Nevjabai Hitkarini College, Bramhapuri

Criterion- III

Criterion III - 3.5.2

MOU & Collaborative Activities

MOU and Collaborative Activities

Collaborative Activity through MOU with Adarsh Arts and Science College, Desaiganj (Wadsa), (Guest Lecture in Six Days Workshop)

नूतन शिक्षण प्रसारक मंडळ, देसाईगंज द्वारा संचालित

आदर्श कला व वाणिज्य महाविद्यालय

देसाईगंज (वडसा) जि. गडचिरोली. (म.रा.) 441207

हिंदी भाषीक अल्पसंख्यांक संस्

प्राचार्य
डॉ. शंकर कुकरेजा
M.Sc., Ph.D.

'नॅक' द्वारा पुनर्मूल्यांकीत 'बी' दर्जा (२.१६) प्राप्त
वेबसाईट : www.adarshcollegedesaiganj.edu.in
ई-मेल : adarsh_desaiganj@rediffmail.com

☎ कार्यालय : 07137 - 272554
कार्यालय : 07137 - 295014
मोबाईल : 9404818437

NAAC Re-accredited: 'B++' Grade CGPA (2.91)

संदर्भ क्र. _____ दि. 24/1/2024

प्रति,

मान. प्रा. आकाश मेश्राम

एन. एच. महाविद्यालय,

हमदापूरी जि. चंद्रपूर

विषय :– व्यक्तिमत्व विकास शिबीरात मुख्य मार्गदर्शक म्हणून उपस्थित राहण्या बाबत

महोदय,

आमच्या महाविद्यालयात **दि. 29 जानेवारी ते 03 फेब्रुवारी 2024** या कालावधीत व्यक्तिमत्व विकास शिबीराचे आयोजन करण्यात येत आहेत. सदर शिबीरात **दि. 02 फेब्रुवारी 2024 रोज शुकवारला** सकाळी 10.00 वाजता उपस्थित राहून उद्योजकता व स्टार्टअप्स या विषयांवर शिबीरार्थ्यांना आपण मार्गदर्शन करावे असा आमचा मानस आहे.

आपण सदर शिबीरात उपस्थित राहून सहभागी शिबीरार्थ्यांना मार्गदर्शन करावे ही विनंती.

धन्यवाद!

प्राचार्य
आदर्श कला व वाणिज्य महाविद्यालय
देसाईगंज (वडसा) जि गडचिरोली

नूतन शिक्षण प्रसारक मंडळ, देसाईगंज द्वारा संचालित

आदर्श कला व वाणिज्य महाविद्यालय

देसाईगंज (वडसा) जि. गडचिरोली. (म.रा.) 441207

हिंदी भाषीक अल्पसंख्यांक संस्था

प्राचार्य
डॉ. शंकर कुकरेजा
M.Sc., Ph.D.

'नॅक' द्वारा पुनर्मूल्यांकीत 'बी' दर्जा (२.१६) प्राप्त
वेबसाईट : www.adarshcollegedesaiganj.edu.in
ई-मेल : adarsh_desaiganj@rediffmail.com

☎ कार्यालय : 07137 - 272554
कार्यालय : 07137 - 295014
मोबाईल : 9404818437

संदर्भ क्र. _____ NAAC Re-accredited : 'B++' Grade CGPA (2.91) दि. 02/2/2024

आभार पत्र

प्रती,

मान. प्रा. आकाश मेश्राम,

एन. एच. महाविद्यालय,

ब्रम्हपूरी जि. चंद्रपूर.

आपण दि. ०२ फेब्रुवारी २०२४ ला आमच्या महाविद्यालयातील व्यक्तिमत्व विकास शिबीराच्या कार्यक्रमात उपस्थित राहून विद्यार्थ्यांना बहुमुल्य मार्गदर्शन केले. याबद्दल आम्ही आपले हार्दिक आभारी आहोत. आपल्या मार्गदर्शनाचा आमच्या विद्यार्थ्यांना निश्चित लाभ होईल असा विश्वास वाटतो.

