



## **Supporting Document for the metrics 3.3.2**

**Number of books and chapters in edited volumes/books published and paper published in national/ international conference proceedings per teacher during last five year.**



*Mula Education Society's*  
**ARTS, COMMERCE AND SCIENCE COLLEGE, SONAI**  
Tal. Newasa, Dist- Ahmednagar – 414105



Ph.: 02427-299384 Email:mesaccollege@gmail.com, iqacacscsonai@gmail.com Website:www.accollegesonai.edu.in  
Affiliated to Savitribai Phule Pune University, Pune (I.D.PU/AN/ASC/031/1989)  
NAAC Re-accredited with 'A' Grade (Valid till 27/03/2022), DBT Star College Scheme, ISO 9001: 2015 Certified, AISHE Code – C-42096

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**Document -1 Book List**

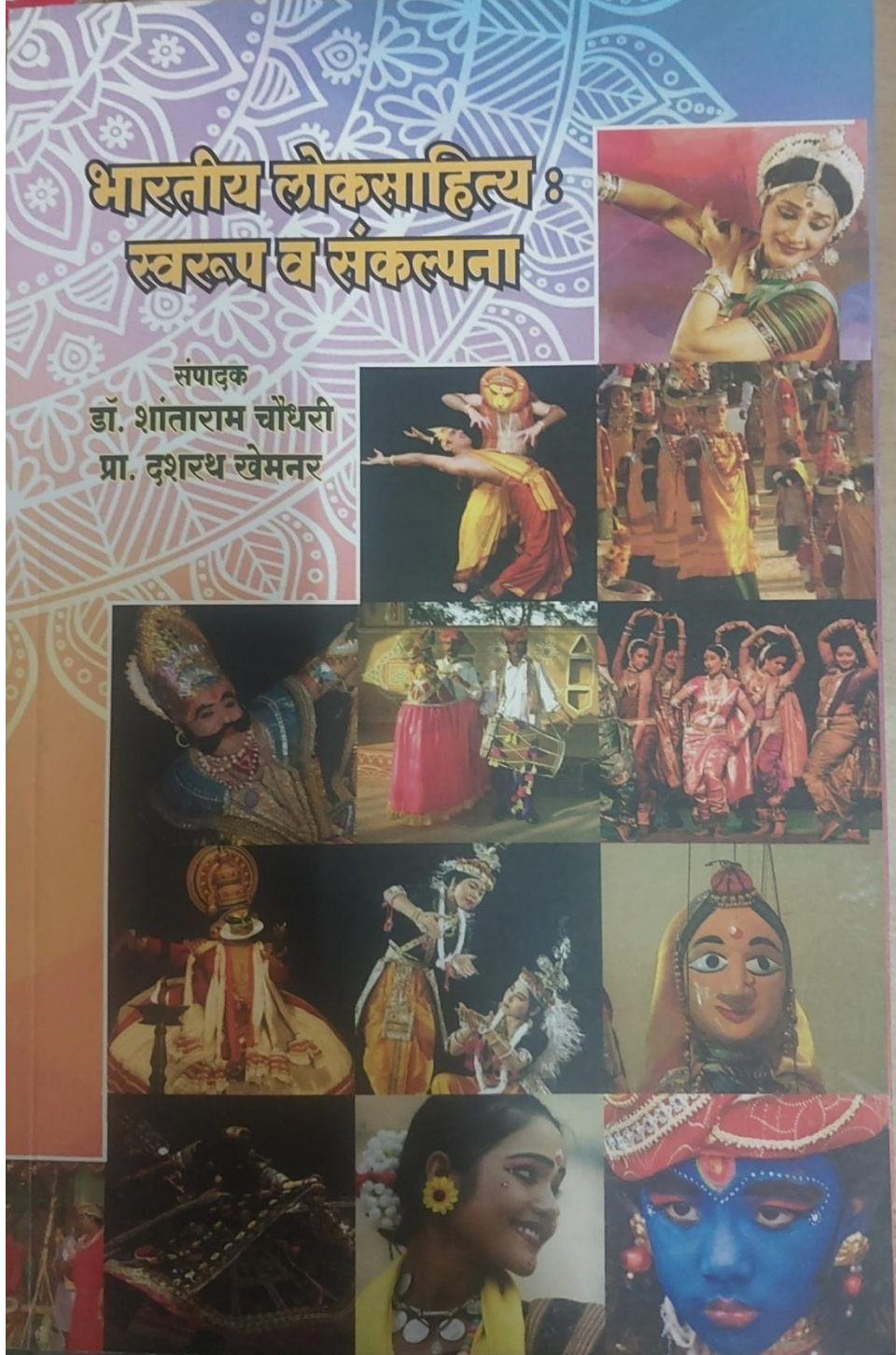
**Cover page, content page and first page of the selected publication.**

Sr. No .	Name of the Teacher	Department /School/Division/Center/Unit/Cell	Title of the Book	Title of the Paper	Year of Publication	ISBN Number of the Book	Page Number	Publication.
1.	Dr. S.B. Choudhare	Hindi	Bhartiy Loksahity : Swarup v sankalpana	Rajasthani lokgito ke rang	06-Jan-17	ISBN -81-86144-64-1	6-12	Anubandh Pablication
2.	Mrs. A. M. Dahatonde	Hindi	Bhartiy Loksahity : Swarup v sankalpana	Loksahity ka parichay (Maharashtra ke vishesh sandarbha me)	06-Jan-17	ISBN -81-86144-64-1	13-18	Anubandh Pablication
3.	Dr. V.E. Darandale. Mr. K.B. Arangale	Botany	Plants : Measures to improve growth and various Uses	Effect of spent wash with biocomposte on the quality and yield of sugarcane	2018	ISBN -978-3-330-34617-8	19-27	Lambert academic publishing
4.	Dr. N.V. Misal	Marathi	Tirmal Samajache lokjivan	-	Jan.2019	ISBN – 978-93-83870-37-0	28-30	Rutu Publications, Ahmednagar
5.	Dr. Salve A. V	Politics	सार्वजनिक धोरण )MA I-Sem III),	-	2019	ISBN - 978-93-89739-36-7	31-33	success publication, pune
6.	Dr. A.R Tuwar	Botany	Plant life and utilization I-		2019	ISBN -978-93-89066-35-7	34-36	success publication,
7.	Dr. A.R Tuwar	Botany	Plant morphology and anatomy -		2019	ISBN -978-93-89066-36-4	37-39	success publication,
8.	Dr. A.R Tuwar	Botany	Practical handbook of Botany		2019	ISBN -978-93-89529-03-6	40-42	success publication,
9.	Dr. A.R Tuwar	Botany	4. Plant life and utilization II -		2019	ISBN -978-93-89739-29-9	43-46	success publication,
10.	Dr. A.R Tuwar	Botany	Principle of Plant science		2019	ISBN -978-93-89739-27-5	47-50	success publication,

11.	Dr. Chaudhare S.B	Hindi	हिन्दी और देवनागरी लिपि	सूचना प्रौद्योगिकी और नागरी लिपि	2020	ISBN : 978-93-80788-91-3	51-58	शैलजा प्रकाशन, कानपुर
12.	Dr. Shokat Fakir	Geography	जागतिक बदलांचे भौगोलिक घटक व समस्या		May-20	ISBN-978-81-953881-1-0	59-61	Chinmay Publication
13.	Dr. Darade S.S	History	प्रबोधशिल्पी अण्णाभाऊ साठे	अण्णाभाऊ साठे यांचे ऐतिहासिक पोवाडे	Jun-20	ISBN - 978-93-85426-56-8	62-69	Shivani Publication, Pune,
14.	Dr. J. C. Sonawane	History	Knowledge, Power and Hegemony : Education in colonial Maharashtra		2021	ISBN -978-93-84600-79-2 (HB)	70-72	Sanay Prakashan, Pune
15.	Dr. J. C. Sonawane	History	Politic of Colonial Maharashtra : A Reassessment		2021	ISBN -978-93-84600-80-8 (HB)	73-75	Sanay Prakashan, Pune
16.	Dr.Sopan A. Najan	Chemistry	Chemisty (CH -501 )Physical Chemistry Ty bsc Sem V		2021	ISBN -978-93-24457-48-2	76-78	Success Publication, Pune
17.	Mr. Dnyaneshwar B. Padar	History	इतिहास)S 3) इतिहास लेखनशास्त्राची ओलख		2021	ISBN -978-93-24457-48-0	79-81	Success Publication, Pune
18.	Dr. Sambhaji S. Darade	History	इतिहास)S 4) 19 व्या शतकातील महाराष्ट्र		2021	ISBN -978-93-24457-47-8	82-84	Success Publication, Pune
19.	Dr. Ashok R. Tuwar	Botany	Botony (I) Plant Anatomy And Embryology		2021	ISBN -978-93-24457-37-2	85-87	Success Publication, Pune
20.	Dr. Ashok R. Tuwar	Botany	Botony (II) Plantbiotechnology		2021	ISBN -978-93-24457-37-3	88-90	Success Publication, Pune
21.	Dr. Harishchandra K. Sadekar	Physics	Physics ElctrodynamicsTyb sc (Sem- V)		2021	ISBN -978-81-24457-44-2	91-94	Success Publication, Pune
22.	Dr. Harishchandra K. Sadekar	Physics	Physics ElctrodynamicsM.S sc (Sem- II)		2021	ISBN -978-81-24457-44-3	95-98	Success Publication, Pune
23.	Dr. Harishchandra K. Sadekar	Physics	Physics Of Semiconductor Devices M.Ssc (Sem- II)		2021	ISBN -978-81-24457-44-4	99-102	Success Publication, Pune
24.	Dr.A.RTuwar	Botany	Botany (paper-I)Alagi And Fungi , sem-V		2021	ISBN-978-93-24457-52-1	103-105	Success Publication, Pune
25.	Dr.A.RTuwar	Botany	Spermatophyta and paleobotany Botany (Paper-III)		2021	ISBN:978-93-24457-51-3	106-108	Success Publication, Pune



26.	Dr.A.RTuwar, Mr.Dnyaneshwar A. Tuwar	Botany	Botany (Paper-VI)Genetics		2021	ISBN:978-93-24457-51-2	109-111	Success Publication, Pune
27.	Dr. Harishchandra K. Sadekar	Physics	Physics Mathematical Methods in Physics-II (Sem-V,PHY-351)		2021	ISBN-978-93-24457-44-7	112-115	Success Publication, Pune
28.	M.G. Varpe	English	From Promise to Practice Re-Thinking Equality and Human Rights	Violation of Human Rights in Day-Today Life	2021	ISBN-978-81-948127-2-2	116-131	Indus Scrolls Press, Delhi
29.	Dr.R.R .Dandawate	Zoology	Applied Zoology	-	Mar-22	ISBN-978-93-91644-19-2	132-134	Shubhi Publication ,Kanpur
30.	Dr. S.S Darade	History	20 व्या शतकातील महाराष्ट्र	-	2022	ISBN-978-93-93220-45-5	135-137	Success Publication, Pune
31.	Dr. H.K. Sadekar	Physics	Physics Quantum Mechanics, TYBSC(Sem-VI)(PHY-362)	-	Mar-22	ISBN-978-93-24457-54-1	138-141	Success Publication, Pune
32.	Dr. H.K. Sadekar	Physics	Thin Film Technology and it's Novelties in Material Science	Growth and characterizations of zinc sulphide ( ZnS) thin film by CBD technique	2022	ISBN: 978-93-91768-93-5	142-156	Bhumi Publication, NigaveKhalsa, Kolhapur
33.	Dr.Khandare R.V	Physics	Physical Education and Sport Science	-	2022	ISBN- 978-93-94800-09-0	157-159	Nisha Publication, narayanpurwa, Uttar Pradesh
34.	Dr. J.C. Sonawane	History	Dr. Babasaheb Ambedkar's Theory and practice of Emancipation through Education	Dr. Ambedkar Studies center, Sant gadge baba Amravati universtiy, amravati	Mar-22	ISBN- 978-81-940865-8-1	160-162	Sant Gadge Baba Amaravti University, Amravati
35.	Smt. S.A Deshmukh	Hindi	Impact of Globalization on language and literature	वैश्वीकरण की आँधी से उजड़ी असुर जाती	June.2022	ISBN-978-93-94403-00-0	163-170	Prashant Publication, Jalgaon
36.	Dr. D. E. Zine	Economics	Indian Economy after New Economics Reforms	-	2022	ISBN-978-93-94800-00-7	171-173	Nisha Publication , kanpur



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भारतीय लोकसाहित्य : स्वरूप व संकल्पना  
संपादक - डॉ. शांताराम चौधरी  
प्रा. दशरथ खेमनर

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प्रथमावृत्ती : ६ जानेवारी २०१७

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भारतीय लोकसाहित्य : स्वरूप व संकल्पना | ९ |

## राजस्थानी लोकगीतों के रंग

डॉ. श्वेता चौधारे

'लोक' मनुष्य की सभ्यता के विकास के साथ उसकी वैज्ञानिक प्रगति का साक्षी रहा है। संस्कृत अवधारणा के अनुसार लोक की परिधि में समस्त जनसमुदाय आता है। पर 'लोक' के आधिकारिक अध्येता डॉ. सत्येंद्र लोक को अभिजात्य संस्कारों से हीन मानते हैं। तो कई भारतीय विद्वान सभ्यता को, लोक का आधार बनाते हैं। लोक की संज्ञा कभी सामाजिकता के साथ जुड़ती गई, तो कभी जातियता से, कभी भौगोलिकता से। लोक हमारी इसी सुदीर्घ परंपरा को दर्शाता है। इसी आधार पर कलाएं फलती-फुलती हैं। इसी लोक को लोकगीत, लोककथा, लोकनाट्य, लोकनृत्य, उत्सव-पर्वों में देखा जा सकता है, जो विशिष्टजन का नहीं, सामान्य जनो का विशिष्ट साहित्य है।

परिवेश को अधिक सधन, उर्जस्वयी बनाने और स्थानीय रंग को अधिक निखारने में लोकगीत सहायक सिद्ध होते हैं। राजस्थान में लोकगीतों की प्रदीर्घ परंपरा रही है। यादवेंद्र शर्मा 'चंद्र' हिंदी साहित्य जगत के प्रभावशाली रचनाकार रह चुके हैं। उनके साहित्य में राजस्थानी संस्कृति और परंपरा के विविध रंगों को देखा जा सकता है। उनके कई उपन्यासों में लोकगीतों की मनभावन छवि है।

विवाह संस्कार भारतीय समाजव्यवस्था का और लोकगीतों का महत्वपूर्ण अंग है। विवाह के अवसर पर ढोलियों द्वारा गाया गया बधावा गीत उपन्यास के परिवेष को जीवित करता है -

"गढ़ रणथंभोर से पधारे विनायक जी.

जहाँ हर्ष उमड़ता ठाकुर के द्वार।"

चंद्र जी के उपन्यास के छोटे बच्चे भी गुड्डे-गुड्डी के ब्याह में फेरों के गीत गाते हैं -

"पहलो तो फेरो ए लाडी बाबा सारी प्यारी,  
सातवाँ तो फेरो ए लाडी हुई छै पराई।"

'मरुकेसरी' उपन्यास में बिदाई का यह गीत -

"म्हें थां नै पूछो म्हारी धीवड़ी/म्हें थां नै पूछो म्हारी बालकी  
इतरौ बाबै जी रो लाड /छोडर बाई सिध चाल्या"

'मैं रानी सुप्यारदे' उपन्यास में वर्णित अन्य एक बिदाई गीत -

भारतीय लोकसाहित्य : स्वरूप व संकल्पना । २७३ ।



"कोयल ऐ कोयल बैरन पिऊ-पिऊ बोल, चढ़ती बाई ने ये सबद सुबिबजे,  
 डूंगर रे डूंगर राजा नीचो सो झुक जाय, जावती बाई री दिखे रंग री चुनड़ी"  
 जब लड़की की डोली खाना होती है, तब गाया जानेवाला लोकगीत -  
 "हो जी गोरी रा लष्करिया/घड़ी दौय लष्कर थामो जी ढोला  
 पलक दौय लष्कर थामो जी ढोला"  
 लोककथा पर आधारित उपन्यास 'धरती की पीर' में ढोलन द्वारा गाया  
 गया बिदाई गीत -

"सुन रे भायली, छोड़ रे म्हांने  
 चाली रे अकेली, चाली रे अकेली, सुन रे भायली  
 बालपणे री बात्या बिसारे रूपे जेड़ी तू रात्यां बिसारे गुड्डा-अर गुड्डी,  
 लुक-मिचणी हिवड़े सू तू कियाँ निसारे सुन रे भायली"  
 इन उपन्यासों के कुछ गीत वहाँ के प्रदेशों की झाँकी दिखाते हैं -  
 "बोलो लागै जी म्हांने/जोधानै रो देस  
 ऊँचा-ऊँचा डुंगरा/हरिया भरिया खेत,/कित्ती चोखी सुहावनी  
 म्हारी सोनलिया री रेत/म्हांने बालो लागै जी  
 बालो लागै जी म्हांने/जोधानै रो देस"  
 'मरुकेसरी' उपन्यास में वीर दुर्गादास राठीड की प्रशंसा में चारणों द्वारा  
 लिखित गीत उद्धृत किया है -

"मनहर पाँच हजार रो, आधो मरुधर देस,  
 म्हाराजा पदवी महर, देख सुवारथ दुर्गेश।  
 धन बिन जीवन धूड़ है, प्रभूता बिन धन पाण,  
 झुगां-जुगां सू जोयले, धींगड़ है धनवान।"  
 परदेश जा रहे पति से पत्नी ओढनी मंगवाती है। पर लोकलाज के चलते  
 दोनों एक-दूसरे का नाम नहीं ले सकते। अतः संबोधन के लिए अन्य शब्दों का  
 आधार ले उनके संवादों को प्रस्तुत किया गया है -

"मिजाजी ढोला, जयपूर जाइज्यो जी/जयपूर से लाइज्यो, रेशम री चुनडी  
 जयपूर से लाइज्यो, तारा री चुनडी/बाई-सा री भावज भाँत बातइज्यो री  
 किस्या रंग री तारा री चुनडी/बाई-सा रा बीरा, हरा हरा पल्ला जी  
 कसुंबल रंग री, रेशम की चुनडी"

लोकगीत मौखिक परंपरा से चले आ रहे लोकभाषा में निर्मित गीत हैं,  
 जिनमें जनसामान्य की भावना-संवेदना अभिव्यक्त हुई है, जो मनोरंजन, प्रभाव से  
 पूर्ण और मार्मिक भी है। पति के अपने से दूर जाने पर विरह में नायिका की व्यथा  
 और वेदना लोकगीतों के स्पर्श से जिवंत हो उठती है। मृत पति की याद में  
 गानेवाली बीजकी, जब राजस्थानी माँड गाती है, तब उसके भाव अधिक मुखर  
 होते हैं-

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“केसरिया बालम आवोंनी, पधारो म्हारे देस,  
आवण-जावण कै गए, करि गए कवल अनेक,  
गिणता गिनत धिस गई, म्हारे आंगल्या री रेख  
बादीला बालम आवोंनी, पधारो म्हाण रे देस”

कौआ कुरूप होते हुए भी विरहणियों के लिए प्रिय के आगमन का संदेश  
लाता है। नायक के कई दिनों बाद घर लौटने पर उस परिवार की सांसण बधाई देते  
हुए छमछम नाचकर गाने लगती है-

उड उड रे म्हांरा काला कागला/ जद म्हांरो पीवजी घर आवे .... जद...  
खीर खांड रो जिमण जिमावूं/ सोने में चोंच मढाउं कागा .... जद म्हांरो...  
कौए की तरह पपैया भी इन विरहियों की भावना को व्यक्त करता है -  
“भँवर म्हारै बागां आवो जी/ बागां फिरुं अकेली, पपैयो बोल्यो जी ...  
सुंदर गोरी किण विध आवां जी/ म्हांरी परणी करे लडाई, पपैया बोल्यो जी”  
कहीं पर नायिका की भावनाओं को भी काव्य के माध्यम से उभारा गया है  
“मधुवन रो अे आंबों मोरियो / ओ तो पसरयो अे सगली मारवाड  
सहेल्याँ अे आंबों मोरियो/ बहू महलां सू उतरी  
आतो कर र सोला सिणागार/ सहेल्या अे आंबो मोरिया”

लोकगीत न केवल संस्कार आदि को उजागर करते हैं, बल्कि प्रकृति से भी  
अपना संबंध ओर अधिक घनिष्ठ करते हैं। बेटी के लिए सूर्यदेव की आराधना  
संबंधी गीत -

“ताबडो धीमो पड जा रे/ बादली गैरी छुट जा रे  
गोरी रो नाजूक जीव/ सूरज बादल में छुप जा रे  
ताबडो धीमो पड जा रे।”

‘धरती की पीर’ में ईशवंदना संबंधी लोकगीत की कुछ पंक्तियाँ -

“पूर्व दिशा में सूर्य देवजी समरत जी  
हों जी देवा सहस किरण ले उगसी  
मालिक तुम बिन और नहीं आसी  
वेग पधारो गोरों का गणपत जी।”

लोकगीत परंपरा के आवेष्टन में रसों के परिचायक है। ‘ठकुरानी’ उपन्यास  
में श्रृंगार रस में ड्रुवा लोकगीत देखा जा सकता है -

“म्हें रावल सूं नई बोलां/ नाँय बोलाँ, मुख नई बोलाँ  
पखवाडा रो कोल कहयो छो/ छे मीना सूं आया दोला  
म्हें रावल सूं नई बोलाँ/ जद रावल ये मेड्या आस्यो  
लाल किवाड़ी जड लेस्यो/ म्हें रावल सूं नई बोलाँ...”

