of ribosome-associated nascent chains (RNC) by the signal recognition particle (SRP), targeting to the SRP-receptor at the ER membrane, and their release to the Sec61 translocon [1–4]. The Sec61 complex subsequently facilitates TMD integration into the lipid bilayer as they emerge out from the ribosomes [5–8]. The major advantage for the co-translational targeting is a tightly coordinated relay of events between the protein synthesis, targeting and membrane insertion to ensure efficient shielding of the hydrophobic TMDs from the bulk hydrophilic cytosolic milieu. However, not all membrane proteins recruit the SRP/Sec61 route for insertion. Tail-anchored (TA) proteins are one such unique class of integral membrane proteins characterized by the absence of any N-terminus signal sequence (SS) and the presence of a single helical transmembrane domain (TMD) at or near their C-terminus (CTS) [9]. This close proximity of the TMDs in TA proteins places it within the ribosomal tunnel, thus precluding SRP/Sec61-mediated co-translational insertion; and consequently, TA proteins must target in a strictly post-translational manner [10–12]. Notable examples include proteins of the vesicular trafficking pathway (the SNAREs, Soluble NSF Attachment protein REceptors), ER and mitochondrial subunit translocation machinery, mitochondrial electron carrier (cytochrome b5/Cb5) and outer mitochondrial membrane proteins that regulate apoptosis (Bcl family) or mitochondrial dynamics (*e.g.*, Fission 1/FIS1) (reviewed in [13]). TA proteins have been identified across evolutionary diverse organisms, including *Saccharomyces cerevisiae*, bacteria, *Homo sapiens*, *Arabidopsis thaliana*, and more recently, in the apicomplexan parasite *Toxoplasma gondii* [14–18]. The TA biogenesis is well-characterized for proteins localized specifically to the ER and then transported from their ER-integrated state to the other cellular compartments (such as plasma membrane, nuclear envelope, Golgi complex, endosomes, lysosomes, and peroxisomes) *via* the network of secretory vesicles (reviewed in [19, 20]). Multiple pathways are implicated in the targeting of TA proteins destined for the ER, including a promiscuous 'moonlighting function' by the SRP/Sec61 translocon (also involved in the co-translation translocation) [21, 22], insertion mediated by the SRP-independent targeting (SND) components [23], non-assisted delivery and insertion of TA proteins regulated by the cytosolic factors [24] and the components of the ER membrane complex (EMC) [25, 26]. The TA proteins with more hydrophobic TMDs (compared to the

Nayak et al. Malar J (2021) 20:100
https://doi.org/10.1186/s12936-021-03632-2

Malaria Journal

RESEARCH Open Access

Diversity-oriented synthesis derived indole based spiro and fused small molecules kills artemisinin-resistant *Plasmodium falciparum*

Akshaykumar Nayak[1†], Himani Saxena[1†], Chandramohan Bathula[2], Tarkeshwar Kumar[3], Souvik Bhattacharjee[3], Subhabrata Sen[2*] and Ashish Gupta[1*]

Abstract

Background: Despite numerous efforts to eradicate the disease, malaria continues to remain one of the most dangerous infectious diseases plaguing the world. In the absence of any effective vaccines and with emerging drug resistance in the parasite against the majority of anti-malarial drugs, the search for new drugs is urgently needed for effective malaria treatment.

Methods: The goal of the present study was to examine the compound library, based on indoles generated through diversity-oriented synthesis belonging to four different architecture, i.e., 1-aryltetrahydro/dihydro-β-carbolines and piperidine/pyrrolidine-fused indole derivatives, for their in vitro anti-plasmodial activity. Trifluoroacetic acid catalyzed transformation involving tryptamine and various aldehydes/ketones provided the library.

Results: Among all the compounds screened, 1-aryltetrahydro-β-carbolines 2 and 3 displayed significant anti-plasmodial activity against both the artemisinin-sensitive and artemisinin-resistant strain of *Plasmodium falciparum*. It was observed that these compounds inhibited the overall parasite growth in intra-erythrocytic developmental cycle (IDC) via reactive oxygen species-mediated parasitic death and thus could be potential anti-malarial compounds.

Conclusion: Overall the compounds 2 and 3 identified in this study shows promising anti-plasmodial activity that can kill both artemisinin-sensitive and artemisinin-resistant strains of *P. falciparum*.