आपल्या विद्वत्तेत उत्तरोत्तर प्रगती होवून तिचा समाजोपयोगी कार्यात हातभार लागावा यासाठी आपणांस शुभेच्छ !

प्राचार्य
आदर्श कला व वाणिज्य महाविद्यालय
देसाईगंज (वडसा) जि. गडचिरोली

बुधवार, दि. २८ फेब्रुवारी २०२४ सकाळी १०.०० ते ११.३० वा.

व्याख्यान :– **मा. प्रा. आकाश मेश्राम**
वणिज्य विभाग, ने. ही. महाविद्यालय, ब्रम्हपूरी

विषय :– व्यक्तिमत्व विकास आणि उद्योजकता

११.३० ते १२.०० :– चहा व नाश्ता

दुपारी १२.०० वा. ते १.३० वा

व्याख्यान :– **प्रा. डॉ सतिश कोला**
रसायनशास्त्र विभाग, महात्मा गांधी महाविद्यालय, आरमोरी

विषय :– सकारात्मक दृष्टिकोण व व्यक्तिमत्व विकास

गुरूवार दि.२९ फेब्रुवारी २०२४ सकाळी १०.०० ते १२.०० वा.

अध्यक्ष :– **डॉ. लालसिंग खालसा**
प्राचार्य, महात्मा गांधी महाविद्यालय, आरमोरी

अतिथी :– **मा. प्रा. डॉ. प्रिया गेडाम**
संचालक (प्र)
विद्यार्थी विकास विभाग प्रमुख
गोंडवाना विद्यापीठ, गडचिरोली

मनोहरभाई शिक्षण प्रसारक मंडळ, आरमोरी

द्वारा संचालित

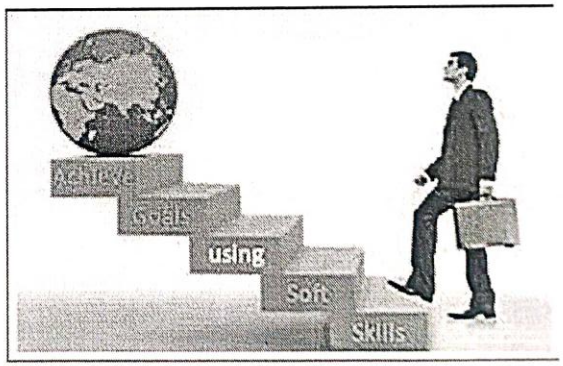
महात्मा गांधी कला, विज्ञान व स्व.नसरूद्दीनभाई पंजवानी वाणिज्य महाविद्यालय, आरमोरी, जि. गडचिरोली.

नॅक पुनर्मानांकित 'अ' दर्जा

विद्यार्थी विकास विभाग
आणि
गोंडवाना विद्यापीठ गडचिरोली यांच्या संयुक्त विद्यमाने

'व्यक्तिमत्व विकास शिबिर'

सत्र : 2023 – 24



दिनांक : २३ फेब्रुवारी ते २९ फेब्रुवारी २०२४

Collaborative Activity through MOU with Adarsh Arts and Science College, Desaiganj (Wadsa), (Organized Guest Lecture)

Nevjabai Bhaiya Hitkarini Education Society's

NEVJABAI HITKARINI COLLEGE

Research Center, PG, UG, Junior College-in Art's, Com. & Science; and HSC Voc.
BRAMHAPURI-441206, Distt. : CHANDRAPUR (M.S.)
UGC 2(F) & 12(B); ISO 9001 : 2015
NAAC Reaccreditted - B++ Grade with CGPA 2.87

Dr. D. H. Gahane
M.sc.,Ph.D.(Phy.)D.C.O.S.
Off. PRINCIPAL

Email : nhcbramhapuri@rediffmail.com
dhgahane@gmail.com
Ph : (07177)2720333, 273293 (off.)
Web : www.nhcb.in