राजस्थानी प्रसिद्ध विरह गीत मृमल की पंक्तियों को भी चंदग जी ने उद्धृत  
करके महेंद्र-मृमल की प्रेमकथा को नए रंग में प्रस्तुत किया है -

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“काली रे काजल काजलिए री रेख रे/ हां जी रे कालोड़ी कांठल में चिपके  
बिजली,  
जुग जिओ म्होरी मूमल हालोनी,/ लष्करिए ढोला रे देस  
न्हायो मूमल माधो धोयो मेट सूं / हां जी रे कडिया तो रालय्या मूमल  
केसड़ा  
म्हारी जुग मीठी मूमल हालोनी आलीजा रे देस/ सीसड़लो मूमल रो सरूप  
नाटेल यूं

“म्हारी जुग बाली मूमल हालोनी अमराणै रे देस ”

‘धरती की पीर’ उपन्यास में ढोली चंपू का गीत भी हृदयस्पर्शी बना है -

“ओजी गोरी रा लष्करिया,

ओलूड़ी लगाय कठै चाल्याजी ढोला....

हो थारी रे ओलू अरे ढोला करों, हो म्होरी करे नहीं कोयजी, रे ढोला...

हो इण ओलू रे ढोला कारणें, हो झुर-झुर पींजर होय जी रे ढोला.....”

लोकगीतों की प्राणवत्ता और सार्थकता उत्सव, पर्वों में अधिक प्रखरता से जानी जा सकती है। राजस्थान उत्सवों की भूमि है। ये रंग लोकगीतों को भी रंगीन कर देते हैं। फागुन के उत्सव में गायी जानेवाली ‘धमाल’ की पंक्तियाँ यहाँ देखी जा सकती हैं-

“फागण आयो / फागण आयो

मनै लेर क्यू न जाय बलमा

आप नहीं आवे ढोलों, ससुरा जी न भेजे

ससुरा जी की म्हाने लाज आवे

बालम फागुन आयो रे ।”

राजस्थानी चौमासा की झलक भी चंद्र के उपन्यास में देखी जा सकती है-

“सागर पाणी लेणे जावूँ सा, निगर लग जाय,

म्हारी सांसणी साड़ी रो ढोला रंग उड़ जाय।”

इस तरह देखा जाए तो लोकगीत मनुष्य जीवन व संस्कृति के अध्ययन में सहायक है। लिखित साहित्य से मौखिक साहित्य कई ज्यादा समृद्ध रहा है।

वैश्वीकरण, भूमंडलीकरण के दौर में जहाँ परंपरा के प्रति मोह बढ़ रहा है, वहीं वर्तमान में लोकगीत लुप्त हो रहे हैं। व्यक्तिगत और सामूहिक सुख-दुःख को उजागर करनेवाले लोकगीत जहाँ प्राचीनता की धरोहर को सहेजते हैं, वहीं उसमें तत्कालीन प्रचलित शब्दों में समाज की सामाजिक, साहित्यिक, धार्मिक, आर्थिक झलक अभिव्यक्ति पाती है।

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# भारतीय लोकसाहित्य : स्वरूप व संकल्पना

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प्रकाशक

अ.अ. कुलकर्णी

अनुबंध प्रकाशन

२०२ बालाजी कॉम्प्लेक्स, बालाजीनगर

धनकवडी, पुणे ४११ ०४३.

अक्षरजुळणी

अ. भारती

मुद्रक

श्री बालाजी एन्टरप्रायजेस

तलाठी कार्यालयासमोर

धायरी फाटा, वडगाव बु.॥

पुणे ४११ ०४२

मुखपृष्ठ

सौ. मनीषा पवार

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## लोकसाहित्य का परिचय (महाराष्ट्र के विशेष संदर्भ में )

प्रा. अमोल मछिंद्र दहातोंडे

नगर या प्रगत भागो से दूर पर्वतीय क्षेत्रो मे, दुर्गम इलाको मे रहनेवाले आदिवासीयो का जीवन निसर्ग पर ही निर्भर करता है। प्रकृति के सहवास के कारण आदिवासीयो की एक अलग संस्कृति बन गई है उनका प्रकृति के साथ रिश्ता एकरूप हुआ दिखाई देता है। आजकल आदिवासी साहित्य के स्वरूप, महत्त्व पर जोरदार चर्चा साहित्य के क्षेत्र हो रही है। किंतु लोकसाहित्य केवल आदिवासीयो के साहित्य तक ही सिमित नही हो सकता बल्कि समाज के हर घटक का साहित्य लोकसाहित्य की श्रेणी मे आता है। अगर हमे कैसी भी राष्ट्र के समाज जीवन को जानना हो तो हमे उस राष्ट्र के लोकसाहित्य को पढना होगा तभी हम उनके समाजजीवन को गहराई से जान सकते है। महाराष्ट्र का लोकजीवन प्राचीन संस्कृती का एक भाग माना जाता है, इसमे आदिकाल से लेकर आधुनिक काल तक के समय को हम देख सकते है। लोकसाहित्य से तात्पर्य संस्कृती व समाज का चित्रण जिस साहित्य मे होता है। उसे लोकसाहित्य कहा जाता है लोकसाहित्य को हम दो भागो में विभाजित कर सकते है।

१) लिखित साहित्य।

२) मौखिक साहित्य।

### १) लिखित साहित्य :

शब्द रूप मे अक्षरो के माध्यम से कागज पर लिखकर रखा जाए तो उसे हम लिखित साहित्य कहते है। समाज के घटकों द्वारा सामाजिक मनोरंजन तथा लोकशिक्षा, लोकसंस्कृती का प्रचार व प्रसार के लिखा गया साहित्य लोकसाहित्य कहा जाता है। लोकसाहित्य मे सभी प्रकार का काव्य साहित्य आ सकता है जिसमे प्रमुखता से महाराष्ट्रियन लोकसाहित्य प्रचुर मात्रा लिखा गया है। लिखित साहित्य के अंतर्गत भारूड, जाते के गीत, आरती, कथा, महिमा वर्णन, ओवी, आदि आते है।

भारूड महाराष्ट्र की ग्रामीण जनता मध्ययुग से लेकर आज भी इस लोकसाहित्य के प्रकार को बडी प्रसन्नता से सुनते है 'संत एकनाथ' द्वारा रचित भारूड इस लोकसाहित्य के प्रकार ने जनता का मनोरंजन करणे के साथ-साथ प्रबोधन करने का कार्य किया है। दैनंदिन कार्य करते करते हम भगवान का नामस्मरण किस प्रकार करना है ये बताया जाता है। उदा अंग ग- ग-ग काय मी

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करू विंचू चावला, कोणाला सांगू विंचू चावला आदि गितों के द्वारा मनोरंजन के साथ भगवत भक्ति भी की जाती थी इस संदर्भ में गाडगेमहाराज के भारूड अधिक लोकप्रिय है जिसके माध्यम से समाज में जनजागृती का काम करते थे।

२) मौखिक साहित्य :

लोकसाहित्य का अधिकतर भाग इस श्रेणी में आता है इसके अंतर्गत वगों से चली आ रही परंपरा को गितों के माध्यम से समाज तक ले जाना है। महाराष्ट्र के ग्रामीण भागों में आज भी इसी प्रकार का मौखिक साहित्य पाया जाता है।

१) पोवाडा शिवजन्म से भी आदि काल से पोवाडा नामक यह विधा समाज में प्रचलित है। इन पोवडों का विषय राजा शहाजी, शिवाजी या मराठों के इतिहास की कोई प्रसिद्ध घटना होती है। जिसमें किसी भी घटना को उसके क्रम, गीत एवं प्रसंग के अनुसार प्रस्तुत किया जाता है। इस लोकसाहित्य की विशेषता यह है की एक बार सुनना आरंभ करे तो खत्म होने तक उत्कंठा आखिर तक बनी रहती है। शिव जन्म का पोवाडा सबसे अधिक प्रसिद्ध है।

लोकसाहित्य के अंतर्गत विभिन्न देवी-देवताओं के गीत भी देखने को मिलते हैं। इसमें नाथपंथ के नौ-नाथों के जन्म की कथा, देवी द्वारा राक्षस वध का प्रसंग आदि प्रसिद्ध लोकसाहित्य के अंतर्गत आता है।

२) तमाशा महाराष्ट्र में लोकसाहित्य की परंपरा में एक नाम लोकनाट्य तमाशा भी आता है। लिखित एवं अभिनय साहित्य के अंतर्गत लोकनाट्य तमाशा का साहित्य आता है। इसे लोकसाहित्य इसी कारण से कहा जाता है, कि समाज के ज्वलंत विषयों पर लोकनाट्य (नाटक) दिखाया जाता है। इसे मराठी भाषा में 'वग' कहा जाता है। तमाशा कि शुरुवात ही गण-गौळण (नृत्य का प्रकार) से दिखाया जाता है, जिसमें कृष्ण एवं गोपिकाओं की रास लिलाओं को दिखाया जाता है। यह साहित्य भी लोकसाहित्य की परिधि में आता है उसके बाद वध (नाट्य रूपांतरण) दिखाया जाता है जिसमें समाज में घटित किसी गंभीर घटना को दिखाया जाता है जैसे नरबली, अंधश्रद्धा, बालविवाह आदि घटना को दिखाया जाता है इस विधा के माध्यम समाज का प्रबोधन किया जाता है लोकशाहीर आण्णाभाऊ साठे, काळू-बाळू आदि रचनाकारोंने अपने काव्यनाट्य से समाज को विविध विषयों पर प्रबोधित किया।

३) भलरी गीत- भलरी गीत महाराष्ट्र के धनगर चरवाहे जमाती के लोग इस प्रकार के गीत गाते हैं। यात्रा, उत्सव, त्योहारों आदि प्रसंगों पर इन गीतों द्वारा मनोरंजन, शिक्षा, संस्कृति को आगे बढ़ाने के लिए ये गीत गाए जाते हैं।

उदा- काठी नं घोंगड घेऊ द्या की रं

मला-बी जत्रला येऊ द्या की रं

इस गीत में यात्रा मेला देखने को जा रहे दोस्तों को उनका दोस्त कहता है, की मुझे भी तुम्हारे साथ आना है पर उस से पहले काठी (लकड़ी) और घोंगड

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(भेड की उन से बनाई जाने वाली चादर) तो साथ लेने दो ।

४) जागरण-गोंधळ - जगराता महाराष्ट्र के ग्रामीण तथा शहरी भागों में मल्हारी मारुतंड खंडोबा भगवान की पुजा करने के लिए रतजगा जगराता (सारी रातभर जागकर भगवान की लिलाओं को सुनना) इसे मराठी भाषा में जागरण-गोंधळ कहा जाता है । इस साहित्य प्रकार में, भगवान शिव के अवतार खंडोबा की महिमा का गुणगान किया जाता है । इसमें गीत और कथा दोनों माध्यम से मनोरंजन किया जाता है।

लोकसाहित्य केवल महाराष्ट्र तक ही सिमित नहीं बल्कि पूरे भारत में कई प्रकार की जातीयों-जनजातियाँ हैं । जिनकी आपनी अलग संस्कृति है और उनका अपना-अपना लोकसाहित्य भी है।

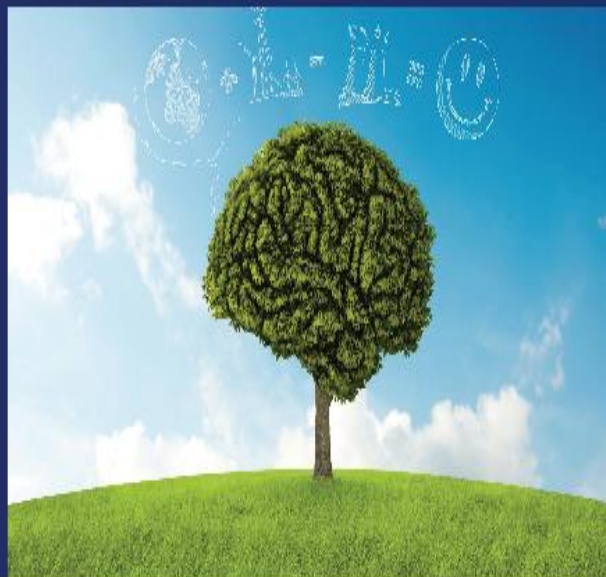
संक्षेप में कहा जा सकता है, कि महाराष्ट्र में लोकसाहित्य प्रचुर मात्रा में मौजूद है । उदा देवी के गीत, पोतराज के गीत, नाथपंथ के गीत, नागपंचमी के त्योहार के गीत आदि इसके अलावा फसल की बुवाई, हल ज्योतने के समय किसान अपने बैलों के लिए भी गीत गाता है । यह सारे प्रकार लोकसाहित्य के अंतर्गत आते हैं । हालाँकि इसमें से अधिकतर मराठी भाषा में ही लिखित है । लोकसाहित्य के अंतर्गत लिखित और मौखिक दोनों प्रकार का काव्य आज महाराष्ट्र में पाया जाता है । किंतु काल के प्रवाह में यह लोकसाहित्य लुप्त होने की कगार पर है - इसके संवर्धन की आज सबसे जादा जरूरत है।

।\*।



Plants are most important biotic component of ecosystem, special attention must be given to research on improvement of plant growth and utilization of plants for sustainable development. This book comprises of research and review papers on various plants; on several aspects like Hypolipidemic activity, Biocontrol agent for sustainable environment, Antioxidant potential of wound healing plants, Effect of polyherbal preparation, Micropropagation, Natural regeneration, Carbon sequestration potential of tree species, Impact on rearing performance, Induced variations in quantitative traits, Effect of potting media, Effect of Azospinillum strains, Use of Glioclidia, Growth and sporulation of Alternaria, Effect of biometaneted spent wash along with bio-compost, Ectoparasite control, Effect of zein protein coating, Phytochemical Effect, Effect of biofertilizers, Effect of garbage bio-pesticide, etc. written by professors and researchers. This book is useful for researchers, academicians, students, nature lovers, environmentalists, government officials and policy makers etc.

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## CHAPTER 11

### Effect of spent wash with bio-compost on the quality and yield of Sugarcane

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#### Abstract

A field experiment was conducted on Adsali sugarcane during the year 2015-16 at Research farm of Mula sugar factory Sonai, Dist. Ahmednagar. The main objective was to study the effect of raw and post biomethanated spent wash along with bio-compost on the quality and yield of Sugarcane. The field experiment was laid out in randomized block design with three replication and ten treatments. The treatment consist Raw Spent Wash (RSW) and Post Biomethanated Spent Wash (PBSW) along with Bagasse, Sugarcane trash, press mud cake, Wheat straw, recommended doses and Absolute control etc. The result revied among the different treatments maximum increase in juice quality i.e. CCS percentage and CCS MT/ ha was 14.52 % and 16.14 t/ha<sup>-1</sup> respectively in treatment PBSW + PMC. Whereas maximum increase in cane yield was recorded 111.20 ton / ha<sup>-1</sup> in same treatment.

**Keywords:** *biocompost, press mud, raw spent wash, post biomethanated spent wash, sugarcane*

## **Introduction**

Sugarcane crop is cultivated near about 121 different countries of world and the second largest sugarcane producing country next only to Brazil. Sugarcane is the commercial cash crop for the production of sugar and other byproducts such as paper, alcohol, electricity etc. Sugar industry is the second largest agro-based industry in India next to textile, which contributes substantially to the economic development of the country (Darandale, 2015).

The 579 sugar industries in the country produce 14.5 million tons of sugar by crushing 145 million tons of sugarcane. The annual byproduct production from these industries is 7 million tons of press mud and 7.5 million tons of molasses. Molasses is utilized in the distillery for the production of alcohol. The aqueous distillery effluent stream known as spent wash. It is a dark brown highly organic effluent and is approximately 12-15 times by volume of product alcohol (Rath et al, 2011).

The disposal of distillery spent wash is of serious concern due to its large volume and high biological oxygen demand (BOD) and chemical oxygen demand (COD). Due to high concentration of organic load, distillery spent wash is a potential source of renewable energy. The effluent does not contain any toxic heavy metals as it is a waste from plant materials. It contains high amount of nutrients such as nitrogen, phosphorous, potassium, sulfur and a large amount of micronutrients. The soil application of distillery spent wash often benefits water pollution control and utilization for agricultural production (Suganya and Rajannan, 2009). In order to archive improvement in juice quality and cane yield in sugarcane crop present investigation was carried out.

### **Material and Methods**

Field experiment was conducted in Research farm of Mula Sugar Factory Sonai, Dist. Ahmednagar Experiment was performed on Adsali sugarcane variety CO-86032. The soil was medium black having pH 8.3 .Electrical conductivity 0.30 Dc/Mint , Organic carbon 0.69 and available N,P,K was 260 kg/ha , 30 kg/ha , 314 kg/ha respectively. The experiment was laid out randomize block designs with three replications and ten different treatments.

There were total ten treatments which consist of T1- Absolute control, T2- RSW + BC, T3- PBSW + BC , T4- RSW+STC, T5-PBSW + STC , T6- RSW + PMC, T7- PBSW + PMC, T8- RSW + WSC, T9- PBSW + WSC, T10 – RDF. The Juice quality and yield of sugarcane are studied after harvesting.

### **Results and Dissucusion**

The data on effect of application of Raw and Post Biomethenated spent wash along with bio-compost on brix, purity, CCS, sucrose are shown in Table 1. The purity per cent ranged from 89.56 (PBSW +WSC) to 95.88 per cent (PBSW+STC). Whereas, CCS percentage ranged from 13.64 per cent (AC & RDF) to 15.11 per cent (RSW + STC). The highest content of sucrose was noticed in treatment RSW + STC (20.85 %). The CCS yield ranged from 8.86 (control) to 16.14 t ha-1 (PBSW + PMC). These results are in conformity with the findings of M. R. Chauhan and A. L. Pharande (2017), Bhalerao *et al.* (2006) and Ghugare (1994).

**Table 1 - Effect of Raw and Post Biomethanated spent wash along with bio compost on juice quality**

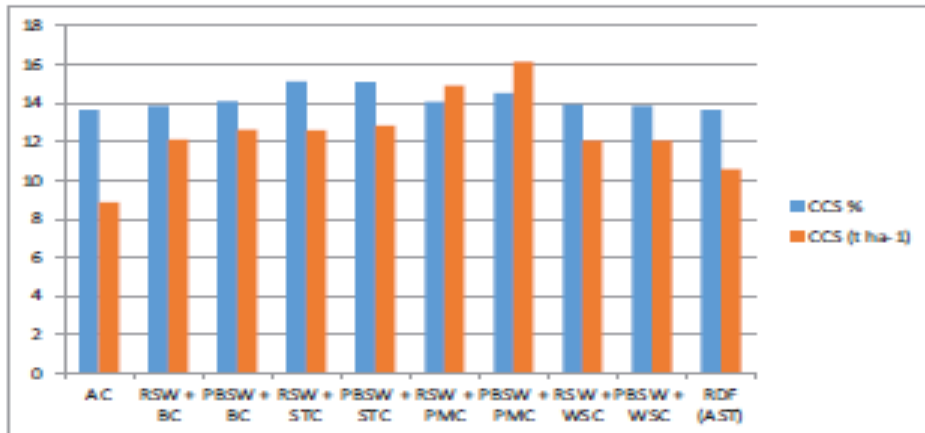
Sr. No	Treatments	Refr %	Purity %	CCS %	Sucrose %	CCS (t ha <sup>-1</sup> )
1	AC	21.30	90.38	13.64	19.25	8.86
2	RSW + BC	21.59	90.50	13.85	19.54	12.11
3	PRSW + BC	21.50	91.81	14.09	19.74	12.60
4	RSW + STC	21.93	95.08	15.11	20.85	12.58
5	PBSW + STC	21.63	95.88	15.08	20.74	12.81
6	RSW + PMC	21.70	91.11	14.06	19.77	14.02
7	PBSW + PMC	22.00	92.27	14.52	20.30	16.14
8	RSW + WSC	21.71	90.33	13.89	19.61	12.05
9	PRSW + WSC	21.04	89.56	13.86	19.65	12.06
10	RDF (AST)	21.24	90.25	13.64	19.26	10.56

**Table 2 - Effect of Raw and Post Biomethanated spent wash along with bio compost on cane and green top yield (t ha<sup>-1</sup>)**

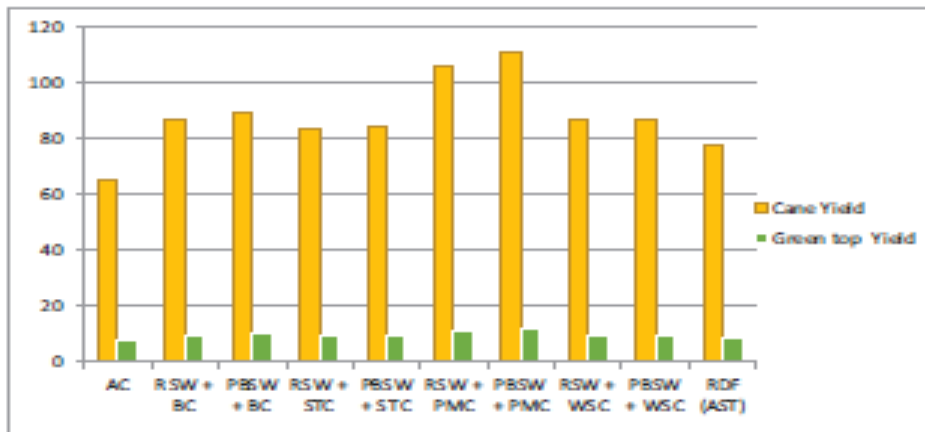
Sr. No.	Treatment No.	Cane Yield	Green top Yield	Total Yield
1	AC	65.00	7.85	72.85
2	RSW + BC	87.42	9.87	97.29
3	PBSW + BC	89.48	9.96	99.44
4	RSW + STC	83.27	9.67	92.94
5	PBSW + STC	84.94	9.66	94.60
6	RSW + PMC	106.10	11.55	117.65
7	PRSW + PMC	111.20	12.10	123.30
8	RSW + WSC	86.79	9.78	96.57
9	PBSW + WSC	86.98	9.83	96.81
10	RDF (AST)	77.45	8.98	86.43



**Graph 1 - Effect of Raw and Post Biomethanated spent wash along with bio compost on CCS % & CCS MT/ha**



**Graph 2 - Effect of Raw and Post Biomethanated spent wash along with bio compost on cane and green top yield (t ha<sup>-1</sup>)**



The green top yield of sugarcane ranged from 7.45 to 12.10 t ha<sup>-1</sup>. The bio-compost prepared from PBSW and PMC showed highest green top yield (12.10 t ha<sup>-1</sup>) followed by RSW + PMC bio-compost (11.55 t ha<sup>-1</sup>) and PBSW + BC (9.96 t ha<sup>-1</sup>). The cane yield of sugarcane ranged from 65.00 to 111.20 t ha<sup>-1</sup>. The bio-compost prepared from PBSW and PMC showed highest cane yield (111.20 t ha<sup>-1</sup>) followed by RSW + PMC bio-compost (106.10 t ha<sup>-1</sup>) and PBSW + BC (89.48 t ha<sup>-1</sup>). Thus, the yield parameters clearly indicate that the significant response for increase in yields due to application of bio-compost along with RSW and PBSW. Among the treatments the use of PBSW+PMC showed significantly highest cane and top yield. Jadhav and Savant (1975), Shinde *et al.* (1993) Chauhan and Pharande (2017).