Keywords: *Plasmodium*, Artemisinin, Artemisinin-resistance, DOS, Indole

Background

Since primitive times, malaria, a mosquito-borne infectious disease, has remained the leading cause of mortality from any parasitic disease around the world. It has been estimated that *Plasmodium* spp., the causative agent of malaria, infected 228 million people, accounting for about half a million deaths in 2019, mostly affecting poor people living in tropical and sub-tropical regions of the world [1]. Unlike other *Plasmodium* species, *Plasmodium falciparum* causes the severe form of malaria and poses higher risk of death due to associated neurological, renal or cardiological complications [2]. To reduce the number of malaria-related cases and mortality, most of the malaria control programmes besides using other control measures, rely heavily on killing the malarial parasite by anti-malarial chemotherapy [3]. Quinine, a plant derived chemical extracted from the bark of the Cinchona tree, was used to treat malaria from as early as the 1600 s and is still used as second-line therapy for the management

*Correspondence: subhabrata.sen@snu.edu.in; ag315@snu.edu.in
†Akshaykumar Nayak and Himani Saxena contributed equally to this work
[1] Epigenetics & Human Disease Laboratory, Department of Life Sciences, Shiv Nadar University, Uttar Pradesh, NH-91, Tehsil-Dadri, Greater Noida 201314, India
[2] Department of Chemistry, Shiv Nadar University, Uttar Pradesh, Tehsil-Dadri, Greater Noida 201314, India
Full list of author information is available at the end of the article

of uncomplicated malaria in Africa when the first-line drug either fails or is not available [4–7]. With the range of adverse side effects experienced by the use of quinine, the search for a safe and most effective anti-malarial medicine led to the discovery of chloroquine, followed by many synthetic anti-malarials, e.g., sulfadoxine-pyrimethamine, amodiaquine and mefloquine [5, 6, 8, 9]. Despite their early success in therapeutic management of malaria, their overuse contributed to the development and spread of resistance against these drugs by the malarial parasite. Undoubtedly, the unregulated use of these drugs as monotherapy further accelerated their failing therapeutic efficacy [6, 9–11].

At present, the most potent and successful drug available for the treatment of both severe and uncomplicated malaria is artemisinin, which was derived from the Qinghao plant (*Artemisia annua*) in the 1970s [5]. Artemisinin is frequently used in combination with a partner anti-malarial drug to overcome its pharmacokinetic limitations (such as poor bioavailability, low solubility in water and a relatively shorter half-life in vivo (~ 2.5 h)) and to protect its efficacy against parasite resistance for a longer period of time [5]. Presently, five recommended artemisinin-based combinations include combinations of artemisinin derivates, such as artemisinin, dihydroartemisinin, artemether, artesunate, with lumefantrine, mefloquine, amodiaquine, sulfadoxine/pyrimethamine, piperaquine, and chlorproguanil/dapsone [5]. Artemisinins are particularly active against the ring and mature trophozoite form of asexual life-cycle stage of parasites persisting within infected red blood cells. However, a sub-population of ring form of the parasite may tolerate artemisinin by becoming temporarily dormant or sequestered to return after a few days or weeks, eventually causing the failure of treatment [6, 12]. It is for this reason that artemisinin monotherapy is not preferred and is recommended to be used only with longer-acting partner anti-malarial drug that would kill the surviving dormant form of the parasite [11, 13]. Although artemisinin-based combination therapy (ACT) had a marked effect on malaria cases globally, the appearance of artemisinin-resistant cases in Southeast Asia, especially in the eastern Greater Mekong Sub-region, is cause for concern [14–17]. By relying so heavily upon the use of ACT, eventually this valuable anti-malarial drug will become ineffective, given the history of resistance development in the parasite to most anti-malarials. Bringing safe and new anti-malarial drug candidates with diverse chemical structures and mechanism of action into clinical trials is critical to combat emerging anti-malarial drug resistance in the parasite.

Over time, new concepts in organic synthesis and molecular design, such as fragment-based drug discovery (FBDD), ligand-based drug discovery (LBDD), biology-oriented synthesis (BIOS), and diversity-oriented synthesis (DOS) began to evolve. Compared to traditional drug discovery platforms, these methods have not only expedited the process of bringing new drugs onto the market but also have helped in providing drugs with better specificity towards the target and lesser toxicity. DOS has particularly emerged as a synthetic approach that is used for the design and construction of novel, small molecule libraries containing a high degree of structural and stereo-chemical diversity [18, 19]. Screening of DOS-derived compound libraries has led to identification of many novel and biologically useful small molecules known for their antibacterial, antifungal, antiparasitic, and anticancer properties [20–25]. Accordingly, the present work aimed to screen and evaluate compounds of DOS library (comprised of 11 indole-based heterocycles which are connected to piperidine or pyrrolidine molecules either through bond fusion or via spiro linkage) for their efficacy in killing both wild-type and artemisinin-resistant strains of *P. falciparum* in vitro. These compounds can be segregated into 4 different structures. The initial reaction involved trifluoroacetic acid (TFA) catalyzed condensation reactions of tryptamines with various aldehydes/ ketones to afford various library molecules (Experimental procedure section, Additional file 1). Few of them were further transformed to newer compounds by *N*-bromosuccinimide (NBS)-mediated oxidation or ring contraction (Experimental procedure section, Additional file 1).