Ref. No. 805/2024

Date : 25/10/2024

आभारपत्र

प्रति,
प्रा. अमोल गुरुदास बोरकर
इतिहास विभाग,
आदर्श महाविद्यालय, देसाईगंज (वडसा)
जि. गडचिरोली

इतिहास विभाग, नेवजाबाई हितकारिणी महाविद्यालय, ब्रम्हपुरी व इतिहास विभाग, आदर्श महाविद्यालय, देसाईगंज (वडसा) वतीने MoU अंतर्गत आयोजित 'छत्रपती संभाजी महाराज : जीवन आणि कार्य' या विषयावर दि.२७ मार्च २०२४ रोजी आमच्या महाविद्यालयात येऊन, इतिहास विषयाच्या विद्यार्थ्यांना आपण आपल्या व्याख्यानातून मार्गदर्शन केले.

आपल्या मार्गदर्शनामुळे विद्यार्थ्यांच्या ज्ञानात भर पडली. आपण भविष्यातही असेच सहकार्य कराल, हीच अपेक्षा!

धन्यवाद !

डॉ. मोहन कापगते
प्रोफेसर व इतिहास विभाग प्रमुख

प्राचार्य
PRINCIPAL
Nevjabai Hitkarini College
Bramhapuri, Dist. Chandrapur-441206


Nevjabai Hitkarini College, Bramhapuri &
Adarsh College, Wadsa
Department of History
Guest Lecture (Under MOU)
छत्रपती संभाजी महाराज : जीवन आणि कार्य
Date : 27/03/2024
Guest Speaker : Prof. Amol Borkar,
Brahmapuri
Maharashtra
India
29°C
84°F
2024-03-27(Wed) 07:50(AM)
JVC4+4H5, Forest Colony, Brahmapuri, Maharashtra 441206, India


Nevjabai Hitkarini College, Bramhapuri &
Adarsh College, Wadsa
Department of History
Guest Lecture (Under MOU)
छत्रपती संभाजी महाराज : जीवन आणि कार्य
Date : 27/03/2024

Collaborative Activity through MOU with Anand Niketan College, Anandwan, Warora

BOTANICAL SOCIETY

ACTIVITY REPORT

Add On Course: Bioinformatics – Basics and Hands on Training

Academic Year: 2023-24

Department: Botany

Name of the Activity: Add on Course, Bioinformatics – Basics and Hands on Training under MoU with Nevjabai Hitakarini College, Bramhapuri, Chandrapur. An activity involving students and faculty exchange.

Duration of the Activity: One Week (07 Days)

Date of the Activity: 11th March to 18th March, 2024

Venue: Blended Mode (Google Classroom + Botany Laboratory of Respective Institutes)

Coordinator: Dr. P. J. Wagh

Objectives: Value added course is aimed for updating Botany students with emerging and applied area in Life Science studies with objectives to:

- Explain basic principles, need and future prospective of the emerging branch.
- Introduce methods and tools used for exploring bioinformatics data more efficiently.
- Provide hands on training on the tasks prescribed in University Syllabus.

Number of Participants:

- **Google Classroom –** 70 students joined and accessed reading material and video lectures through Google classroom.
- **Online Google Meet –** 41 students attended theory and on screen demonstration through Google meet.
- **Offline –** 21 students at Anand Niketan College and 20 students at N. H. College, Bhadrawati have received hands on training through offline mode.
- **Successfully completed** - 41 students received online Certificate for successful completion of the Add-On course.

Outcomes:

After the completion of this course, the participants:

- Understood basic concepts and scope of Bioinformatics studies.
- Used specific tool for mining Bioinformatics data efficiently.
- Applied skills to find solutions to given tasks during expedition.