#### **Conclusion**

From the above results it is concluded that among the different treatments Post biomethenated spent wash and Press mud cake (T7) is most superior to other treatments. It shows highest increases in juice quality and yield of sugarcane.

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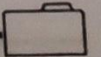


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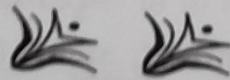
  
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F. Y. B. Sc. (Sem. - I)

♦ Dr. Ashok R. Tuwar ♦ Dr. Subhash V. Ahire ♦ Dr. B. K. Avchar  
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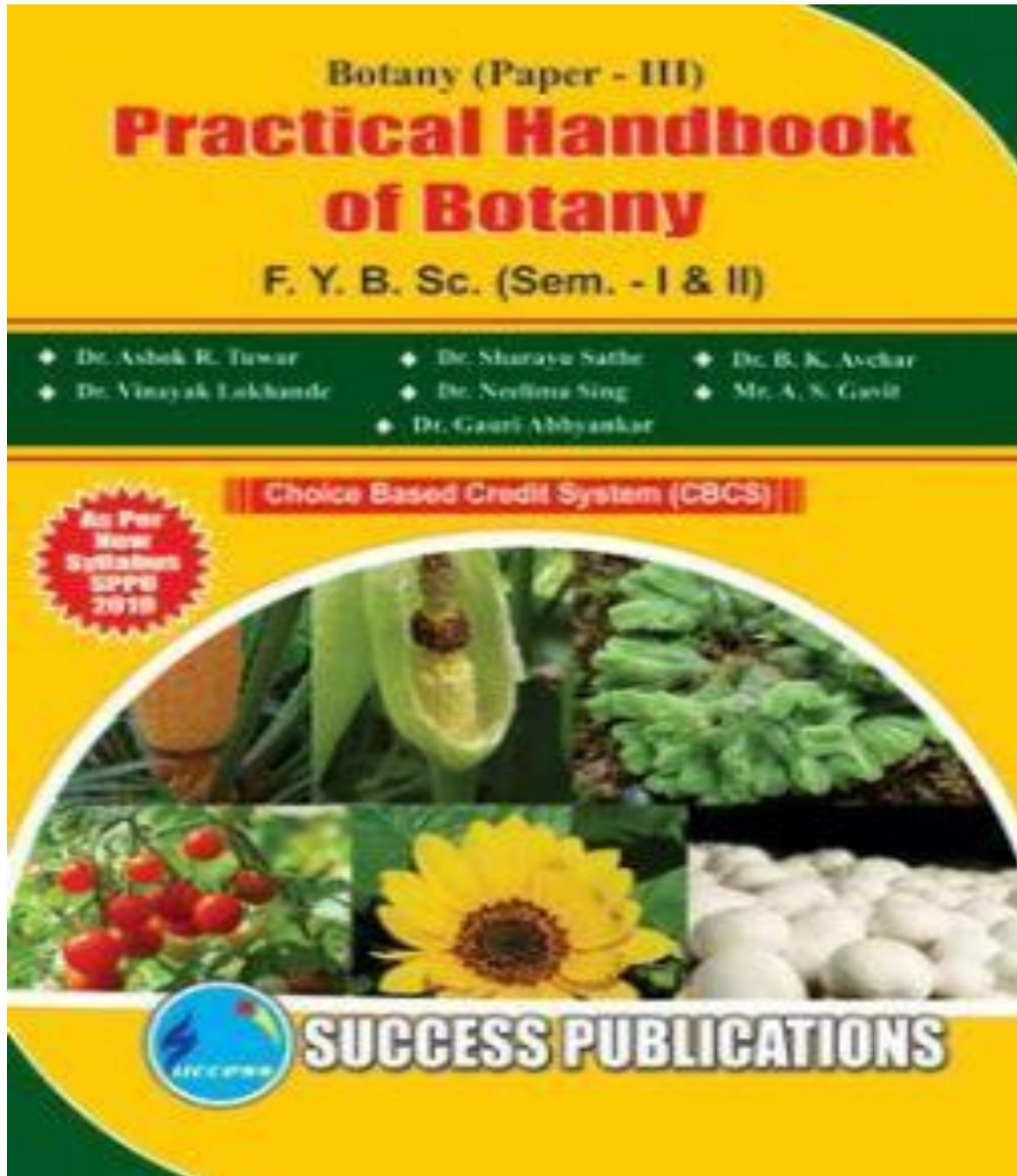
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# **Practical Handbook of Botany**

**F. Y. B. Sc. (Sem. – I & II)  
(Paper – III)**

(According to New Syllabus of Savitribai Phule Pune University  
from June-2019)

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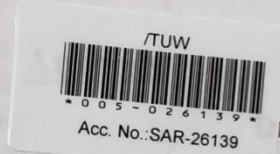
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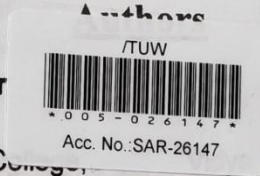
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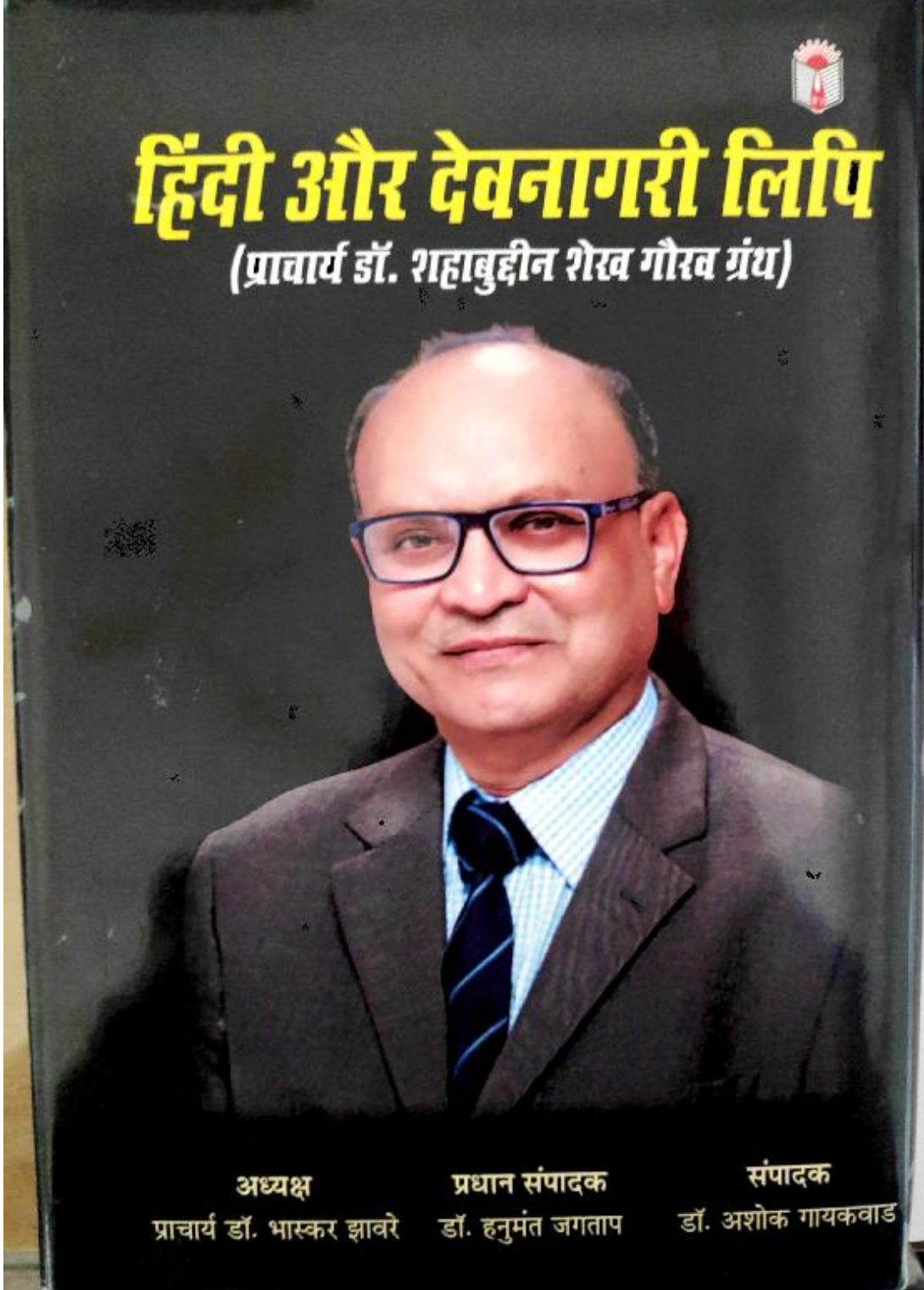




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डॉ. श्वेता बा. चौधारे (सोनई, महाराष्ट्र)

आधुनिक संसाधनों में जीने वाला मनुष्य विज्ञान का सहारा लेकर कितनी ही नई खोज क्यों न कर ले भाषा के अतिरिक्त उसके पास अभिव्यक्ति का सशक्त माध्यम संभवतः ही कोई ओर हो सकता है। भाषा विचारों के आदान-प्रदान एवं समूह से संपर्क स्थापित करने का माध्यम है। आधुनिक वैश्वीकरण और बाजारवाद के युग में सूचना प्रौद्योगिकी के जाल ने संपर्क वा संप्रेषण का स्थान ले लिया है। सूचना प्रौद्योगिकी के क्षेत्र में हुई क्रांति ने ई-माध्यमों ने 'वसुधैवकुटुंबकम्' की धारणा में प्राण फँक दिए। साथ ही ज्ञान का अमूल्य भंडार सबके लिए खुल गया। आज इंटरनेट के द्वारा ई-कॉमर्स, ई-प्रशासन, ई-बैंकिंग, ई-एज्युकेशन की बाढ़-सी आ गई है, जो संभव हुआ केवल सूचना प्रौद्योगिकी के कारण। भारत में इसका विकास तेजी से हो रहा है। पूरी दुनिया ही इलेक्ट्रॉनिक और डिजिटल की बन गई है।

सूचना से संबद्ध सूचना प्रौद्योगिकी को की मैकमिलन डिक्शनरी ऑफ इनफॉर्मेशन टेक्नोलॉजी में कुछ ऐसी परिभाषा मिलती है— कम्प्यूटिंग और दूरसंचार के समिश्रण पर आधारित माईक्रो-इलेक्ट्रॉनिक्स द्वारा मौखिक, चित्रात्मक, मूलपाठ विषयक और संख्या संबंधी सूचना का अर्जन, संसाधन, भंडारण और प्रसार है। तो अमेरिका रिपोर्ट के अनुसार सूचना का एकत्रिकरण, भंडारण, प्रोसेसिंग, प्रसार और प्रयोग ही सूचना प्रौद्योगिकी है। संक्षेप में कह सकते हैं कि यह तकनीकी शब्दावली से युक्त यह ऐसी संकल्पना है जिसमें सूचना के संजाल का नित नूतन तकनीक के माध्यम से विकास को दर्शाया जाता है। जहां हम इसे लिपि के साथ जोड़ते हैं, वहां इससे तात्पर्य है भाषाई संरचनाओं का तकनीकीकरण।

भाषा की ताकद उसकी अभिव्यक्ति क्षमता पर निर्धारित होती है तथा संकल्पना और विचारों का आदान-प्रदान उसे ओर अधिक प्रगल्भ बनाता है। जिसे सुरक्षित रखने का काम लिपि करती है। सभ्यता के विकास और मानवी आवागमन के कारण भाषा और लिपियां एक दूसरे से हमेशा प्रभावित होती रही हैं। महर्षि पाणिनी जैसे मनीषियों ने ध्वनि एवं लेखन में ऐक्य पर बल देते हुए ध्वनियों का स्वर और व्यंजन में वर्गीकरण किया। उच्चारण स्थान और विधि के



आधार पर लिपि संरचना सारणी बनाई। लिपि के लिए व्याकरण भी दिया। अन्य लिपियों की अपेक्षा इसका ध्वन्यात्मक, वैज्ञानिक आधार है, जिसका संरचना आधार पाणिनी सारणी है, वहीं देवनागरी लिपि है। आज कई भारतीय भाषाओं की लिपि देवनागरी लिपि है। देवनागरी इनके लिए केवल लिखित अभिव्यक्ति तक सीमित नहीं है, बल्कि इन भाषाओं की आत्मिक अभिव्यक्ति भी नागरी लिपि से संभव हो रही है। अतः तकनीकीकरण की धारा में विकसित हो रही इन भाषाओं के साथ देवनागरी लिपि भी विकासपथ पर अग्रेसर हो रही है, इतना ही नहीं लिपि विकास हेतु अन्य लिपियों से वह स्वस्थ प्रतिस्पर्धा भी कर रही है।

सूचना प्रौद्योगिकी के माध्यम से लिपि विकास के चरम में समस्याओं का निराकरण कर नागरी लिपि अपना रूप निश्चित कर रही है। स्पष्ट कहा जा सकता है कि नागरी लिपि वर्तमान दौर में समस्याओं के संजाल से प्रतिस्पर्धा कर रही है। सूचना प्रौद्योगिकी का अभिन्न अंग संगणक तंत्रज्ञान से जुड़ा हुआ है। कम्प्यूटर को सूचना प्रौद्योगिकी का मूल वाहक कहा जा सकता है, जो सैद्धांतिक रूप से किसी विशिष्ट लिपि या भाषा से संबंधित नहीं है। सूचना प्रौद्योगिकी कम्प्यूटर पर आधारित सूचना प्रणाली का आधार है, जो वर्तमान में वाणिज्य व व्यापार का महत्वपूर्ण अंग बन चुका है। पर कम्प्यूटर केवल बाइनरी अर्थात् 0 और 1 की द्विअंकी भाषा समझता है। किसी भी भाषा को कम्प्यूटर अपने तरीके से समझता है, अतः कम्प्यूटर का काम रोमन के साथ देवनागरी लिपि में हो सकता है, आवश्यकता है केवल जैसे प्रोग्राम की। आज संपूर्ण दुनिया में सूचनाओं का संकलन और आदान-प्रदान सुगम हो गया है। मात्र भारत में जहां हिंदी अधिकांशतः बोली और समझी जाती है, वहीं कम्प्यूटर पर अंग्रेजी के अधिक प्रयोग के कारण समस्याएं उत्पन्न हो रही हैं। वास्तव में यह समस्याएं तकनीकी नहीं हैं, केवल भाषा प्रयोग से जुड़ी हैं। बावजूद इसके अधिकांश सॉफ्टवेयर अंग्रेजी भाषा अर्थात् रोमन लिपि में उत्पन्न कराए गए हैं। जो राष्ट्रीय भाषाओं के विकास में बाधक बन रहे हैं। हम देखते हैं जिन राष्ट्रों ने तकनीकी एवं संबंधित सॉफ्टवेयर विकास कार्य अपनी भाषा में किए वे राष्ट्र अधिक सफल हुए हैं। जैसे— चीन, जापान।

आज सूचना प्रौद्योगिकी के दायरे में अधिकाधिक भारतीय भाषाओं को लाने का प्रयास हो रहा है। विभिन्न भारतीय भाषाओं में कम्प्यूटिंग का विस्तार कर ज्ञान का विस्तार भी संभव हुआ है। मात्र इसका प्रयोग बहुराष्ट्रीय कर्पा 6/8 अपने वाणिज्यिक लाभ को सिद्ध करने में कर रही है। वर्तमान सूचना प्रौद्योगिकी मशीनों पर आधारित है। बुद्धिपरक कामों के लिए कम्प्यूटर का विकास हुआ है। कम्प्यूटर का उद्गम व विकास उन राष्ट्रों में हुआ जहां अंग्रेजी



भाषा व रोमन लिपि थी। भारत में इस तंत्रज्ञान का आगमन भी उसी भाषा-लिपि में हुआ। जिसके कारण अन्य भारतीय भाषाओं के लिए कम्प्यूटिंग कठिन साध्य हो गया। स्पष्ट है कम्प्यूटिंग का विकास यदि हमारे देश में होता तो निश्चित ही उसका विकास देवनागरी लिपि और हिंदी भाषा में होता और उसका प्रयोग करनेवालों की संख्या भी अधिक होती। क्योंकि हम यह जानते हैं कि देवनागरी लिपि कम्प्यूटर तंत्रज्ञान के पूर्ण अनुकूल हैं। देवनागरी को कम्प्यूटेशनल भाषा में बदलने की अपार संभावना है। इतना ही नहीं इस लिपि के माध्यम से भारत की नहीं विदेशी विलुप्त भाषाओं को पुनर्जीवित किया जा सकता है। क्योंकि देवनागरी में किसी भी भाषा या ध्वनि का लिप्यंकन करने की क्षमता है।

देवनागरी में जहां 52 वर्ण हैं, तो रोमन लिपि में 26। अतः लिपि की भ्रामकता देवनागरी में नहीं। अतः कम्प्यूटर विकास देवनागरी में भी संभव है। अनेक फांट के कारण ई-मेल, सर्चिंग में होनेवाली अडचण यूनिकोड फांट के कारण दूर हो गई है। यूनिकोड के कारण नीज भाषा में प्रोग्राम बनाना संभव हो पाया है। पिछले दो दशकों में सूचना प्रौद्योगिकी के क्षेत्र में बाढ़ सी आ गई है। कई नए समर्थ ऑपरेटिंग सिस्टिम, विश्व भाषाई यूनिकोड, ओपन टाइप फांट, ऑफिस सूट, वेब, मानव भाषा संसाधन, मशीनी अनुवाद, टेक्स टू स्पीच जैसे नए प्रोग्राम उपलब्ध हो रहे हैं। उपयोगकर्ताओं की संख्या भी बढ़ी है। सोशल मीडिया भी इससे अछूता नहीं रहा।

इन सबके बावजूद देवनागरी लिपि और सूचना प्रौद्योगिकी के जुड़े कई सवाल समस्या के रूप में सामने आते हैं। नागरी लिपि के विकास की प्रथम समस्या के अनुसार रोमन लिपि से होनेवाली तुलना के चलते पहला प्रश्न वर्णमाला की अधिकता है। दूसरी समस्या अन्य भाषाओं के परिप्रेक्ष्य में विश्वसनीयता की है, जहां लोक-बोलियों एवं भाषाओं के साथ क्षेत्रीय भाग में अनुप्रयुक्त दूसरी एवं उससे संबंधित बोलियों एवं उन बोली-भाषाओं की लिपियों की विश्वसनीयता में नागरी लिपि के विकास का मापदंड सुनिश्चित नहीं हो रहा है। जिसके कारण यह बोलीभाषाएं अपने-आप को असुरक्षित महसूस कर रही हैं।