The study's screening assay identified that 1-aryltetrahyro-β-carboline class of compounds possess significant anti-plasmodial activity. Further screening of two best compounds, i.e., 2 and 3, showed their potential to kill both wild-type and artemisinin-resistant strains. Also shown was that compound 3 can induce significant reactive oxygen species (ROS) generation in malaria parasites, providing insight into the mechanism of compound 3-induced parasite death.

Methods

Compound designs and synthesis

The DOS library screened here is comprised of 11 compounds belonging to four different structural classes of compounds, as described in Additional file 1 and previously published work [26, 27]. They are dihydro and tetrahydro-β-carbolines, piperidine and pyrrolidine-fused tetrahyro-β-carbolines and spiropyrrolooxoindoles (Additional file 1: Figure S1A). Tryptamine is the appropriate substrate which when reacted with aldehydes/ ketones in presence of catalytic TFA, undergoes condensation to provide a preliminary set of scaffolds 1→3, 9 and 11 (Additional file 1: Figure S1B). Compound 2 and a

IJPSR (2020), Volume 11, Issue 11 (Research Article)

INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES AND RESEARCH

Received on 08 November 2019; received in revised form, 20 June 2020; accepted, 25 August 2020; published 01 November 2020

EFFECTS OF AQUEOUS FRUIT EXTRACT OF HARITAKI (*TERMINALIA CHEBULA*) ON REGULATION OF HYPOTHYROIDISM

Babli Kumari * [1], Tarkeshwar Kumar [1], M. P. Sinha [1] and Manoj Kumar [1, 2]

Department of Zoology [1], Ranchi University, Ranchi - 834008, Jharkhand, India.
Department of Zoology [2], St. Xavier's College, Ranchi - 834001, Jharkhand, India.

Keywords:

Terminalia chebula, Thyroxine , Triiodothyronine, Basal metabolic rate

Correspondence to Author:
Babli Kumari

Research Scholar,
Department of Zoology,
Ranchi University, Ranchi - 834008,
Jharkhand, India.

E-mail: kumaribabli398@gmail.com

ABSTRACT: The thyroid, an important part of the human endocrine system, is involved in the regulation of oxygen use, basal metabolic rate, cellular metabolism, and growth. As it acts as a regulator for the body, abnormalities of the thyroid should be reckoned with, and measures to prevent such occurrences should be followed. Hypothyroidism can be described as the inability of the thyroid gland to produce sufficient thyroid hormone to fulfill the metabolic demands of the body. Usage of medicinal plants and their active compounds for the treatment of diseases has, in recent years, showing a lot of promise in chemotherapy. Also, the lack of major side effects, as observed with the usage of such therapy led to an increase in the people's tendency to use these compounds. In the present study, the effect of aqueous extracts of *Terminalia chebula* fruit on Thyroid parameters in rats during seven-day oral administration of a low dose of 250 mg/kg and a high dose of 500 mg/kg was investigated. The parameters evaluated the ameliorative effect of aqueous fruit extract in the regulation of thyroidism in rat model. The result showed a significant increase in T3 and T4 at the dose of 250 mg/kg and 500 mg/kg body weight when compared to the control. However, TSH showed a significant decrease in the case of both low dose and high dose as compared to the control. The results of this study suggest that the extract may have beneficial effect on stimulants to thyroid functions.

INTRODUCTION: The thyroid, an important part of the human endocrine system, is involved in the regulation of oxygen use, basal metabolic rate, cellular metabolism, and growth [1]. It secretes the hormones thyroxine (T4) and triiodothyronine (T3), which play essential roles in growth and development and determine the basal metabolic rate. The thyroid hormones are secreted into the blood and act at the cellular level through the activation of genes involved in protein synthesis, maturation of the nervous system, and increase the rate of cell respiration in tissues, thus elevating the basal metabolic rate (BMR) [2].

QUICK RESPONSE CODE

DOI: 10.13040/IJPSR.0975-8232.11(11).5783-87

This article can be accessed online on www.ijpsr.com

DOI link: http://dx.doi.org/10.13040/IJPSR.0975-8232.11(11).5783-87

Consequently, any variations in these hormone levels lead to disturbed BMR and present with certain signs and symptoms leading to thyroid disease. A decrease in the thyroid hormone levels is known as hypothyroidism, which may occur due to multiple reasons including a deficiency in iodine consumption, glandular lesions, autoimmune attacks, and impaired pituitary activity [3, 4].