Principal
Anand Niketan College,
Warora

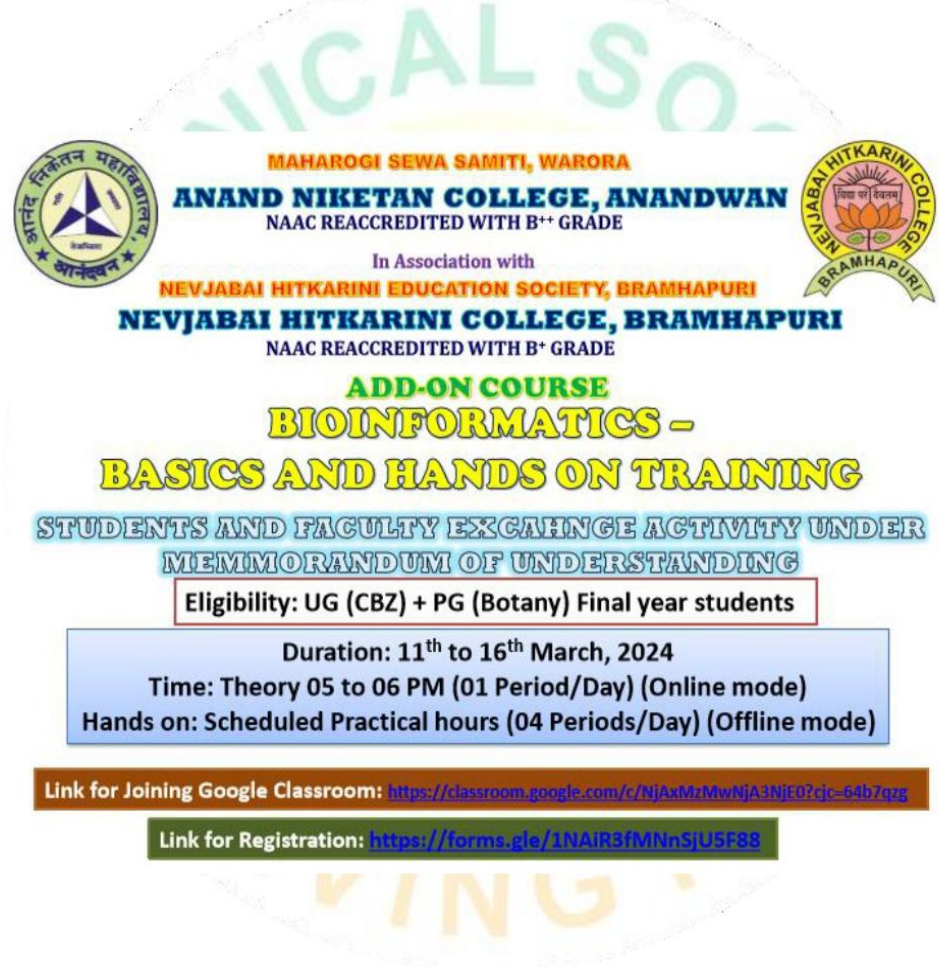
ANAND NIKETAN COLLEGE WARORA

BOTANY DEPARTMENT ANAND NILETAN COLLEGE, ANANDWAN Page 1

Notice for students:

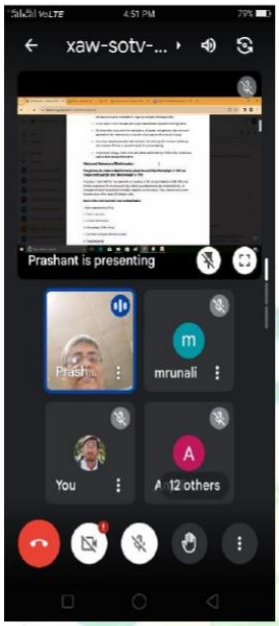
Link for Online Google Classroom:
https://docs.google.com/forms/d/e/1FAIpQLSdes4kUc3DCa9Hc-iizj4x0WopAPSLIAbTUJc1p7-ratco3uQ/viewform?usp=sharing

Link for Online Examination:
https://docs.google.com/forms/d/e/1FAIpQLSdgYLEZcKkgqBf1TvvNOtaR8HKewmCzYgJ63B1MhoysxJwZeA/viewform?usp=sharing



List of Participants:

Sr. No.	Name of the Participant	College/ Institution	Contact Number	Marks obtained
1	Tejaswini Mahadeo Bodhe	Anand Niketan college Anandwan Warora	7498499980	34 / 40
2	Komal Nanaji Fating	N.H. college Bramhapuri	8390799830	35 / 40
3	Sima Ravindra Kamadi	N.H college Brahmpuri	9307031011	29 / 40
4	Bageshri pandurang chaudhari	Nevjabai Hitkarini college brahmpuri	7499390661	35 / 40
5	Darshana Manohar Langade	Anand niketan college	9325197666	31 / 40
6	Anjali madhukar kamdi	N.H.college bramhapuri	8308214915	34 / 40
7	Mira Aasaram Nagrikar	N.H College Brahmpuri	7498322096	31 / 40
8	Priyanka purushottam Bankar	N. H. College Bramhpuri	9307558718	32 / 40
9	Nandini Yerne	N. H. College Bramhpuri	7822987603	26 / 40
10	Nikhil kushabrao Raut	N.H. college Bramhapuri	9325997898	21 / 40
11	Sanjivani V. Maske	N . H. College Brahmpuri	8847784189	31 / 40
12	Pooja Mahadeo Gawande	Anand Niketan college Anandwan Warora	8208057516	29 / 40
13	Trupti dipak payghan	Anand niketan college warora	8010891763	10 / 40
14	Vaishnavi Kiran Dhanvijay	Anand Niketan College Warora	8010141829	36 / 40
15	Lochana Ramesh mungmode	N.H college bramhapuri	9158353208	31 / 40
16	Nemichand najuk Pustode	N.H College Brahmpuri	9552832644	31 / 40
17	Yashaswi kishor Thak	Anand Niketan College Warora	8669763809	36 / 40
18	Vaishnavi Bhaskar pachbhai	Anand niketan college	8421373190	31 / 40
19	Rani Ravindra kakade	Anand Niketan College Warora	9860353993	33 / 40
20	Chaitali H Hatwar	N. H college bramhapuri	7507760380	33 / 40
21	Trupti dipak payghan	Anand niketan college warora	8010891763	35 / 40
22	Siddhi Vijay Mahalle	Anand Niketan college warora	7666240219	24 / 40
23	Vaishnavi Pravin Lohakare	Anand Niketan College Warora	9881159741	39 / 40
24	Kavita Ramdas Gaykwad	N.H. college bramhapuri	7875915404	39 / 40
25	Santoshi Murlidhar Tekam	Nevjabai Hitkarini Bramhpuri	9623282507	39 / 40