देवनागरी लिपि के तकनीकी विकास से जुड़ी अन्य समस्या है उसके अंतर्राष्ट्रीय मानदंडों को लेकर। हिंदी भाषा जहां प्रयुक्त है, ऐसे नेपाल, मारीशस, सूरीनाम तथा भारत में नागरी लिपि के विकास में मतभेद पाया जाता है। अंतर्राष्ट्रीय स्तर पर रोमन लिपि की तुलना में नागरी लिपि का प्रयोग कम ही देखा जाता है। विशेष अंतर्राष्ट्रीय प्रयास न होने के कारण देवनागरी लिपि द्वारा प्रयुक्त किसी भाषा को अब तक संयुक्त राष्ट्रसंघ की भाषा के रूप में अनुसूची में स्थान नहीं मिल पाया है।

क्षेत्रीय बोलियों के अधिग्रहण में देवनागरी लिपि स्वयं को अक्षम पा रही है, जो लिपि विकास की प्रक्रिया का अवरोध है। भारतीय युवा पीढ़ी में भी देवनागरी लिपि के तकनीकी विकास के प्रति उदासी देखी जाती है। युवा वर्ग नागरी लिपि की तुलना में रोमन लिपि में अपने करियर की अधिक संभावना को समझता है। नागरी लिपि को लेकर व्युत्पन्न वैचारिक मतभेद, सामाजिक अविश्वसनीयता और शैक्षिक संस्थानों में उदासीनता देवनागरी के तकनीकी विकास में बाधक सिद्ध हो रही है। फिर भी सूचना प्रौद्योगिकी में देवनागरी में सबल बनाने वाले कुछ मुद्दों की ओर भी ध्यान देना होगा। जिनमें से पहला है—फॉन्ट। आज इंटरनेट से कई फॉन्ट मुफ्त में डाउनलोड किए जा सकते हैं। भारत सरकार के सूचना प्रौद्योगिकी विभाग ने हिंदी में सी.डी. में मुफ्त प्रयोग के लिए कई फॉन्ट दिए हैं। मात्र उनके व्यावसायिक प्रयोग पर रोक लगाई है। फॉन्ट को आपस में बदलने के लिए और इसे युनिकोड में परिवर्तित करने के लिए फॉन्ट कन्वर्जन यूटिलिटी प्रोग्राम बनाए है, जो व्यावसायिक प्रयोग के लिए मुफ्त है। देवनागरी के अक्षर युनिकोड में परिवर्तित किए गए हैं और सूचना विनिमय के मानक के रूप में युनिकोड संपूर्ण विश्व में स्वीकारा जा रहा है। देवनागरी की बाधाओं से अधिक उसके वैज्ञानिकता का प्रसार अधिक आवश्यक है। सुविधाजन्य वर्ण विभाजन, उच्चारण—लिखावट में एकरूपता एवं निश्चितता, लिपि में स्पष्टता के कारण यह एक वैज्ञानिक लिपि है।

देवनागरी लिपि के मानकीकरण की प्रक्रिया निरंतर जारी है। युवाओं का देवनागरी लिपि के प्रति विश्वास ही नागरी लिपि के अंतर्राष्ट्रीय प्रयासों की सार्थकता का दर्शक होगी। देवनागरी लिपि को सूचना प्रौद्योगिकी में स्थापित करने के लिए भारत सरकार ने देवनागरी लिपि को तकनीकी रूप में विश्वस्तरीय बनाया है।

#### सारांश

सूचना प्रौद्योगिकी ने एक वैश्विक अर्थव्यवस्था को जन्म दिया है। जो लगभग मानवी जीवन के सभी अंगों को प्रभावित कर रहा है। जहां तक देवनागरी लिपि का संबंध है, आज संस्कृत, पालि, हिंदी, मराठी, कोंकणी, सिंधी, कश्मीरी, नेपाली, गढ़वाली, बोडो, मगही, भोजपुरी, मैथिली, संथाली जैसी भाषाएं भी देवनागरी में लिखी जा रही हैं। इसके अलावा गुजराती, पंजाबी, विष्णुपुरिया, मणिपुरी, उर्दू भाषा की अभिव्यक्ति भी देवनागरी लिपि में हो रही है। इन सभी देशी भाषाओं और कई विदेशी भाषाओं को आधुनिकता से जोड़ कर विश्व के कोने-कोने तक फैलाने का श्रेय देवनागरी लिपि को ही जाएगा।

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8/8



# जागतिक बदलांचे भौगोलिक घटक व समस्या

प्रा. शौकत फकीर





# जागतिक बदलांचे भौगोलिक घटक व समस्या

**प्रा. शौकत फकीर**

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चिन्मय प्रकाशन, औरंगाबाद

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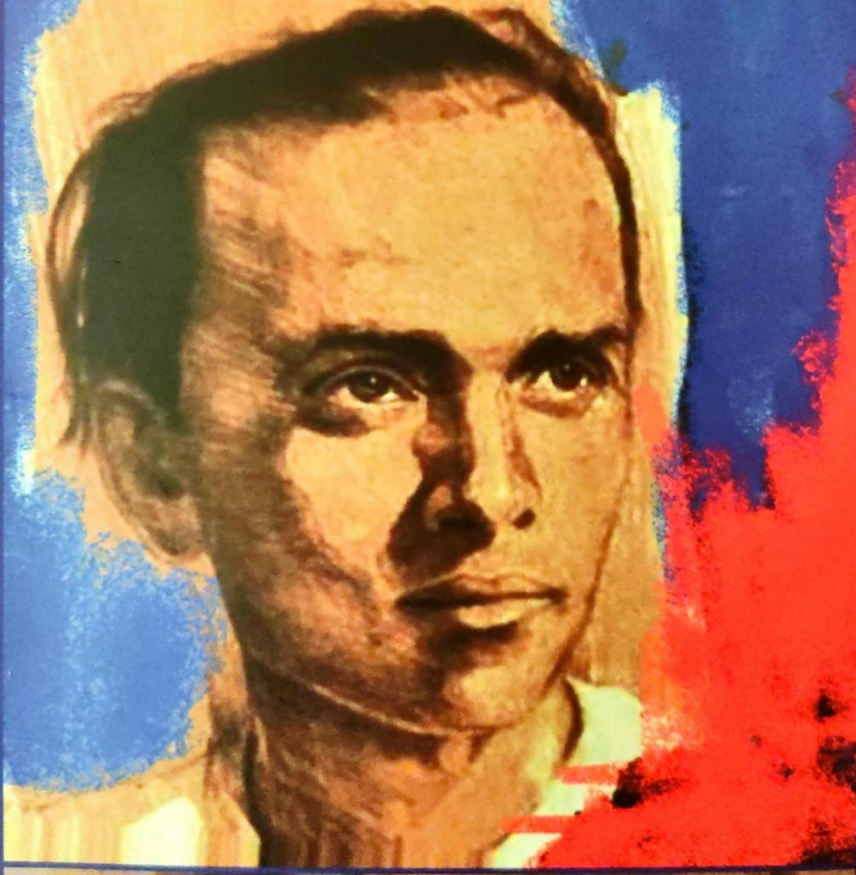
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साहित्यसम्राट अण्णा भाऊ / १२

## अण्णा भाऊ साठे यांचे ऐतिहासिक पोवाडे

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एखाद्या ऐतिहासिक घटनेचे वीरसंपुर्ण वर्णन म्हणजे पोवाडा हे अतिशयोक्तीपूर्ण व धार्मिक प्रभावाने युक्त असले तरी त्या काळातील घटनेचे, व्यक्तिस्वभावाचे, रूढी परंपरांचे शस्त्रास्त्रांचे प्रतिबिंब उमटलेले असते. म्हणूनच माणसाच्या शौर्याचा गौरव करण्यासाठी अण्णा भाऊ साठे यांनी पंधरा पोवाडे लिहिल्याची नोंद अभ्यासकांनी केली आहे. त्यापैकी नऊ पोवाडे उपलब्ध आहेत. त्यातील काही निवड पोवाड्यांचा मागोवा या शोध निबंधाच्या माध्यमातून घेणार आहे. तो खालील प्रमाणे.

लोककलावंत अण्णा भाऊ साठे

अण्णा भाऊ साठे यांचा जन्म १ ऑगस्ट १९२० रोजी सांगली जिल्ह्यातील वाळवा तालुक्यातील वाटेगांव येथे. शालेय शिक्षण झालेले नव्हते. तथापी त्यांनी प्रयत्नपूर्वक अक्षरज्ञान मिळवले. १९३२ साली चरीतार्थीसाठी आई वडिलांबरोबर मुंबईला आले. मिळेल ते काम त्यांनी केले. मुंबईत कामगारांचे कष्टमय, दुःखाचे

साहित्यसम्राट अण्णा भाऊ / १५२



जीवन त्यांनी पाहिले त्यांचे संप मोर्चे पाहून त्यांचा लढाऊपणाही त्यांनी अनुभवला. १९३६ मध्ये भारतीय कम्युनिस्ट पक्षाचे नेते. काँ. श्रीपाद अमृत डांगे यांच्या प्रभावाखाली आल्यावर ते कम्युनिस्ट पक्षाचे कार्यकर्ते झाले. मुंबईत अण्णा भाऊचा कामगार चळवळीशी संबंध येऊ लागला यामुळेच अण्णा भाऊ साठे शाहिरी कवितेकडे वळाले व कामगार वर्गाला संघटित करून त्यांच्यामध्ये स्वाभिमान निर्माण करण्यासाठी अण्णा भाऊंनी लेखणी हातात घेतली. याच कामगार चळवळीमध्ये शाहीर अमर शेख आणि शाहिर गव्हाणकर हे समविचारी कलावंत मित्र भेटले पूढे १९३६ पासून अण्णा भाऊचा चळवळीशी जवळून संबंध होता.

पुढे या चळवळीत त्यांना समविचारी कलावंत मित्र भेटले. त्यांनी लालबावटा कलापथक स्थापन केले. पुढे अण्णाभाऊ व त्यांच्या सहकाऱ्यांनी समाज प्रबोधनाचा व समाज परिवर्तनाचा उदात्त हेतू समोर ठेऊन कलापथक, लावणी आणि पोवाडे निर्माण केली. त्यांची पोवाडे खालील प्रमाणे आहेत.

#### अण्णा भाऊंचे पोवाडे

अण्णा भाऊ साठे यांनी पंधरा पोवाडे लिहिल्याची नोंद अभ्यासकांनी केली आहे. त्यापैकी नऊ पोवाडे उपलब्ध आहेत. १९४२ मध्ये नानकिंग नगरापूढे हा पोवाडा अण्णा भाऊंनी लिहिला. तो उपलब्ध नसल्याचे अभ्यासकांचे मत आहे.

नानकिंग नगरापुढे (१९४२), स्टालिनग्राडचा पोवाडा (१९४२), बर्लिनचा पोवाडा (१९४६), बंगालची हाक (१९४४), पंजाब दिल्लीचा दंगा (१९४७), तेलंगणाचा संग्राम (१९४७), महाराष्ट्राची परंपरा (१९४७), अंमळनेरचे अमर हूतात्मे (१९४७), मुंबईचा कामगार (१९४९), काळया बाजाराचा पोवाडा इ. ऐतिहासिक पोवाडे अण्णा भाऊंचे प्रसिध्द आहेत. यातील अनेक पोवाडयातून वर्गवादी आणि विद्रोही जाणवा व्यक्त झाल्या आहेत.

#### स्टालिनग्राडचा पोवाडा

हा पोवाडा अण्णा भाऊ साठे यांनी १९४२ मध्ये लिहिला. या एका पोवाडयाने अण्णा भाऊ लोकप्रिय बनले. साम्यवादी लेखक, कवी म्हणून ते प्रसिध्द झाले. दुसऱ्या महायुध्दात रशिया आणि नाझी सैन्य यांच्यात लढाई झाली. हिटलरच्या नाझी सैन्याच्या विरोधात स्टालिनग्राड कसे लढले आणि त्यांना विजय कसा प्राप्त झाला याचे अत्यंत चित्रमय वर्णन म्हणजे हा पोवाडा



होय. हे अण्णा भाऊ सांगतात शेवटी डावपेच आखत नाझी सैन्याने रशियावर आक्रमण केले त्यामुळे नाझी आणि लाल सैन्यामध्ये मोठे युध्द झाले या युध्दाचे वर्णन करतांना अण्णा भाऊ पोवाडयांच्या काव्यरूपाने लिहितात.

“रशियाचा प्राण स्तालिन। बोले गर्जून।

हात त्याचे दोन। वीरोशिलोव तिमोरोका उठले।

लाल फौजेला हुकूम सुटले जाणू सागरी तूफान उठले। जीजीजी....

देशासाठी रशियन सैन्य कसे लढले याचे प्रत्ययकारी चित्रण या पोवाडयात आले आहे. रशियन सैन्याचा रशियन माणसाचा स्वाभिमान कसा जागृत आहे या पोवाडयातून लक्षात येते देशाबद्दल असलेल्या स्वाभिमानामुळेच हा रशियन माणूस संघर्षासाठी तयार झाला. अन्याय अत्याचाराचा प्रतिकार करतो, विद्रोह पुकारतो यात रशियन स्त्रीसुध्दा पाठीमागे नाही. लढाऊ रशियन स्त्रीने वर्णन अण्णा भाऊ साठे यांनी अत्यंत ओजस्वी भाषेत केले ते लिहितात.

दाणदाण झाली शत्रूची फार।

वाहू लागली रक्ताची धार।

जगी शुर स्त्रिया फार झाल्या।

कितिक होतील। कितिक असतील।

परि बिनजोड रूसी ललना।

उचलूनी कठिण बंदुकीला।

गोळी पूढे मान

करी अबला। लावून शस्त्रे कमरेला।

निघाली समराला।

नाझी चिरण्याला।

चमकली ललना लोकयुध्दात।

घेउनि तिव्र शस्त्र हातात।

लाल रशियाच्या लाल राज्यात। जीजीजी.....

रशियन स्त्रीचा तिच्या संघर्षाचा आणि साहसाचा अण्णा भाऊंनी केलेला गौरव अत्यंत सार्थ आहे. देशाच्या अस्मितेसाठी रक्षणासाठी संघर्ष करणाऱ्या या रणरागिणी विद्रोहाचा अंगार आहे. जगात कोणत्याही माणसावर होणारा अन्याय अण्णा भाऊ साठे यांना मान्य नाही या मुळेच त्यांनी रशियन सैन्याचा गौरव केला आहे.



## मुंबईच्या गिरणी कामगारांचा पोवाडा

अण्णा भाऊ साठे यांनी स्वतः कामगार म्हणून अनेक अनुभव घेतले. कामगारांचे जगणे हा त्यांच्या जीवन मरणाचा प्रश्न आहे. मुंबईतील कामगारांचे लढे त्यांनी स्वतः अनुभवले आहेत. अशाच कामगारांच्या एका लढ्याचे चित्रण प्रस्तुत पोवाडयात आले आहे.

बेबंद पिळणूक ती गेली कळसाला।

चौदा चौदा तास दिवसाला।

राबत होता मजूर गिरणीला।

आटवीत होता रक्ताला।

सुर्याचे तोंडही दिसत नव्हते त्याला।

नव्हता मुळी न्याय कायदा त्याच्या बाजूला।

मग रजा, भत्ता, बोनस यावा कोठला। जीजीजी....

या अन्यायाच्या विरोधात कामगारांनी संप केला. मुंबईतल्या चौऱ्याऐशी गिरण्या बंद पाडल्या. सरकारने गिरणी कामगारावर गोळीबार केला. त्यात अनेक कामगार मारले गेले. यामुळे कामगारांच्या लढ्याला युद्धाचे स्वरूप आले. मार्क्सवादी नेते या चळवळीत सहभागी झाले. यामुळे भांडवलदार वर्ग अडचणीत आला. हे सांगताना अण्णा भाऊ साठे म्हणतात.

डांगे, मिरजकर आणि ब्रॅडले। नेते लाभले हिंमतवाले।

उठविला ज्यांनी सारा कामगार। वर्णयुद्धाचा करूनी निर्धार।

भांडवलदारी केला बेजार। जीजीजी...

मुळातच मार्क्सवादी म्हणजे विद्रोहाचा अंगार हा अंगार अण्णा भाऊ साठेच्या पोवाडयातून पदोपदी व्यक्त होतो. कामगार म्हणजे अण्णा भाऊंच्या बंडाची मशाल वाटतो. या जगाचा पोशिंदा असणारा कामगार अण्णा भाऊंच्या अस्मितेचा आणि स्वाभिमानाचा विरुध्द आहे. कामगारांना लढण्याचे बळ देतांना त्यांचा गौरव करताना ते म्हणतात.

बा कामगार तुजठायी अपार शक्ती।

ही नांदे मुंबई तव तळ हातावरती।

ते हात पोलादी सर्व सुखे निर्मिती।

परि तूला जगण्याची भ्रांती।

बेकारी येत तुजवरती।



म्हणे अण्णा साठे शाहिर/उठूनी सत्वर।

उज्वल राख आपुली कीती।

कामगारांमध्ये जग बदलण्याची ताकद आहे. त्यांच्या मेहनतीवरच हे जग उभे आहे. अशा कामगाराला जगायचे असेल तर लढलेच पाहिजे. जगाचे रूप बदलण्याचा कामगारांमध्ये स्वतःचे जीवन बदलण्याची क्षमता यावी असा विद्रोही आशावाद या पोवाडयातून अण्णांनी व्यक्त केला आहे.

**महाराष्ट्रांच्या परंपरेचा पोवाडा**

हा पोवाडा म्हणजे अण्णा भाऊंच्या प्रतिभेचा सुंदर असा अविष्कार आहे. महाराष्ट्राच्या हृदयातले प्रेम आणि मस्तकातला शुरपणा घेऊन येणारा हा पोवाडा आहे. संत ज्ञानेश्वरांपासून ते संयुक्त महाराष्ट्राच्या चळवळी पर्यंतचा संघर्षमय इतिहास या पोवाडयात आला आहे. सुरवातीला महाराष्ट्रातील निसर्गाच्या व सौंदर्याचा गौरव करून अण्णा भाऊ महाराष्ट्राचा इतिहास मांडतात. या विद्रोहातून नवा महाराष्ट्र निर्माण झाला आहे. असे अण्णा भाऊ साठे यांना वाटते. बहुजन समाज अज्ञान व दारिद्र्यात खितपत पडल्यामुळे अशा शोषित समाजाला १३ व्या शतकात ज्ञानेश्वरांनी ज्ञानाचा मार्ग दाखवला व पुरोहितांनी वैदिक ज्ञान संस्कृत भाषेत दडवून ठेवल्यामुळे हे ज्ञान संत ज्ञानेश्वरांनी मराठीत आणून ज्ञानाचे दरवाजे खुले केले आणि क्रांती झाली म्हणून अण्णा भाऊ आपल्या पोवाडयातून काव्यरूपाने विचार मांडतात

“आम्हाला चिड दास्याची। जुलमी सत्तेची। परक्रांतीची।

इतिहास साक्ष देत आला। करूनी आम्हाला जबरदस्त हल्ला।

अन्यायाचा कडेलोट केला। जीजीजी....

संस्कृत भारुचे मानी। विद्येचे धनी। एकदा त्यांनी।

एक अन्यय केला अति घोर। मराठी असुनी आमची थोर।

दडपुनी केले तिला कमजोर। जीजीजी....

कोणत्याही प्रकारची गुलामी आम्हाला मान्य नाही. गुलामीची आम्हाला प्रचंड चीड आहे. या गुलामीच्या विरोधात महाराष्ट्राने अनेक वेळा लढा दिला आहे. इतिहास याला साक्षी आहे. प्रस्थापीत व्यवस्थेने मात्र भाषा हे साधन गुलामी लादण्याचे हत्यार म्हणून वापरले या प्रवृत्तीवर अण्णा भाऊ लिहितात ज्ञानाच्या मक्तेदारांनी कट पाहा केला। ती ठेकेदारी लगवून पुढे नेण्याला।

साहित्यसम्राट अण्णा भाऊ / १५६

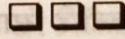


मानून हिन मराठीला। संस्कृतचा पगडा बसविला।  
प्रगतीचा मार्ग रोखिला। महाराष्ट्र दीन जाहला।  
अंतरला मायबोलीला। इतिहास पुराणे वेद दिसेना त्याला।

या जातीयवादी लोकांच्या विरोधाला सुरंग लावण्याचे काम भगवतगीता मराठी भाषेत आणून संत ज्ञानेश्वरांनी केले. असे अण्णा भाऊ म्हणतात. संत एकनाथ, जनाबाई, संत तुकारामाचा उल्लेखही अण्णा भाऊंनी या पोवाड्यात केला आहे. त्यांच्या मते महाराष्ट्रातील ज्ञानाची परंपरा या संतानी पुढे नेली. समतेचा पुरस्कार करणाऱ्या अण्णा भाऊंची ही भूमिका विसंगत वाटत असली तरी मराठी माणसाबद्दल त्यांना मनात खुप प्रेम व जिव्हाळा आहे. हे अशा भावनेतून व्यक्त झाले आहे. अशा रितीने अण्णा भाऊ साठे यांनी वेगवेगळ्या प्रकारची ऐतिहासिक पोवाडे रचून अनेक घटनेचे व व्यक्तिस्वभावाचे, रूढी परंपरांचे प्रतिबिंब उमटवले आहे.