If left untreated, hypothyroidism has been observed to lead to a wide range of abnormalities, including fatigue sensation, weight gain, dryness of skin, depression and behavioral fluctuations, loss of hair, face swelling, and increased cholesterol [5]. Thyroid disease is one of the most common endocrine disorders worldwide whose incidence increases with increasing age [6]. According to recent data from various studies, 42 million people suffer from thyroid diseases in India alone. About 1 to 2% of the adult population is known to suffer from

thyroid disorders [7]. Thyroid disorders more commonly occur in females as compared to males, with the common prevalence ratio of thyroid diseases being 4:1. The prevalence of hypothyroidism is around 0.3% to 0.4%, which increases with age, and females tend to be more affected [8]. The need for treatment of these disorders has risen in recent years due to its increasing prevalence, with hormone replacement being the primary therapy of choice. However, alternative medicinal approaches are gaining popularity in view of their efficacy with minimal side effects. Medicinal plants have been used throughout human history for the treatment of diseases. Plant-based medicines tend to produce lesser side effects. Medicinal compounds can also be extracted from herbs and spices used as food seasoning [9].

In recent years there has been a tremendous upsurge of interest in medicinal plants, especially those used in Ayurveda, Siddha, Unani, Modern Arnchi, Homeopathy, and Naturopathy. Drugs obtained from plants are believed to be much safer and exhibit a remarkable efficacy in the treatment of various ailments. Human and environmental interactions are prominently affected by folk medicinal traditions [10]. *Terminalia chebula* is one of the oldest known medicinal plant species belonging to the family *Combretaceae* [11]. It is called as 'haritaki' since it is said to carry away all diseases or it is sacred to God Siva (Hari). The fruit of this plant is reported to possess the phytoconstituents responsible for antibacterial, antidiabetic, antioxidant, antidiarrhoeal, anti-carcinogenic, antiarthritic, hepatoprotective, anti-inflammatory and antiviral activities [12-20] like gallic acid, ellagic acid and corilagin [21]. The present communication was designed to explore the impact of fruit extract of *T. chebula* on the Thyroid profile of mammalian animal model male albino rats.

MATERIALS AND METHODS:

Collection of Plant Material: The fresh fruits of *Terminalia chebula* were collected from Ranchi, Jharkhand (India) dried in the shade six to seven days and then crushed into coarse powdery substance by using an electric grinder. The coarse powdery substance was dried again and was then sieved to get fine powder using the fine plastic sieve and stored in an airtight bottle in the laboratory until required [22-24].

Extract Preparation: 50 g of the sieved powder was subjected to extraction in a Soxhlet apparatus at room temperature using ~350 mL distilled water. The extract obtained was filtered, concentrated in the rotary flash evaporator, and maintained at 45 °C the percentage yield of each extract was calculated [25, 26].

Animals: Male Albino rats (175-200 g) were used in the study. They were maintained under standard laboratory conditions at an ambient temperature of 25 ± 2°C and 50 ± 15% relative humidity with a 12-h light/12-h dark cycle. Animals were fed with a commercial pellet diet and water *ad libitum*.

Acute Toxicity Studies: Acute toxicity studies were determined by using a fixed-dose method according to OECD guidelines. Healthy adult mice, weighing 175-200 g were used.

Twenty albino rats of either sex were used to determine the LD_{50} of the aqueous extract of fruit of *Terminalia chebula*. The animals were randomly divided into two groups of 10 rats, each and administered and observed for 90 days as follows:

Group 1: received 1 ml of distilled water orally.

Group 2: received 250 mg/kg body weight of extract orally.

Group 3: received 500 mg/kg of body weight of extract orally. Mortality was not observed up to 500 mg/kg of body weight in case of aqueous fruit extract of *Terminalia chebula*.

Sample Collection: At the end of each experimental period, the rats were reweighed, starved for 24 h and sacrificed under chloroform anesthesia. 5 mL of blood was collected from each animal by cardiac puncture using a sterile needle and syringe. Part of the blood sample was put into test tubes and allowed to clot for 30 min before centrifuging at 800 g (Wisperfuge, 1384, Samson, Holland) for 5 min. The supernatant was used for lipid analysis. The remaining blood sample was put in an EDTA bottle for hematological determinations.

Analytical Procedure:

Estimation of Thyroid Hormones: Estimation of serum T_3, T_4, and TSH was done by chemiluminescence immunoassay method [27].