### संदर्भ

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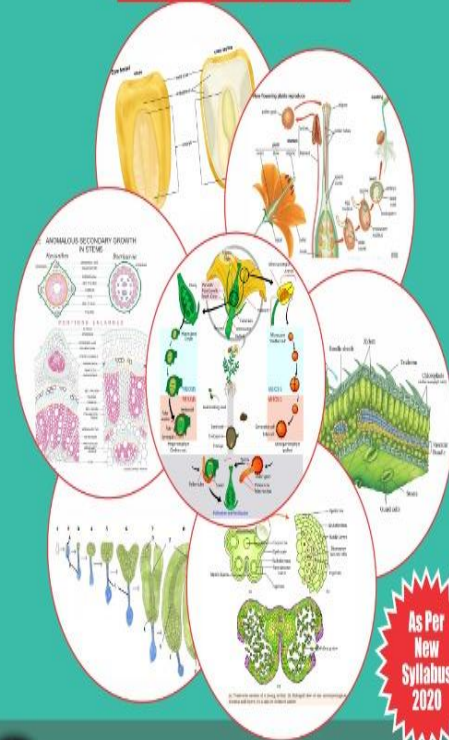
# Botany (Paper - I)

## Plant Anatomy and Embryology

### S. Y. B. Sc. (Sem. - IV) (BO - 241)

♦ Dr. Ashok R. Tuwar ♦ Dr. Janardhan N. Nehul ♦ Dr. Vinayak Lokhande  
♦ Dr. D. K. Aher ♦ Dr. Dilip U. Ahire

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S. Y. B. Sc. (Sem. - IV) (BO - 241)

Botany (Plant Anatomy and Embryology) (Paper-I)



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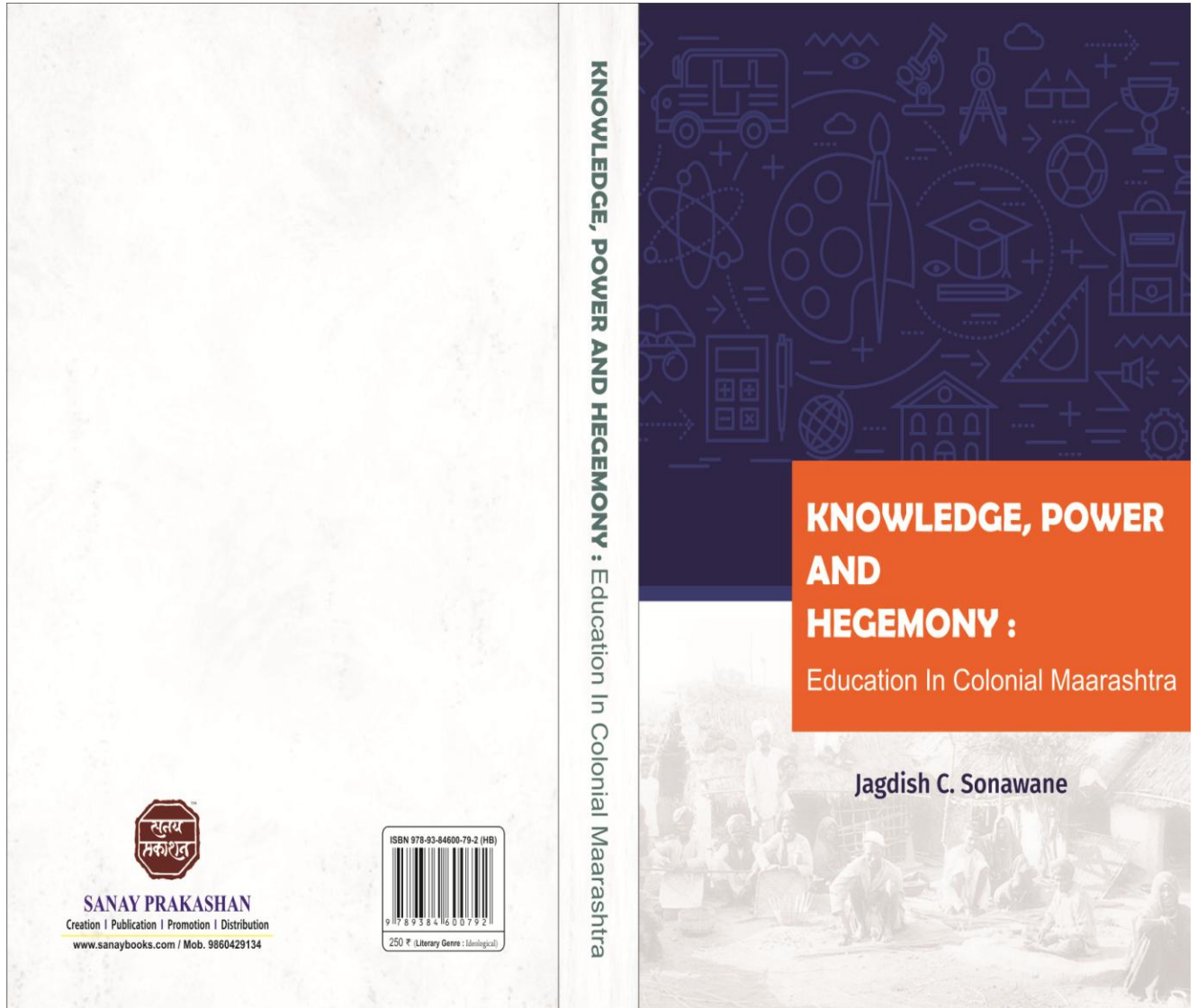
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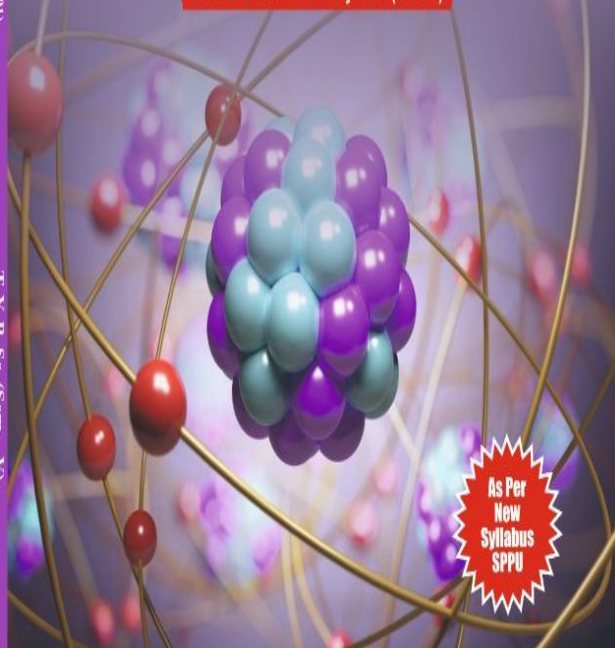
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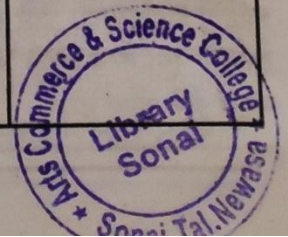
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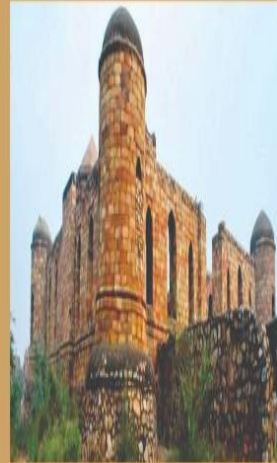
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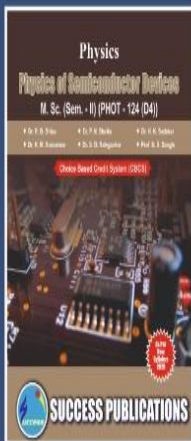
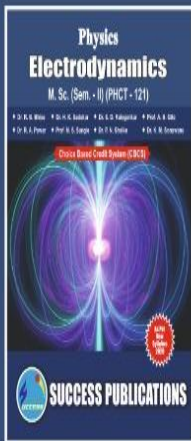
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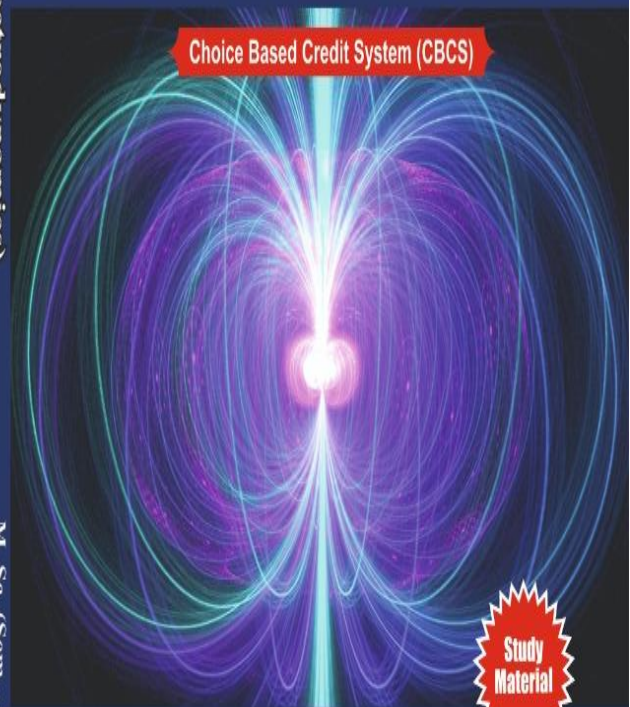


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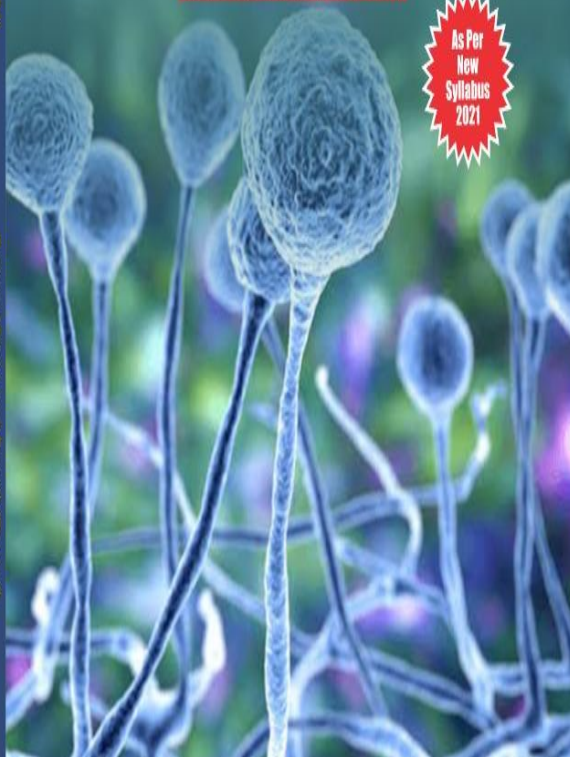
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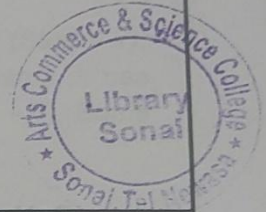
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T. Y. B. Sc. (Sem. - V) (BO - 353)

Botany (Spermatophyta and Paleobotany) (Paper-II)

## Botany (Paper - III)

# Spermatophyta and Paleobotany

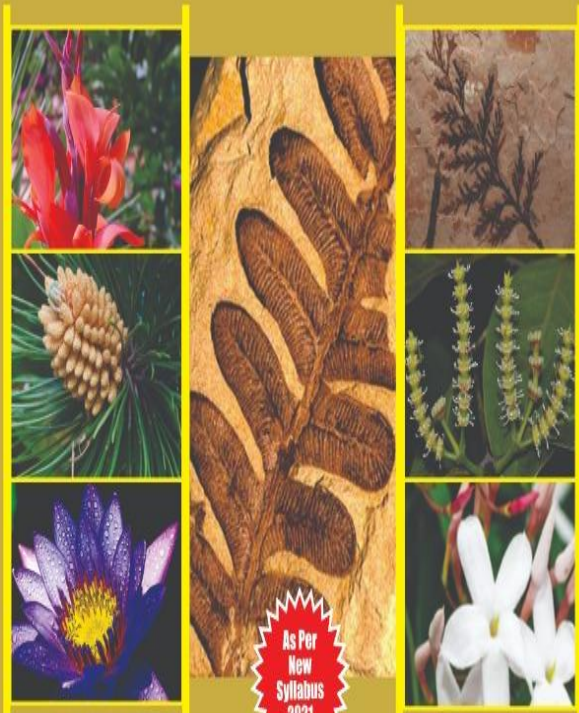
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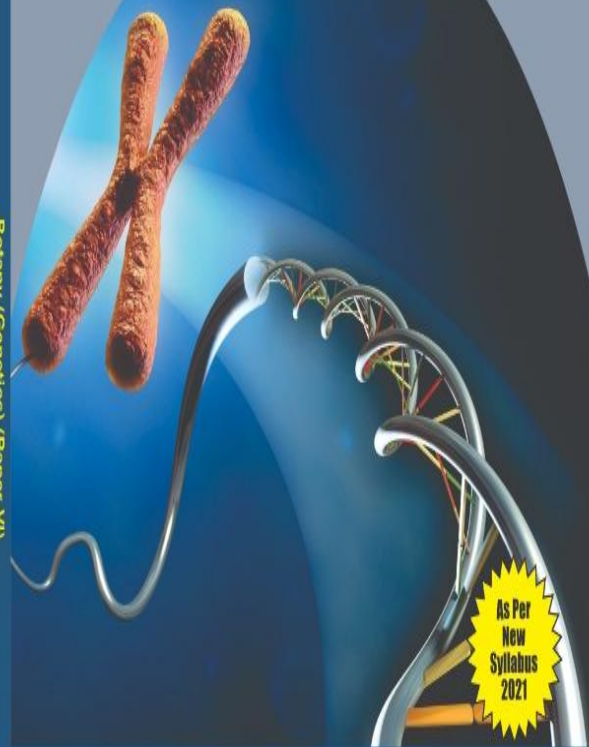
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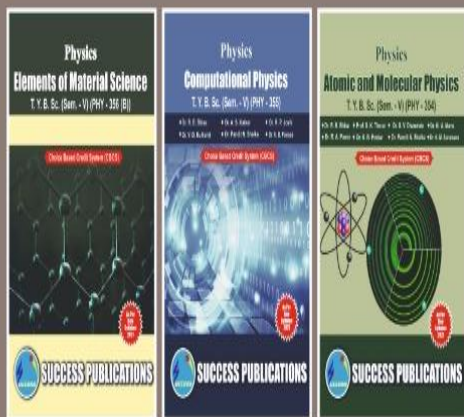
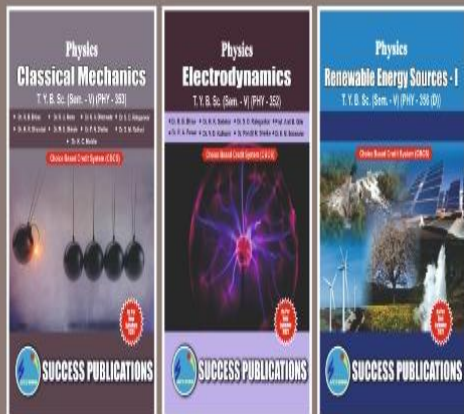
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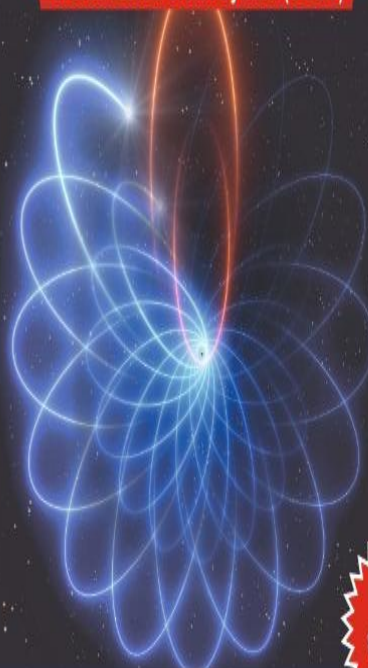
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FROM PROMISE TO PRACTICE:  
**RE-THINKING EQUALITY  
AND HUMAN RIGHTS**



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*Edited by:*

**Dr. R. Janatha Kumari, Dr M. R. Meera, Dr. T. Anitha**

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# VIOLATION OF HUMAN RIGHTS IN DAY-TODAY LIFE

■ Dr. Machhindra Govind Varpe\*

Value in general is a part of philosophy. Philosophy is one of the basic subjects which deals with the basic problems of mankind. In its discourse, it deals with issues such as existence, knowledge, values, reasons, mind, and language. These values such as dignity, liberty, equality justice, ethics, and morals et.al., have had their significant impact to shape the human relations in a society. These philosophical concepts have a profound impact on law. The main aim and function of Law in any society is to regulate the relations between men and to alleviate the intensity of conflicts to promote peace, security, good and orderly behaviour of mankind to establish a conflict free society.

Values are one of the basic aspects of human rights. The strict adherence of human rights restores not only to values, but also in turn able to achieve peace, security and harmonious living community without any kind of discrimination that exist between individuals and nation-states.

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Dignity is another value that regulates the behaviour of individuals. Dignity is a relative term with regulatory nature. It prescribes the norms and ethical standards needs to be followed and adopted. In the day to day inter-relationships, individuals are expected to behave with one another in a dignified and honest manner. This concept dictates that every one of us has to exercise due caution and care in our relations without undermining the capacities of other persons. Further, it teaches us not to create a situation wherein others are made to undergo either emotional, psychological, physical, tense situations, or to harm their personality.

Since dignity plays a vital role, in regulating the human relations and for the furtherance of human rights, (especially, the basic rights of liberty, equality, and freedom), the Universal Declaration of Human Rights (UDHR), in no uncertain terms declared that all individuals are equal in the eye of law. All are deserves to be treated with utmost respect without harming the dignity of others at all times. If people across the world follow the ethical norm of dignity without any deviance, the realisation of right would be easy. This fundamental norm applies to individuals and States to follow with strict adherence. In the modern context though a number of conventions, covenants, and declarations have been adopted in the international arena, to promote human rights on the concept of dignity.

Liberty is another concept which play a vital role in the promotion of human rights. Liberty is an ancient concept. This concept has its roots in the political philosophy. A number of philosophers like, Hobbes, Locke, Rousseau, and



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many more have articulated Liberty in different contexts. In simple terms, liberty means, human beings are free to regulate their relations, and are able to govern their relations, behave at their own will, and be responsible for their acts. The concept of liberty is centred around responsibility or duty. Basing on the acts performed by individuals, liberty can be enjoyed or achieved. If the acts are bad or performed with an intention to defray anybody or deprive them of their legal claims, they not only affect the rights of others, but also of their own in the long run. This in turn will have an effect on the realisation of their rights.

The concept of liberty is the basics for the development of a right. According to Hobbes, every individual is empowered to enjoy their freedoms freely without interference of any other person. In his social contract theory, he argued that the divine will of kings to regulate the relations and to restrict the freedoms of individuals is antithesis to liberty of individuals. The enlightenment of liberty by various political and legal philosophers, led to a number of political revolutions across the world. This in turn led to establish democratic societies on the basis of liberty of individuals to choose their leaders.

In the contemporary era, the excessive arguments for liberty, and its indiscriminate exercise without strict adherence to duty by individuals in their Equality is another important component of human rights. From ancient to modern times, people are fighting to achieve this in terms of its practical application to each situation. In general, equality proposes to bring all the people into one category, and apply the principles of law, and justice without any

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distinction, whatsoever it may be among the individuals. Equality is a relative concept which may be distinguished basing on a number of factors, and the enjoyment of rights on an equal footing.

The aim of the Universal Declaration of Human Rights and the Constitutions of the various countries including India are to treat all the people on an equal footing without any kind of discrimination. This may be referred to formal equality, wherein in the eyes of law all are equal. Although, all people are numerically considered as equal in the eyes of law, in providing the amenities or distribution of resources, all may not be considered or treated as equal in reality. This is because of the socio, economic, political and cultural conditions that prevail in each society. In order to uplift the people who are not equal on any ground specified above, they need to be given certain concessions and facilities to improve their status and to reach the equal status with that of others who are on a high pedestal. Justice in simple terms may be defined as righteousness, fair and to be treated on just and equitable grounds.

Justice is an important concept which has attracted a number of fields especially, law and philosophy. To achieve absolute justice, scholars have prescribed a number of factors. Basing on the various factors that are relevant to each society, and to fill the gap between unequals and equals, from ancient to modern times, a number of scholars have advocated various theories to achieve the concept of justice. In order to measure the concept of Justice, a number of tools are required. To achieve perfect justice, it lays its emphasis

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on concepts of equality, morality and ethics.

The aim of human rights is to provide such stable conditions to everyone by the states, which alone could help to achieve the rights in a justified manner. According to Plato, Justice being the highest value, and to attain it, an individual has to be provided with all the necessary conditions to realise the right, and to discharge his duties towards society. It again lay emphasis on the actors and the state as well to discharge every single obligation with devotion of duty and respect for other values.

Ethics and Morals are considered as equal concepts. However, there exists a subtle difference between these two. Morals deal with the personal character of an individual. On the other hand, Ethics lays its importance on a social system, which regulates the code of conduct of a group of individuals. In other words, the morals need to be applied in each society depending on the values that are acceptable by a society.

From the perspective of human rights, the concept of freedom and liberty being basic principles forms part of moral principles. The concept of Justice, Equality and the participation of individuals in the socio-cultural aspects of the community are ethical aspects. Accordingly, every human being in a society is responsible at all times to strive to achieve human rights as a moral or ethical subject of society. Value is the central issue of ethics. Ethics is a normative science of human conduct in society, which differentiates between right and wrong, good or bad, proper or improper. The standard, which makes one to differentiate good from bad or right



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from wrong, is a value. Ethics with reference to human rights presupposes freedom as a necessary pre-condition. A free man can take his decision of action and such a decision can be evaluated as good or bad, right or wrong, proper or improper. Goodness is the highest of value. Goodness is objective, universal and rational. Some basic values are: courage, tolerance, benevolence, kindness and friendship. Values are instrumental or absolute, intrinsic or extrinsic.

Values provide a standard to decide that an action is good. The basic issues of ethics/moral philosophy are: freedom, duty, rights, responsibility, happiness and goodness. Values are based on common or social consent. They are shared by all in the society. The above brief discussion of the various concepts, highlight the significance that human rights can never be achieved *in toto* until and unless, we the people of the United Nations (which includes the nation-states), discharge the responsibilities with utmost sincerity. This in turn enables us to achieve, universalization of human rights

without any kind of deviation to race, sex, language, religion, region, etc. This leads one to learn how to live in a diversified world, more particularly in the contemporary era of fourth phase of globalization, wherein the concept of unity in diversity assumes greater significance than in yester years.

Unity in diversity in general means, people of different backgrounds basing on their socio-economical, politico-cultural perspectives have to live like a single family. This means, the different faiths and characters that people possess have to live in a compatible manner under a single legal roof governed by a State. The same is applicable to people

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around the world, and the nation-states learn to live as one community. This being the main aim of international law to establish a one world concept, it had given birth to human rights. Its aim is to achieve, the aspirations of profoundly divided humanity by setting a common standard of norms for all people and all nations. To accomplish the one world concept, the mankind has a responsibility to learn to live harmoniously. Further, it will enable us to achieve the basic tenets of life, liberty, equality, dignity and freedom of thought and expression with due care and caution to promote the rights of all the people living in different political systems. This will in turn enable us to claim legitimately the protection extended by human rights. And, to justify the existence of man as a human kind living under different political regions. It will help further, to establish the fundamental goal of United Nations to resolve innumerable problems that are haunting us both nationally and internationally. Nearer home, the concept of '*vasudhaiva kutumbakam*', in the Indian context advocates the same ideology of living together of mankind with values and morals, which alone ultimately establish a conflict free society.

Education should encompass values such as peace, non-discrimination, equality, justice, non-violence, tolerance, to live in peace and security and respect for human dignity. These objectives can be achieved only through imparting human rights education, which is an integral part of right to education. Human Rights and Duties Education helps in achieving a comprehensive growth of every society. According to the UN decade document for human rights

---

education (1995-2004), human rights education means, **“a lifelong process by which people at all levels of development and in all strata of society learn respect for the dignity of others and the means and methods of ensuring that respect in all societies.”**

From the above definition, it is clear that people living in any society have to discharge their duties with utmost sincerity at all times without any deviation. Such practices will promote the freedoms of all and could transform a society to achieve its objectives.

Human Rights Education promotes respect for human rights of all individuals. It develops the knowledge, skills, and values of human rights. It develops the socio-psychological, human personality.

It helps people and policy makers to evolve the ways and means to overcome the problems of each nation and that of the International Community.

It helps to foster understanding, tolerance, gender equality and develops friendship among all nations and eliminates racial, ethnic, religious, and linguistic differences. Value being an important aspect of life, it forms part of Law and Society. Value being a central point regulates the relations between individuals; scholars have identified number of points. By adhering to these points, an individual can achieve the goals in life. Dignity being another aspect of value regulates the behaviour of individuals. The human relations and the exercise of human rights depend on the dignity, is the most important aspect in the basic rights of liberty, equality and freedom.



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The entire human rights law has been developed basing on these aspects. Liberty is another important concept. According to various scholars, duty alone protects the concept of liberty. It is this concept that has given a basis for right. If liberty is not exercised properly, it will result in upsetting the applecart of rights.

Equality is an important component of human rights. Equality proposes to bring in all people under one category. Any kind of inequalities are in existence, it is for the States to eliminate them through a legal mechanism. This will result into a classless society.

The aim of human rights is to do justice to every individual. In order to achieve perfect justice, all the qualities of human kind and the values need to be followed by every individual to achieve the realistic concept of justice.

Ethics deals with personal character of individuals. Morals lay emphasis on the social system. The strict adherence of ethical practices alone makes a society healthy which in turn could help the people to realise their human rights. There exist a number of differences between various individuals in a society. However, obedience to human rights will result in living together with unity in diversity among the individuals. The outcome of it will bridge the gap between nation-states and to establish the concept of one world.

Human Rights Education teaches us the practice of various values to be adhered. At the same time, the knowledge of it, transforms individuals accountable for their acts either at personal level or societal level. The knowledge of human rights would also lead us to establish an orderly, peaceful,

---

and friendly society both at the international and national spheres.

Duty is a value that dictates individuals to perform their moral and legal responsibilities at all times for the promotion of good to society and to individuals.

According to the UN Convention on torture and other inhuman criminal degrading treatment 1984, torture means, Torture is another important aspect in the violation of one's human rights. This may be inflicted in various ways and means. In this, the punishment is employed by various methods. The methods may be physical, psychological, mental, etc. They are employed either to get information from a person, or to harass a person as revenge by a powerful person against a weak person. At times, even for sadistic pleasure or for no reason also it is employed. Many a times this is employed by Law enforcing agencies against the criminals or an accused to get information in the investigation of a crime.

Many a times men employ torture against women. Torture is prohibited by international law of human rights. The United Nations on December 10, 1984, adopted a Convention against Torture and other Cruel, Inhuman or Degrading Treatment or Punishment banning its practice in any form.

The Vienna Declaration and Programme of Action 1993, otherwise referred to as the World Congress of Human Rights condemned torture in unequivocal terms. Cruel, inhuman or degrading treatment constitutes as a form of torture. This includes to cover a particular situation depending on the

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type of punishment that is inflicted. For example : Corporal punishment, interment in dark cells, restraining the movement of a person by keeping him in chains, employing any method to create fear in the person within visible form of methods, use of drugs on prisoners, castration or practices, genital mutilation, depriving the basic necessities, especially depriving food and water, solitary confinement, or any other form of methods that are employed against a individual or group of persons, constitutes as torture.

To prevent torture, cruel, inhuman, or degrading treatment, the UN constituted a committee of ten experts elected by the member states. The committee monitors the implementation of the Convention and makes recommendations to be followed by the states. Statelessness means a person not having any legal bond or protection of a state. Such people are exposed to a number of difficulties including the denial of basic human rights of life, liberty, and equality. Many a times they are subject to target of various crimes by the state agencies, wherein they live as refugees. They may not get even basic necessary services like social security, education, health care etc. It is difficult to imagine such a kind of life.

To sum up, human rights means to treat all as equal. While concluding this , I remember A.G.Gardiner's 'On the Rule of the Road': "Liberty is not a personal affair only, but a social contract. It is an accommodation of interests.In matters which do not touch anybody else's liberty". To keep others interests intact, we have to sacrifice ours interests and curtail our likings and disliking.



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2. Magdalena Sepulveda and others: Human Rights : Reference Hand Book, 2004 University for Peace of the United Nations

## APPLIED ZOOLOGY



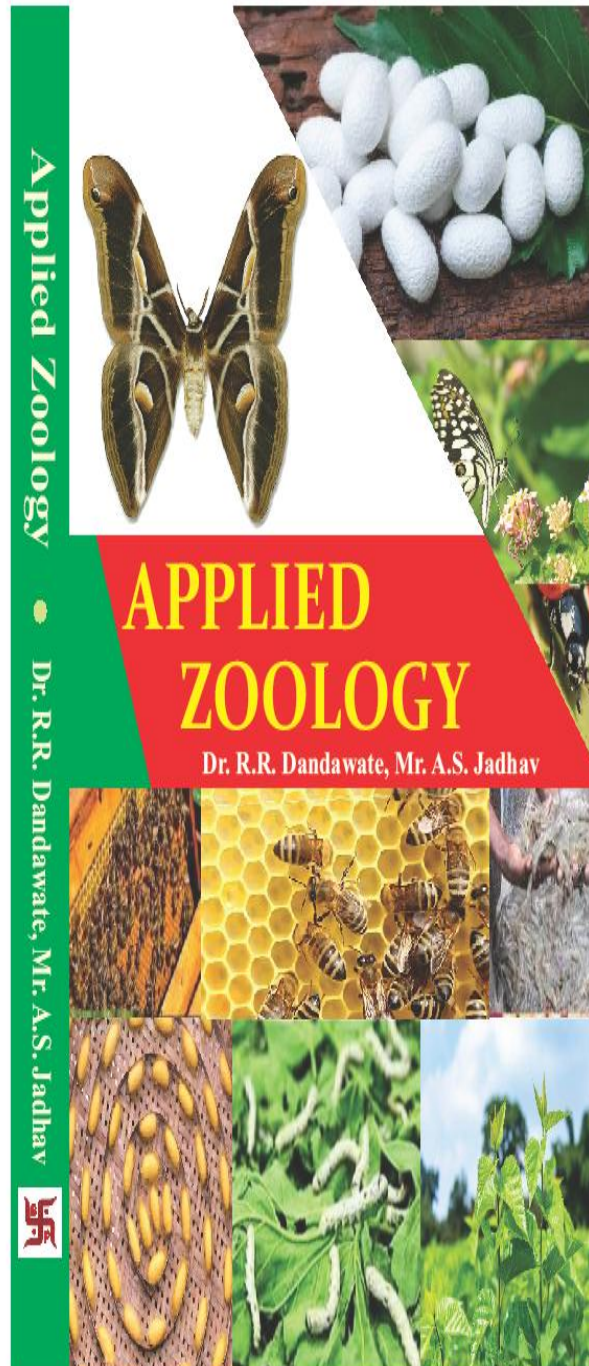
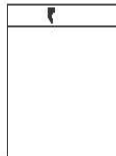
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# Physics

## Quantum Mechanics

T. Y. B. Sc. (Sem. - VI) (PHY - 362)

◆ Dr. Ramesh. B. Bhise   ◆ Dr. Sukdeo L. Kadam  
◆ Dr. Kishor M. Sonawane   ◆ Dr. Harish R. Kulkarni   ◆ Dr. Naseem Deshpande

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# Quantum Mechanics

**(PHY-362)**

**T.Y. B. Sc. (Sem. - VI) (Paper - II)**

**(According to New Syllabus of Savitribai Phule Pune University  
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# Thin Film Technology and it's Novelties in Material Science

Editors

Dr. Ramesh Baburao Bhise

Dr. Mahendra Shantaram Shinde

Dr. Vishal Hareshgiri Goswami

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**GROWTH AND CHARACTERIZATIONS OF ZINC  
SULPHIDE (ZnS) THIN FILM BY CBD TECHNIQUE**

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**Abstract:**

Thin films of ZnS have been successfully deposited by chemical bath deposition (CBD) technique on glass substrates. SEM and AFM study shows uniform deposition of thin film. XRD study shows polycrystalline cubic structure of ZnS thin film. Optical study reveals the direct band gap 3.72 eV. Resistivity study shows semiconducting nature with high resistivity.

**1. Introduction**

Zinc sulphide (ZnS) is II-VI semiconductor having a high direct band gap (3.7 eV), high refractive index (2.35), and higher dielectric constant [1]. These properties of ZnS thin films are important for optoelectronic device applications, such as photovoltaic cells [2], semiconductor lasers [3, 4]. The nanostructures made up of ZnS materials have attractive applications in optoelectronic and electronic devices [4]. It has also gained importance as window layer for Cu (In, Ga)Se<sub>2</sub> based [5] solar cells.

There are several techniques to deposit ZnS thin films, such as spray pyrolysis [6, 7], Pulse plating technique [8], *r. f.* sputtering [9, 10], electrochemical [11], and chemical bath deposition technique [12-24]. Among them chemical bath deposition (CBD) is the economic, low temperature and no special instrumentation is required. In CBD, controlled chemical reaction is important for the deposition of the thin films. The deposition rate is controlled by optimizing the bath parameters like bath temperature, pH of precursor solution, stirring rate and the relative concentration of precursor solutions in the bath [25]. In this technique substrates are immersed in an alkaline solution containing the chalcogenide source, the metal ion, added base and complexing agent [26]. In the present investigation I reported, deposition and characterization of ZnS thin film by ammonia free CBD technique on glass substrate. In this technique we avoided use of ammonia, which is highly toxic, volatile and harmful to the environment. ZnS thin films are deposited by using aqueous solutions of zinc sulphate, thiourea, and triethanolamine.

**2. Chemical Bath Deposition Technique (CBD)**

**2.1 Experimental Setup**

Fig. 1 shows, the schematic diagram of experimental set-up for the deposition of thin films by chemical bath deposition. It shows of water bath, chemical reaction bath, and constant speed motor cum regulator, substrate and substrate holder.

Water bath consists of thermally insulating walls with temperature controlled system is provided. During deposition, temperature of water bath is kept constant. By using water, up to 100°C temperatures can be varied. If large temperature is required, oil is used, called oil bath. Our working temperature is maximum 80°C, so we used water bath.

Chemical bath is made up of, 250 ml glass beaker (Borosil make) containing the mixture of chemical reactants. It is kept in the constant temperature water bath as shown in Fig. 1. The chemical reactants containing solution is stirred by magnetic stirrer. A pH meter probes and thermometer are inserted in reaction bath to measure pH and temperature of reaction bath.

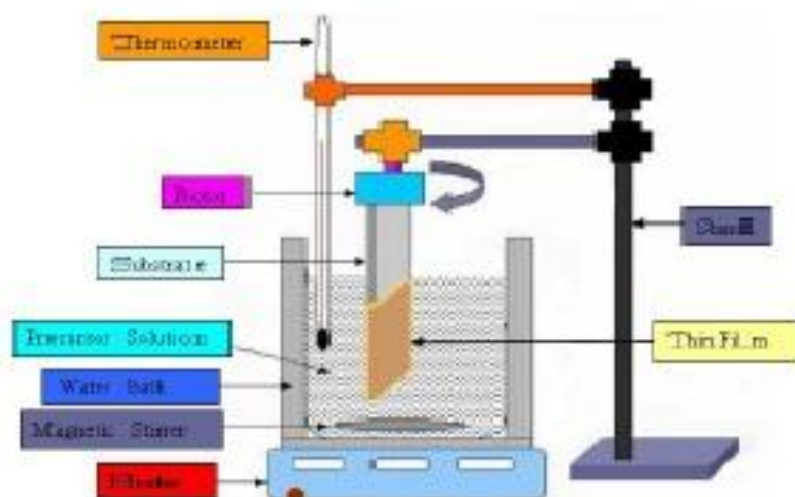


Fig. 1: Schematic diagram of solution growth technique (SGT)

Magnetic Stirrer with Heater consist of single-phase a. c. motor of 1 $\mu$  12 H. P. (0.16 A), with dimmer-stat cum regulator to provide proper speed of magnetic stirrer, there is an electric heater plate with thermostat to maintain constant temperature of water bath and hence the chemical reaction bath. By varying the heater current the temperature can be changed and kept constant at particular value.

**Substrate Holder** - A glass slides of special glass (blue star make) of dimensions 75 x 25 x 1.35 mm<sup>3</sup> were used as substrates to deposit thin films. The mounting of these substrates inside the chemical bath is important. The substrates are fixed in sample holder with tighten screws and the sample holder placed over the chemical bath so that glass slides remain vertically and stationary. The position of substrate holder was lower down in such way that 2/3 portion of the glass substrate will be inside the solution in chemical bath.

### 3. Steps of Deposition of Thin Films

#### 3.1 Substrate Cleaning

In chemical bath deposition technique, cleaning of the substrate is key part, since the contaminated surface gives non-uniform, porous and non-adherent film. The commercial microscope glass slides of the dimension 75 x 25 x 1.35 mm<sup>3</sup> are used as the substrates. The following procedure is used for cleaning of the substrates.

- a) The slides were washed with water.
- b) Then boiled in concentrated chromic acid (0.15M) for 1 hours, cleaned by deionized water and then kept in HNO<sub>3</sub> solution for 2-4 hours.



- c) The substrates then washed with distilled (double) water and
- d) Finally, the substrates were dried in hot air and kept in dust free airtight container.

### 3.2 Preparation of solutions

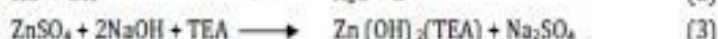
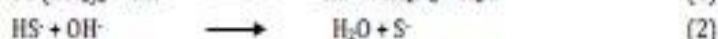
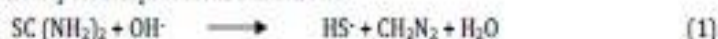
A. R. grade chemicals are used for growth of ZnS thin films. Following chemicals were used,

- a) Zinc Sulphate [ZnSO<sub>4</sub>] (Loba chem.)
- b) Thiourea [NH<sub>2</sub>-CS-NH<sub>2</sub>] (Loba chem.)
- c) Triethanolamine [C<sub>6</sub>H<sub>15</sub>NO<sub>3</sub>] (Loba chem.)
- d) Sodium Hydroxide [NaOH] (Loba chem.)
- e) Hydrazine hydrate 80%
- f) Trisodium Citrate

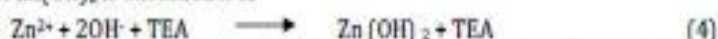
The ZnSO<sub>4</sub> and NH<sub>2</sub>-CS-NH<sub>2</sub> were used as source materials for Zn<sup>2+</sup> and S<sup>2-</sup> ions, respectively. Solution of ZnSO<sub>4</sub> and NH<sub>2</sub>-CS-NH<sub>2</sub> were prepared separately of concentration 0.125 M and NaOH, trisodium citrate concentration of 4 M, 0.12 M respectively using distilled (double) water as a solvent.

### 3.3 Deposition of ZnS Thin Films

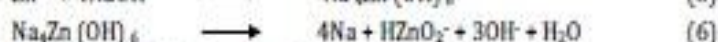
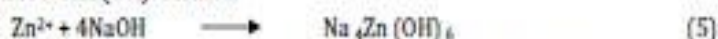
10 ml prepared ZnSO<sub>4</sub> solution was taken in a 50 ml glass beaker. Under continuous stirring hydrazine hydrate, TEA, and then NaOH solution were added slowly. Due to formation of a Zn(OH)<sub>2</sub> suspension, initially solution was milky and turbid. Addition of more NaOH solution led to the dissolution of turbidity the solution becomes clear and transparent. 10 ml prepared thiourea solution and 5ml trisodium citrate were added slowly by constant stirring. The pH value of final mixture was about 13. Then the solution was transferred to 25 ml glass beaker. Pre-cleaned glass substrates were inserted vertically by using substrate holder. This beaker is then kept in constant temperature water bath. The bath is kept for 1 hour at 80<sup>o</sup> C constant temperature. Chemical reactions are involved in the beaker during the deposition process are as follows.



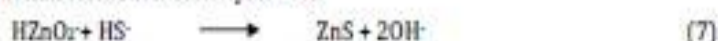
NaOH and TEA are added to the Zn<sup>2+</sup> salt solution, Zn(OH)<sub>2</sub> starts precipitating, when the solubility product (SP) of Zn(OH)<sub>2</sub> is exceeded i. e.



The Zn(OH)<sub>2</sub> precipitate dissolves in excess NaOH solution then complex Zinc sodium hydroxide Na<sub>4</sub>Zn(OH)<sub>6</sub> formed.



Finally, ZnS thin film formation Takes place via



After that substrate coated with ZnS was taken out, rinsed with distilled water, and dried in hot air. Film obtained was uniform, well adherent and bluish purple in color [24]. The thickness of the optimized thin films was ~270 nm. This thickness of film does not show any XRD peaks after characterization. Film thickness was increased by multiple depositions. In this experiment double deposition was taken to obtain film thickness ~ 470 nm which gave well defined peaks. Then SEM, AFM, XRD, EDS, optical, PI, and electrical measurement of as-deposited film were done.



#### 4. Characterization Techniques Used

The as-deposited films of ZnS were characterized for optical, structural, and electrical properties.

##### 4.1 Film Thickness Measurement

The film thickness measurement of ZnS material was done by weight difference method. Suppose that 'm' is a mass of the film deposited on the substrate which covers area 'A' cm<sup>2</sup>, the thickness 't' is measured by using known mass 'm' and density 'ρ' of the material, the thickness is calculated using the equation (8).

$$t = \left[ \frac{m}{A \rho} \right] \quad (8)$$

The mass 'm' of the film was measured by taking mass difference of mass of substrate after deposition and mass of substrate before deposition using a single pan sensitive electronic microbalance.

##### 4.2 Surface Morphology and Topography

###### 4.2.1 Scanning Electron Microscopy (SEM)

Surface morphology of ZnS and ZnS/Cu<sub>2</sub>S thin films was examined for both at lower and higher magnification powers with help of scanning electron microscope (Analysis station, JEOL, JSM-5600) Instrument. The films were first coated with gold-palladium (Au-Pd) layer of thickness 20 nm, using polaron sputter unit, E-5200 assembly before taking SEM for good ohmic contacts.

###### 4.2.2 Atomic Force Microscopy (AFM)

Surface topography of the deposited films was examined for both at lower and higher magnification powers with help of Nanoscope III a Veeco digital instruments.

##### 4.3 Structural and Compositional Morphology

###### 4.3.1 X-Ray Diffraction (XRD)

The X-ray diffraction technique (XRD) is used for structural investigation as well as for the calculation of inter planner distance (d) and lattice parameters.

The XRD study was done by using Bruker AXS D8 Advanced model, glancing incidence X-ray diffractometer (CuK<sub>α</sub> radiation; λ = 0.115405 nm, glancing angle α=0.15°). The X-ray diffractometer was operated at 20 keV, 100mA. The XRD patterns of ZnS thin films were recorded within the span of angle 2θ to 70°. Scherrer's formula was used for calculation of average crystallite size of the material.

###### 4.3.2 Energy Dispersive X-Ray Analysis (EDAX)

The elemental compositions zinc, sulphur, and Cu in ZnS and ZnS/Cu<sub>2</sub>S thin films and were investigated with the help of energy depressive X-ray analysis (EDAX) technique. An instrument (Analysis Station, JEOL, JSM-5600) was used for EDAX analysis.

##### 4.4 Optical Measurement

The change in percentage transmittance (T %) and absorbance, as a function of wavelength (λ), was recorded by using Shimadzu UV-3101PC spectrophotometer, by keeping glass substrate as reference. The scanning wavelength range is varied from 200 to 1100 nm. This data was further analyzed for the estimation of the band gap energy of ZnS.

#### 4.5 Electrical Measurement

##### 4.5.1 Electrical Resistivity

Two probe method was used to measure electrical resistivity of ZnS thin films. The temperature range was taken as 300 to 459 degree K which was measured by Cromel - Alumel thermocouple monitored by microvoltmeter. Generally, the solution grown ZnS thin films have high resistivity so four point probe method is not suitable for measurement of resistivity of these thin films. A precise digital power supply unit (Testronic-92C) was used as constant voltage source.

##### 4.5.2 I-V Characteristics

Current - voltage (I-V) characteristics of ZnS thin films was studied using lab equipment unit (model no. 2004).

#### 5. Results and Discussions

##### 5.1 Optimization of the Growth Parameters

In alkaline bath, growth parameters such as molar concentration of zinc and sulphide ions source solutions, deposition time, deposition temperature, volume of complexing agent (TEA) have been optimized one by one for maximum obtained thickness of ZnS thin films.

##### 5.1.1 Effect of Deposition Time

Fig. 4. 3 shows variation film thickness with deposition time for bath temperature 80°C, molar concentration of zinc and sulphide ion source solution is 0.125 M and pH is 13. It is seen from the graph that the film thickness increases linearly in the initial stage and becomes maximum and then decreases slight for increase in deposition time. Initially thickness increases and a stage is reached when ionic product is less than or equal to solubility product ( $I P / S P \leq 1$ ), the process stops. At that time maximum thickness is attained.

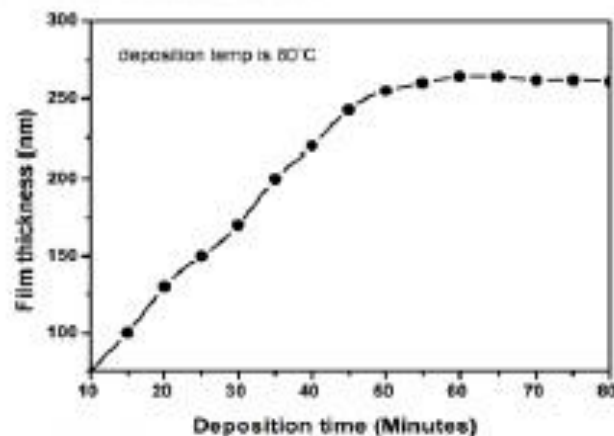


Fig. 2: Variation of ZnS film thickness with deposition time

Fig. 2 shows the variation of film thickness with deposition time. It is observed that the film deposition rate is higher in early stage and after that deposition rate decreases with increase in deposition time. At the deposition time of 1 hour the film attain terminal thickness (270 nm) and after that thickness remain almost constant. This is due the fact that, the ionic product becomes less than solubility product ( $I P / S P \leq 1$ ) and ultimately deposition rate becomes zero.



### 5.1.2 Optimization of Deposition Temperature

Fig. 3 shows variation of film thickness with temperature of chemical reaction bath. The deposition time is 1 hour and molar concentration of zinc and sulphide ion source solution is 0.125 M at pH =13.

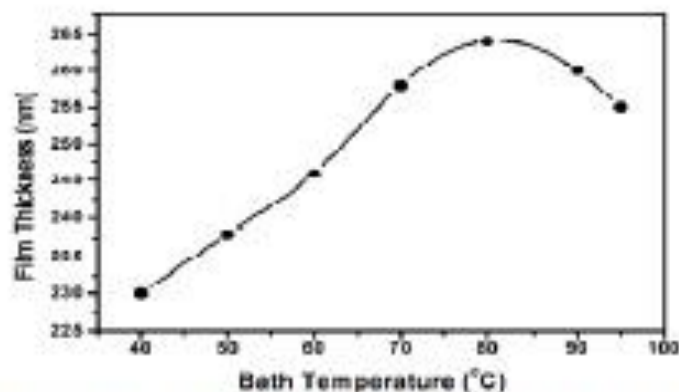


Fig. 3: Variation of ZnS film thickness with bath temperature

Fig. 4.3 shows the variation of ZnS film thickness with bath temperature. It was observed that the film deposition rate is higher in early stage and after that rate of deposition decreases with increase in bath temperature. It was observed that as the deposition temperature increases, the film thickness increases linearly. The maximum attainable thickness is 270 nm at 80°C temperature. Further increase in bath temperature, the thickness decreases because at higher temperatures the rate of nuclei formation from  $Zn^{2+}$  and  $S^{2-}$  ions increases and solution bath becomes deficient in  $Zn^{2+}$  and  $S^{2-}$  ions, resulting in lowering of thickness. Another reason is the solubility constants are temperature dependent [29] hence; film thickness decreases as increase in deposition temperature.

### 5.2 Surface Morphology and Topography

#### 5.2.1 Scanning Electron Microscopy (SEM)

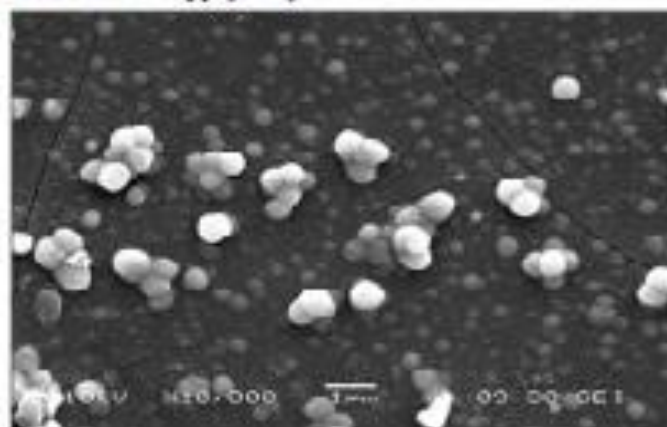


Fig. 4: SEM micrograph of as-deposited ZnS thin film on glass substrate



Fig. 4 Shows scanning electron microscopy micrograph (SEM) of as-deposited ZnS thin films. It was observed that the ZnS material cover the substrate well. The fine grains are well defined, spherical, with different sizes distributed over a smooth homogeneous background on glass substrates. From this image, it can be seen that the average grain size (grain size varies from few nm to 120 nm) of the thin film was estimated to be about  $120 \pm 20$  nm. Agglomerated grains are combined together by weak bonds and can be separated by mild treatment such as ultrasound [30].

### 5. 2. 2 Atomic Force Microscopy (AFM)

Surface topography is studied by Atomic force microscopy (AFM). Fig. 5 shows 3D AFM image of as-deposited ZnS thin film. Figure shows substrate is covered well with spherical and elliptical grains. Surface roughness of film was found to be 2.7 nm which was calculated by using software provided by AFM microscope. Surface roughness shows particles are spherical in nature.

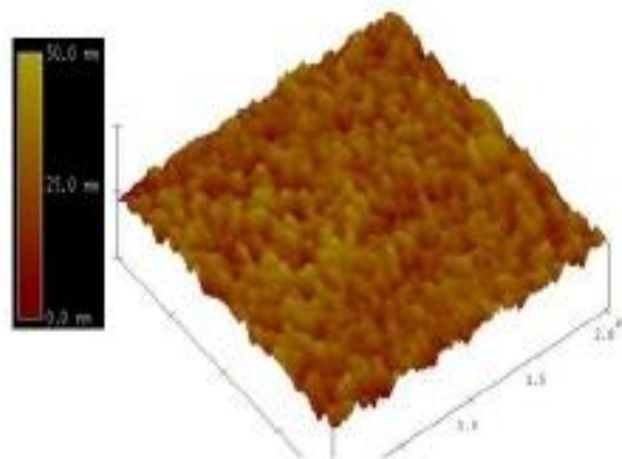


Fig. 5: 3D AFM image of as-deposited ZnS thin film

## 5. 3 Structural and Compositional Characterization

### 5. 3. 1 X-Ray Diffraction (XRD)

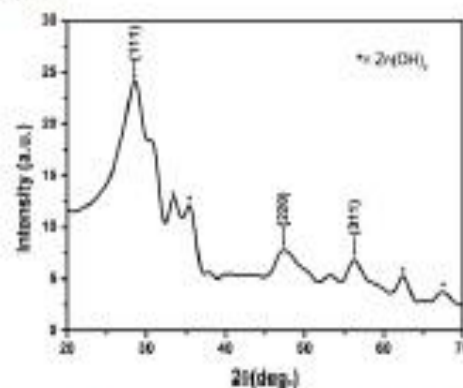


Fig. 6: XRD pattern of as-deposited ZnS thin film

Fig. 6 shows the XRD pattern of ZnS thin film obtained by scanning  $2\theta$  in the range  $20^\circ$  to  $70^\circ$ , with a glancing angle equal to  $0.5^\circ$ . The three broad peaks observed in the XRD pattern at

around 28.5°, 47.4° and 56.2° corresponding to planes (1 1 1), (2 2 0), and (3 1 1), respectively. This gives a cubic lattice structure of ZnS [32-34]. In addition, I observed the Zn(OH)<sub>2</sub> peaks in the XRD pattern [35]. These peaks may vanish after annealing in vacuum.

The various structural parameters for ZnS thin films deposited are calculated using standard formulae (9), (10), and the lattice constant (11) for cubic crystal [36],

$$2d \sin \theta = n\lambda \quad (9)$$

$$D = \frac{0.94\lambda}{\beta \cos \theta} \quad (10)$$

$$a = d\sqrt{h^2 + k^2 + l^2} \quad (11)$$

All these calculated parameters are listed below in table 1

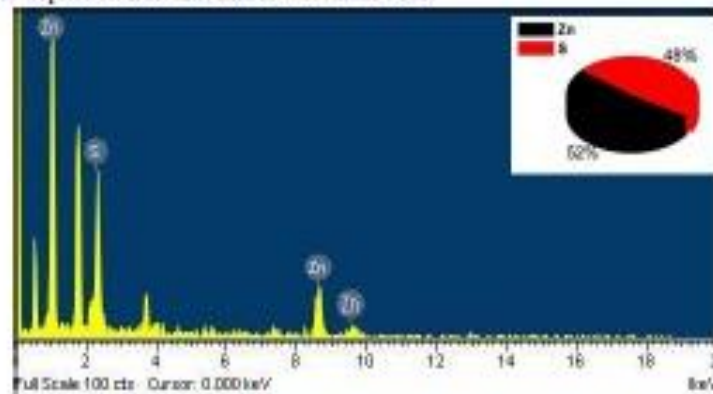
**Table 1: various structural parameters calculated for ZnS thin films**

Composition	2θ (deg.)	d(Å)	hkl	a(Å)	D(nm)	Avg. D (nm)
ZnS	28.49	3.08	111	5.33	8.9	9.6
	47.41	1.925	220	5.44	10.14	
	56.3	1.63	311	5.15	9.7	

SEM, AFM and XRD results reveals that the ZnS material formed in the film is nanocrystalline in nature.

### 5.3.2 Energy Dispersive X-Ray Analysis (EDAX)

Fig. 7 shows EDAX for ZnS thin films (as deposited) by CBD technique. The elemental analysis was carried out only for Zn and S. The average atomic percentage of Zn:S was 52.05:47.95 (inset). This shows that, the deposited ZnS thin film is stoichiometric.



**Fig. 7: EDAX spectrum of as-deposited ZnS film**

## 5.4 Optical Characterization

### 5.4.1 Absorbance, Transmittance and Bandgap

The optical properties of ZnS thin films were determined from transmittance and absorbance measurements in the range 200-1100 nm (UV-VIS-IR) using spectrophotometer. Fig. 7 (a) shows transmittance and absorbance spectrum for ZnS thin film. It shows an optical



transmittance over 60% in the visible region. The relation between the absorption coefficient  $\alpha$  and the incident photon energy ( $h\nu$ ) is given by equation (12).

$$\alpha = \frac{A(h\nu - E_g)^n}{h\nu} \quad (12)$$

In equation (9) the values of 'n' for direct allowed, indirect allowed and direct forbidden transitions are  $n=1/2$ , 2 and  $3/2$ , respectively. To determine the possible transitions,  $(\alpha h\nu)^{1/2}$  versus  $h\nu$  is plotted, and the corresponding band gaps were obtained from extrapolating the straight portion of the graph on the  $h\nu$  axis at  $\alpha = 0.1$ . The direct band gap was obtained from the  $(\alpha h\nu)^2$  versus  $h\nu$  plot (fig. 7 b) and indirect band gap was obtained from the  $(\alpha h\nu)^{1/2}$  versus  $h\nu$  plot (fig. 7c). The direct band gap value is found 3.72 eV while the indirect band gap of the ZnS film was found 3.45 eV. These two values are higher than that of bulk ZnS material. The higher values found might be due to the formation of spherical fine grains [37] and presence of

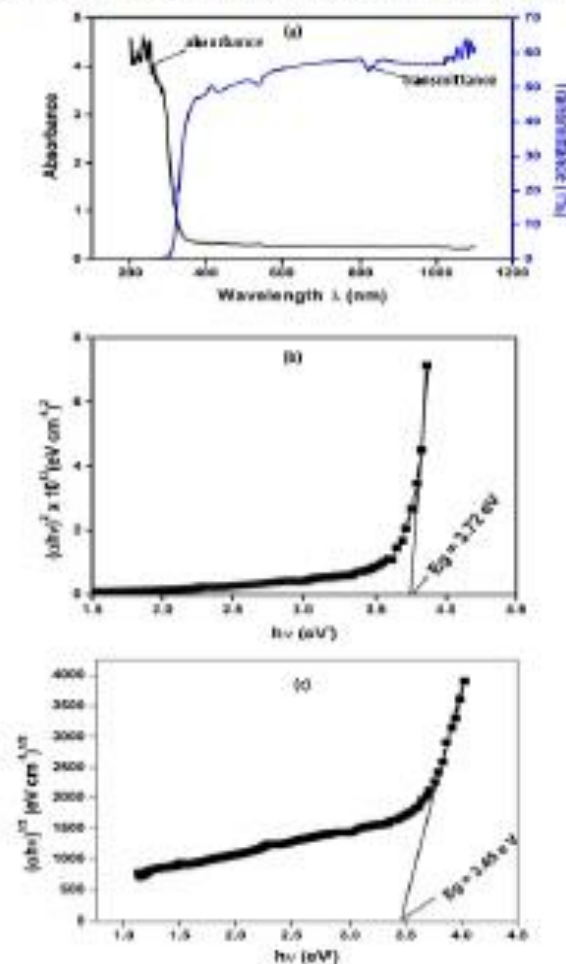
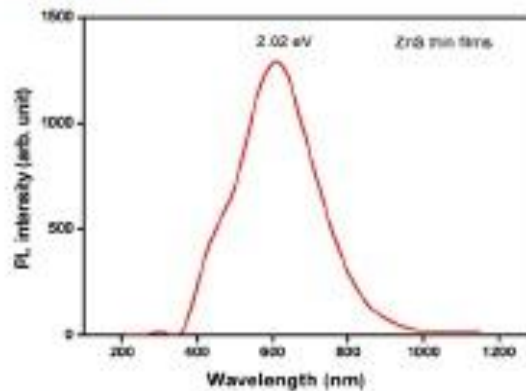


Fig. 7: (a) Transmittance and Absorbance (a. transmittance, b. absorbance)  
 (b) Direct band gap of as deposited ZnS thin films  
 (c) Indirect band gap of as deposited ZnS thin films

Zn(OH)<sub>2</sub> in the film. C. D. Lokhande et al [38, 39] have reported the presence of Zn(OH)<sub>2</sub> in the deposition is unavoidable due to the aqueous alkaline nature of the bath. And hence, the presence of Zn(OH)<sub>2</sub> affects the physical properties (i. e., higher value of band gap etc.).

#### 5. 4. 2 Photoluminescence Study (PL)



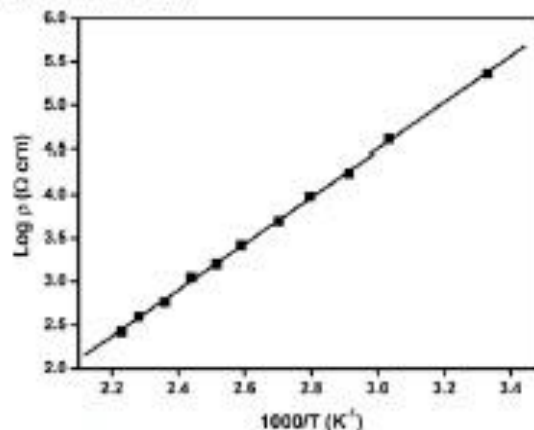
**Fig. 8: Photoluminescence (PL) spectrum of as deposited ZnS thin film**

Photoluminescence (PL) technique measures the spectrum emitted by the radioactive recombination of photo generated minority carriers. The room temperature PL spectrum of the as-deposited ZnS thin film is shown in fig. 8. The spectrum shows a strong emission at 613 nm. Such peak is rarely observed by others [38, 39]. The strong emission peak at 613 nm in my case might be attributed to deep level emission due to native defects such as interstitial 'Zn' atoms in ZnS thin films [29, 40].

#### 5. 5 Electrical Characterization

##### 5. 5. 1 Electrical Resistivity

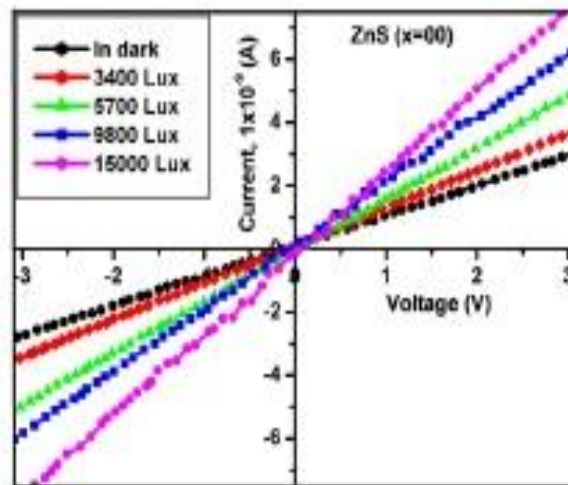
The electrical resistivity of the ZnS thin film was measured using a DC two-probe method in the temperature range 300-500 degree K. A plot of inverse absolute temperature versus log  $\rho$  for cooling cycle is shown in fig. 9. The dependence is almost linear shows the presence of only one type of conduction mechanism in the film.



**Fig. 9: Variation of log( $\rho$ ) Vs. 1000/T(K-1) of as deposited ZnS thin film**

The high-temperature conductivity is due to thermally activated excitation of charge carriers from grain boundaries to the region of the grains. The decrease in resistivity with increase in temperature gives the semi-conducting nature of the film. The resistivity at room temperature was found  $0.186 \times 10^9 \Omega\text{-cm}$  [18].

### 5.5.2 Current Voltage (I-V) Characteristics of ZnS thin film



**Fig. 10: I-V characteristics curve of as deposited ZnS thin films for different illuminations**

Fig. 10 shows I-V characteristics curve obtained from the ZnS film for different illumination intensities.  $1 \text{ cm}^2$  area of ZnS thin film on glass substrate was defined and silver paste was applied (two Ag contacts separated by a distance of 1 cm) to ensure the good ohmic contacts to the films. The room temperature dark resistivity was found to be  $1.6 \times 10^9 \Omega\text{cm}$  from I-V curve, and it decreases to  $3.89 \times 10^9 \Omega\text{cm}$  for incident light of intensity 15000 Lux (calculated from fig. 10).

### 6. Conclusion:

Thin films of ZnS have been successfully deposited by chemical bath deposition technique. Uniform deposition of thin film is obtained. XRD study shows polycrystalline cubic structure of ZnS thin film. Optical study reveals the direct band gap 3.72 eV. Resistivity study shows semiconducting nature with high resistivity. After studying all these parameters, ZnS thin films can be suitably employed in photo sensor and opto-electronic device applications application.

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## Physical Education and Sports Science

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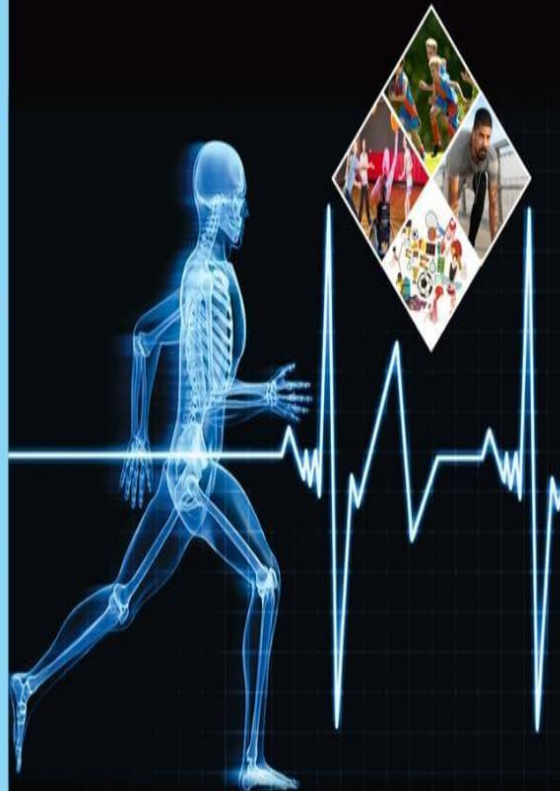
Physical Education and Sports Science



Dr. R. B. Khandare



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**Dr. Ambedkar Studies Center,  
Sant Gadge Baba Amravati University, Amravati**



## **Dr. Babasaheb Ambedkar's Role in Nation Building**

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# IMPACT OF GLOBALIZATION ON **LANGUAGE** AND **LITERATURE**

Dr. S. R. Jadhav ■ Ms. D. D. Tambe ■ Ms. S. R. Pachore





# **IMPACT OF GLOBALIZATION ON LANGUAGE AND LITERATURE**

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### प्रस्तावना :

इकीसवी सदी जहा समाज में हर एक क्षेत्र में क्रांती आ गई वही समाज में न चाहते हुए भी कई परिवर्तन आए। समाज ने परिवर्तन तो स्वीकार किया लेकिन समाज की जो हानी हुई इसके विषय में सोचने के लिए मनुष्य के पास समय ही नहीं रहा। समाज के हर क्षेत्र को क्रांती की राह दिखाने वाला ये समय है लेकिन वैश्वीकरण की दौड़ में मनुष्य में इतना परिवर्तन आया कि उसके पास समाज और स्वयं के लिए समय नहीं बचा केवल औद्योगिकीकरण के पिछे भागने की भागदौड़ लगी हुई है। मनुष्य के सपने हासिल करने कि भूख खत्म होने का नाम ही नहीं ले पा रही है। वैश्वीकरण के कारण 'वसुदेव कुटुंबकम' की भावना निर्माण हुई है। जनसंचार के कारण हर क्षेत्र में क्रांती हुई है। इस कारण मनुष्य-मनुष्य के ओर भी समीप आ रहा लेकिन जितना समीप आया उतनी उसकी भीतर कि मानवीय संवेदनाएँ कम होती जा रही है। वैश्वीकरण को लेकर कई रचनायें है लेकिन वैश्वीकरण का सबसे जादा असर जंगलो में बसने वाले आदिम जाती पर पडा। हमारे भारत में आज भी कई आदिवासी बहुल इलाके है और वहा की जनता आज भी अपने जन समुदाय को बचाने में लगी हुई है।

रेणेन्द्र द्वारा रचित 'ग्लोबल गांव के देवता' ठीक उसी प्रकार की रचना है जो वैश्वीकरण के कारण स्वयं का अस्तित्व बचाने में लगे है। उपन्यास के आरंभ में ऐसा प्रतीत होता है कि गाँव का ही दृश्य है, इससे बेहतर तो राग-दरबारी में है और जो कुछ-वस्तुगत या कथ्यात्मक-कसर है वह नीलोत्पल ने अपने उपन्यास औघड़ में पूरी कर ही दी है, फिर इसमें कुछ नया क्या है? मेरी नज़र में तो हिन्दी पट्टी में २१ वीं सदी में वैश्वीकरण को लेकर रचे गए उपन्यासों में सबसे बेहतर और पहला उपन्यास है ग्लोबल गाँवों का देवता। इस उपन्यास की प्रशंसा में, इस पुस्तक के प्रकाशक 'भारतीय ज्ञानपीठ' ने लिखा है कि- वस्तुतः यह आदिवासियों-वनवासियों के जीवन का संतप्त सारांश है।- यह पंक्ति पढ़ कर महसूस हुआ कि अगर यह पुस्तक एक सारांश मात्र है और यही इतना संवेदनशील, दारुण है। यहाँ तक कि अंत तक पढ़ने पर शायद आप सिर भी पकड़ सकते हैं कि किस तरह आदिवासियों ने अपनी संस्कृति,

अपनी ज़मीन, अपने खुद के खेत अपने क्षेत्र के पेड़-पौधों को संरक्षित करने के लिए भयानक प्रताड़ना, तंत्र का अन्याय सहा है। अपना हक अपना हिस्सा माँगने मात्र के लिए 'असुर आदिवासी समुदाय' को सत्तासीन लोगों की क्रूरता, नृशंसता का जिस तरह शिकार बनना पड़ा यह सब पढ़ कर बार-बार ज़हन में यही सवाल आ रहा था कि क्या यह घटनाएँ इसी लोक की हैं? हमारे ही देश में घटित हुई हैं या अन्यत्र?

आग और धातु की खोज करनेवाली असुर जाती को सभ्यता, संस्कृति, मिथक और मनुष्यता सबने मारा है इस उपन्यास को पढ़ने के बाद यह बात बहुत हद तक साफ़ हो जाती है कि वैश्वीकरण के दीवार की बुनियाद किस क्रूरता पर रखी गयी है। जिस बॉक्साइट अयस्क से एल्युमिनियम हम सबको इतनी सुलभता से प्राप्त होता रहता है उसका मूल्य चुकाया है वहाँ के जनजातीय आदिवासी लोगों ने। जिनके हिस्से में केवल दुत्कार और अन्याय आया। दुर्भाग्य से वे उस क्षेत्र के निवासी हुए जहाँ पर एल्युमिनियम के अयस्क बॉक्साइट की खदानें थीं। फिर क्या वैश्वीकरण का अंधा दौर, खनिज पदार्थों से मूल्यवान कुछ भी नहीं था? और इस धधकती आग की लपट में सबसे अधिक जलें हमारे आदिवासी समाज के लोग।

#### प्राइवेट कम्पनियाँ :

चाहें वो देसी हो या विदेशी कंपनियाँ इन सबने हमेशा से उँगली पकड़कर हाथ पकड़ने का काम किया है। और अफ़रात मुनाफ़ा कमाना किसको नहीं अच्छा लगता है? भले ही वो दूसरे के हाथ का निवाला छीनकर मिल रहा हो। इन सब बड़ी कम्पनियों की सबसे बड़ी खराबी यही रही है कि अपना हित साध्य हो जाने के बाद वे उस जीवंत मानवीय क्षेत्र को गन्दे सड़े कचरे की तरह छोड़ जाती हैं। उन जगहों पर उनके स्वयं की वजह से फैली अव्यवस्था, पर्यावरणीय असंतुलन, आर्थिक पतन इत्यादि बहुत सी बातों को नज़रअंदाज़ करके ये निजी संस्थान निकल जाते हैं। और उसका भारी नुकसान सहते हैं वहाँ स्थानीय लोग, पशु पक्षी, वहाँ की नदियाँ, वहाँ के जंगल और वहाँ की ज़मीन। भले ही उनको उस क्षेत्र से अरबों-खरबों का फायदा हुआ हो। सरकार को इससे क्या जाँच टीमें भेजी जाती हैं जिसका लब्बो लुआब होता है इस अवैध धन उगाही पर लीपा पोती करना। फिर सारी जाँच रिपोर्ट सकारात्मक ही आती है इन सारी बातों को रणेंद्र इस उपन्यास में बहुत बारीकी से उतारा हैं।

उक्त घटनाएँ तो एक क्षेत्र विशेष और बॉक्साइट के खनन से ही सम्बन्धित हैं लेकिन ऐसी हज़ारों गाथाएँ होंगी जिनका इतिहास कभी ज़िक्र भी नहीं करेगा। प्रकृति के ये रखवाले अपनी ज़मीन की रक्षा करते-करते अन्ततः हार जाते हैं। इनका लोहे जैसा इरादा और इनका खून पसीना सब वहाँ की मिट्टी में ही मिल



जाता है और अंततः धरती माँ की ये संताने अपनी माँ की गोद में चुपचाप सो जाते हैं और हम कमरों में अपनी अय्याश व्यस्तताओं में जानवर से जी रहे होते हैं इन सब को जानते हुए भी अनजाना कर के। ताज़्जुब इस बात का है कि ये घटनाएँ इतनी सजकता से छुपाई गयी हैं कि आने वाली शहरी पीढ़ियों को इस बात की भनक भी नहीं लगेगी।

रणेंद्र ने आदिवासियों के स्थानीय समस्याओं को अपनी इस कृति के माध्यम से पुनः जीवित किया है किया है। इसका एक पक्ष बाबाओं के ढोंग और पाखंड को भी दिखाता जिसका कितना भारी मूल्य उस आदिवासी समाज के लोगों को चुकाना पड़ता है। जहा समाज में शिक्षा जैसे पवित्र शब्द भी बाबा कंठधारी द्वारा तार-तार किया जाता है। जहा वह अशिक्षित आदिवासी को मूर्ख बनाकर काले वस्तु का त्याग करने के लिए कहता है जहा गांव के भेड-बकरी उनकी जमा पुंजी है जो उनका एकमेव सहारा है जो शादी, सुख-दुख में उनके आय का साधन है लेकिन बाब कंठधारी के शरण में जाने के बाद गांव के काली भेड-बकरी, मुर्गी, सुअर आदी को बाजार में बेचा जाता है। बाबा कंठधारी का मनना था की ये काली चीजे असल में काले पिशाच है। बाबा ने लडकियों के शिक्षा के लिए निवासी विद्यालय आरंभ किए थे लेकिन इस के पीछे बाब का घिनोना चेहरा छुपा हुआ था जो शिक्षा के नाम पर वहा पढनेवाली आदिवासी लडकियों का शोषण करता था। आज समाज में बाबा कंठधारी की तरह कई बाबा मौजूद है। तमाम साम्यताओं के बावजूद इस उपन्यास की अपनी मौलिकता है इसकी विषय-वस्तु और उसकी प्रस्तुति मन मोह लेती है। स्त्रियों की नेतृत्व क्षमता, उनकी मजबूती और जिम्मेदारियों का भी बखूबी वर्णन किया है रणेंद्र ने इनका प्रभाव अंत तक बना रहा है।

रणेंद्र ने झारखंड इनसाइकालोपीडिया (चार खंडों में) का संकलन किया। रणेन्द्र ने आदिवासी समुदायों की सामाजिक, संस्कृतिक विशेषताओं अतः संबंध, वैश्वीकरण के विकास का प्रभाव का गंभीरता पूर्वक अध्ययन किया। यही कारण है की उनका उपन्यास ग्लोबल गाँव के देवता काफी प्रामाणिक बन पड़ा है। ग्लोबल गाँव के देवता उपन्यास में लेखक ने झारखंड के कोयलबिघा भौरापाट, सखुआपाट और वहा के आस पास के पाटों का उल्लेख किया है। जहा वैश्वीकरण के कारण इन आदिवासी जन समुदाय की अवस्था का आंखो देखा हाल यह उपन्यास बया करता है। मास्टर जी वहा का वर्णन करते हुए कहते है मीलों तक पसरे पहाड़ के ऊपर का यह चौरस इलाका मन को और उचाट कर रह था। छिटपुट जंगल, बाकी दूर दूर तक फैले उजाड़ बंजर से खेत। बीच-बीच में बाँकसाइड की खुली खदाने।

जहा से बॉकसाइड निकाले जा चुके थे वे गड्ढे भी मुंह बाये पड़े थे। मानों धरती माँ के मुंह पर चेचक के बड़े-बड़े धब्बे हों।<sup>1</sup> बॉकसाइड के लिए वहा के जमीन से पेड़ काँट दिये गए है कहने के लिए यह आदिवासी बहुल इलाका है लेकिन वैश्वीकरण ने वहा के प्रकृति को सुंदर से कूरुता में परिवर्तित किया है।

असुर जाती प्रारंभ से ही प्रताडीत है फरक इतना है की आरंभ में इंद्र, सिंगबोगा, पांडवने इनका सर्वनाश किया और भूमंडलीकरण की दौर में इनका स्थान वेदांग, शिंडालको जैसे ग्लोबल गांव के व्यापारियो ने लिया है। जो पुरी तयारी के साथ इन्हे अपने जमीन से खदेडने के लिए तयार है। इस कार्य में शासन एवं सत्ता का पुरा सहयोग इन्हे प्राप्त है। वेदांग अपनी एल्युमिनियम फैक्ट्री लगा सके इसलिए सरकार इन इलाके (झारखंड के आदिवासी इलाके) में भेडियो कि घट रही संख्या को लेकर चिंतीत है इसलिए आदिवासियों के सेत्तीस वन गांव को खाली कर वहा अभयारण्य बनाने का निर्णय लेती है। शासन और राजनेता का सहयोग पाकर ये कंपनियां खदान बुझाने के जो अशवाशण देती थी वह भी पूर्ण नही करती थी इस कारण वहा के आस पास के कई लोगो की मलेरिया के कारण मृत्यू हुई थी। वैश्वीकरण के नाम पर जो नये-नये सिद्धांत गडे जा रहे है वही आदिवासियों के साथ कई घटनायें घटीत हो रही है। अपने हक्क के लिए लढने वाले व वेदांग कंपनी का विरोध करनेवाले बलाचन असुर, रूनझुन असुर और उनके सहकारी असुरो की पोलीस द्वारा उनकी हत्या की जाती है लेकिन दुसरे दिन अखबार में तिसरे क्रमांक के पृष्ठ पर छ्पकर आता है तिसरे पेज पर दो कॉलम का समाचार छपा था कि पथारपाट में हुए पुलिस मुठभेड में छः नक्सली मारे गये। नक्सलीयों में कुख्यात एरिया कमांडर बलाचन भी शामिल था। फिर बलाचन के नृशंस करणामों का विवरण। किस एस.पी., दरोगो की हत्याओं और किन-किन बैंक डकैतियों में वह शामिल रहा था। एकदम आंखो देखा विवरण। अंत में इस बात का भी उल्लेख था की भाकते समय नक्सली लाशे उठा ले गये। पोलीस फोर्स लाशों की तलाश कर रही है।<sup>2</sup>

लेखक ने असुरों की संस्कृती का उल्लेख करते हुए कहा की उनके संस्कृती में औरतो को जननी न कहकर सयानी कहा जाता है और साथ ही जिस भूमंडलीकरण की दौर में लेविंग रिलेशनशीप का जो फैशन आय है वह तो आदिवासी समाज के संस्कृती का पुराना हिस्सा है। यह बात ललिता मास्टर साहब को बताते हुए कहती है- आपकी ही दुनिया के लिए नयी बात थी और अभी अभी फैशन में आयी थी। आदिवासी समाज में यह तो बहुत पुराने दिनों से मान्य है.....इसीलिए यह लिविंग टुगेदर का फैशन यहीं से उतरकर वहां गया है।<sup>3</sup> आज भी आदिवासी समाज उनकी

संस्कृती हमारी संस्कृती से कुछ भिन्न है।

लेखक ने आदिवासी समाज के अंधश्रद्धा का भी जिक्र किया है। आदिवादी समाज में आज भी मान्य है की धान के समय मनुष्य के रक्त से फसल को सिलाने से धान अच्छी आती है। इसलिए धान के समय में वहा अक्सर मुंडी कटवा लोग घुमते है। इसलिये उस समय वहा जान की रक्षा करना महत्वपूर्ण बन जाता है।

वैश्विकरण की अंधी दौड ने वहा के जनसमुदाय का संपूर्ण अस्तित्व छीनकर उन्हे अपनी भूमी से खदेड दिया है। जंगल के मुल निवासी होकर भी वैश्विकरण के कारण वर्तमान समय में वे अपने पुर्वाजों के स्थान पर नहीं रह पाते।

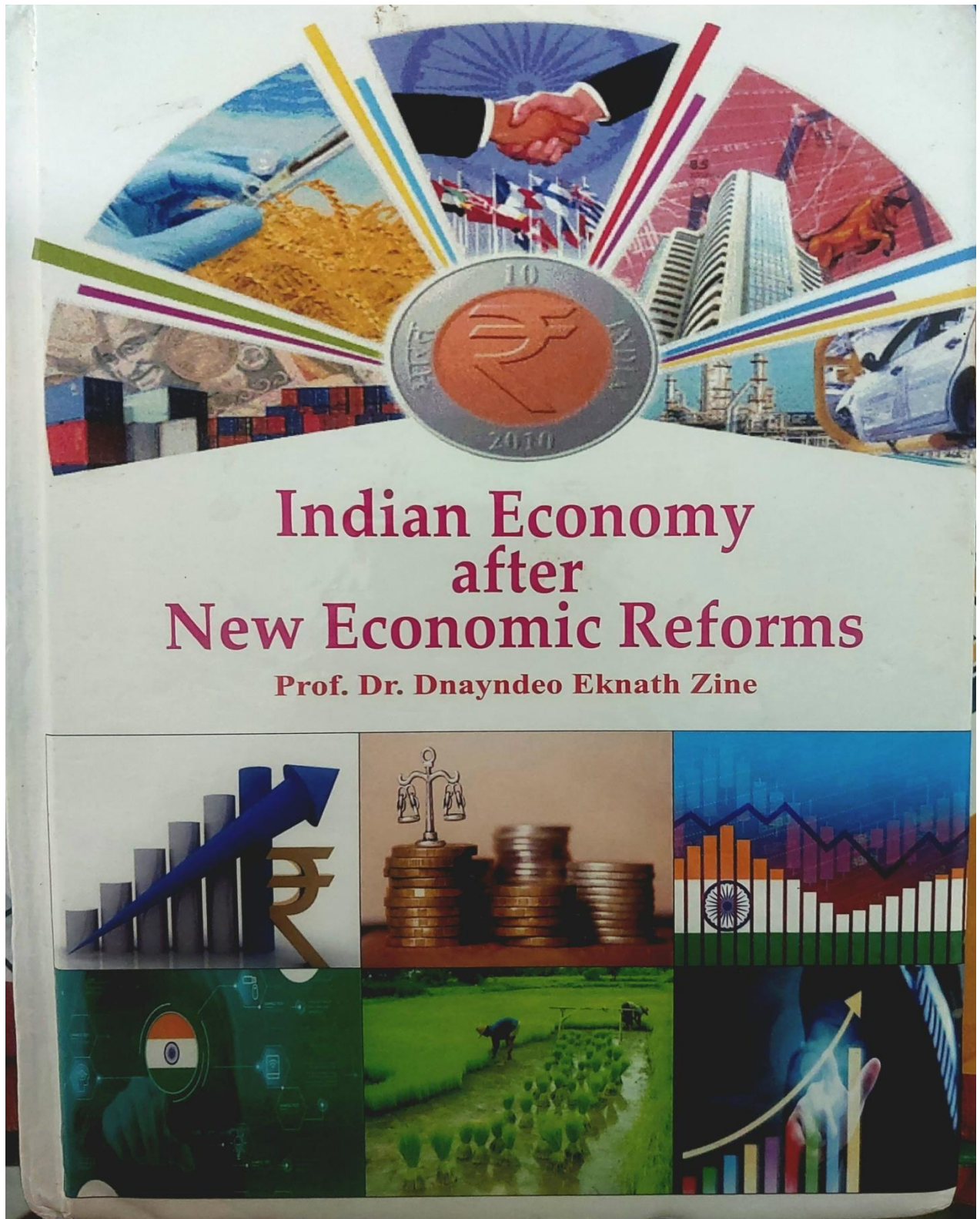
#### निष्कर्ष :

वैश्विकरण की आंधी में वैश्विक ताकतों (ग्लोबल गांव के देवताओं) के आगे हमारे गांव कितने लाचार और बेबस नजर आते है यह उपन्यास इसी का संतप्त सारांश है। वैश्विक गांव का जैसे जैसे विस्तार होता जा रहा है वास्तविक गांव वैसे ही संकोचित होते जा रहे है। वैश्विक गांव वास्तविक गांवो को तेजी से निगलते जा रहे है वैश्विकरण किस प्रकार ग्रामीण जीवन को निगलता, प्रदूषित करता जा रहा है इसका प्रामाणिक दस्तावेज है 'ग्लोबल गांव के देवता' यह उपन्यास। वैश्विकरण ने गांव का वातावरण ही खराब नहीं हुआ बलकी प्रकृती को भी कुरूप बनाने का कार्य किया है।

#### संदर्भ ग्रंथसूची :

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