26	Bhavika Kacharu Sahare	N.H.College Bramhpuri	9579156385	39 / 40
27	Mrunali Shamrao Gandate	N.H college Bramhpuri	9822623734	26 / 40
28	DHANASHRI RAJENDRA DIWATE	Nevjabai Hitkarni college,Bramhapuri	8446546380	34 / 40
29	Priyanka ishwar bansod	N. H.college	8010562948	29 / 40
30	Mukta Ramesh Darve	Anand Niketan college warora	8830956531	25 / 40
31	Pranay Purushottam wanjari	NEVJABAI HITKARINI COLLEGE bramhapuri	7038821553	28 / 40
32	Omdeo baban dhote	Nevjabai Hitkarini College Bramhapuri	9765146466	27 / 40
33	Godavari Ajay Raypure	Anand Niketan college Anandwan Warora	9623251486	37 / 40
34	Neha krishana shivankar	N.h college bhrmpuri	7666756961	10 / 40
35	Bhumeshwari Suresh Bharadkar	N.H college	7447325800	18 / 40
36	Kalyani Harihar Kamthe	N.H. college Bramhapuri	8007950026	8 / 40
37	Krupali Ramdas Dhonge	N.H. College, Bramhapuri	9404165616	8 / 40
38	Shrushti Sanjay Jadhav	Rajshri shahu maharaj institute of agriculture, kolhapur	9079765480	14 / 40
39	Mayuri Madhukar Nanne	Anand Niketan College Anandwan, Warora	9359515701	40 / 40
40	Chitra Tatoba Wadhai	Anand Niketan college Anandwan, Warora	9112610408	39 / 40
41	Kshama Avinash Satghare	Anand Niketan College	9130081538	39 / 40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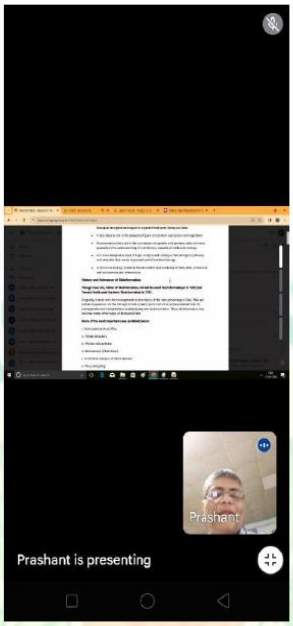
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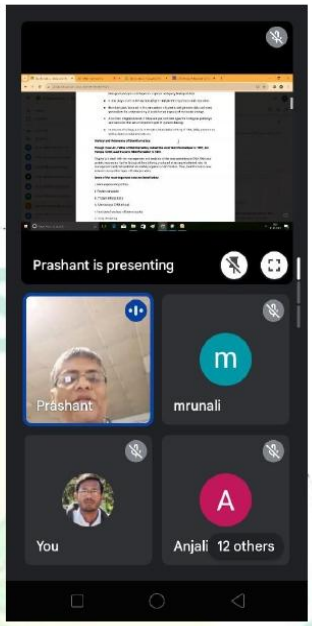
Prashant is presenting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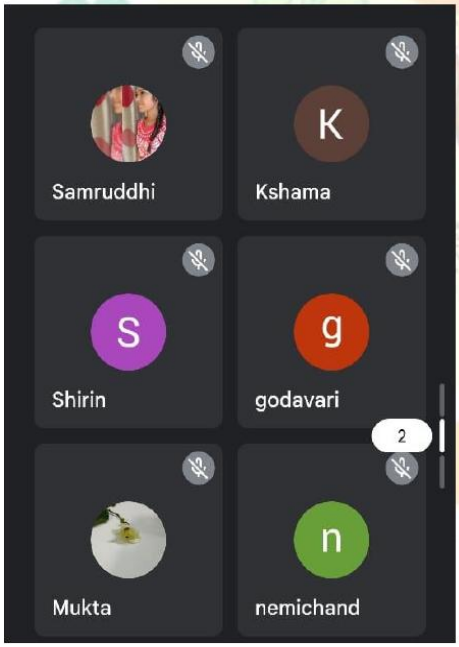
Samruddhi
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Shirin
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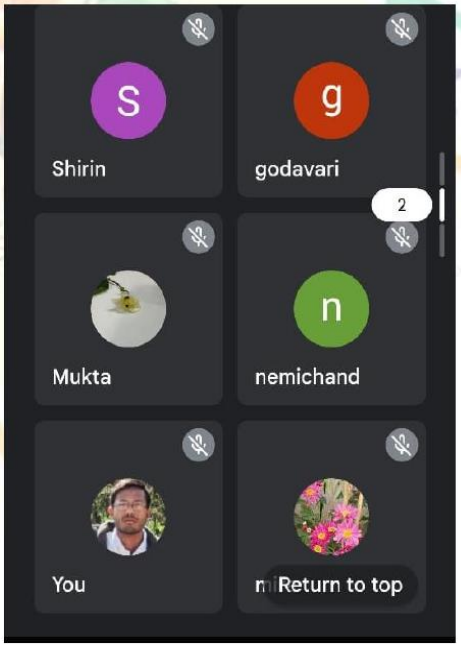
Mukta
nemichand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Return to top

ANAND NIKETAN COLLEGE, ANANDWAN, WARORA - 442914
NEVJABAI HITKARINI COLLEGE, BRAMHAPURI - 441206

CERTIFICATE

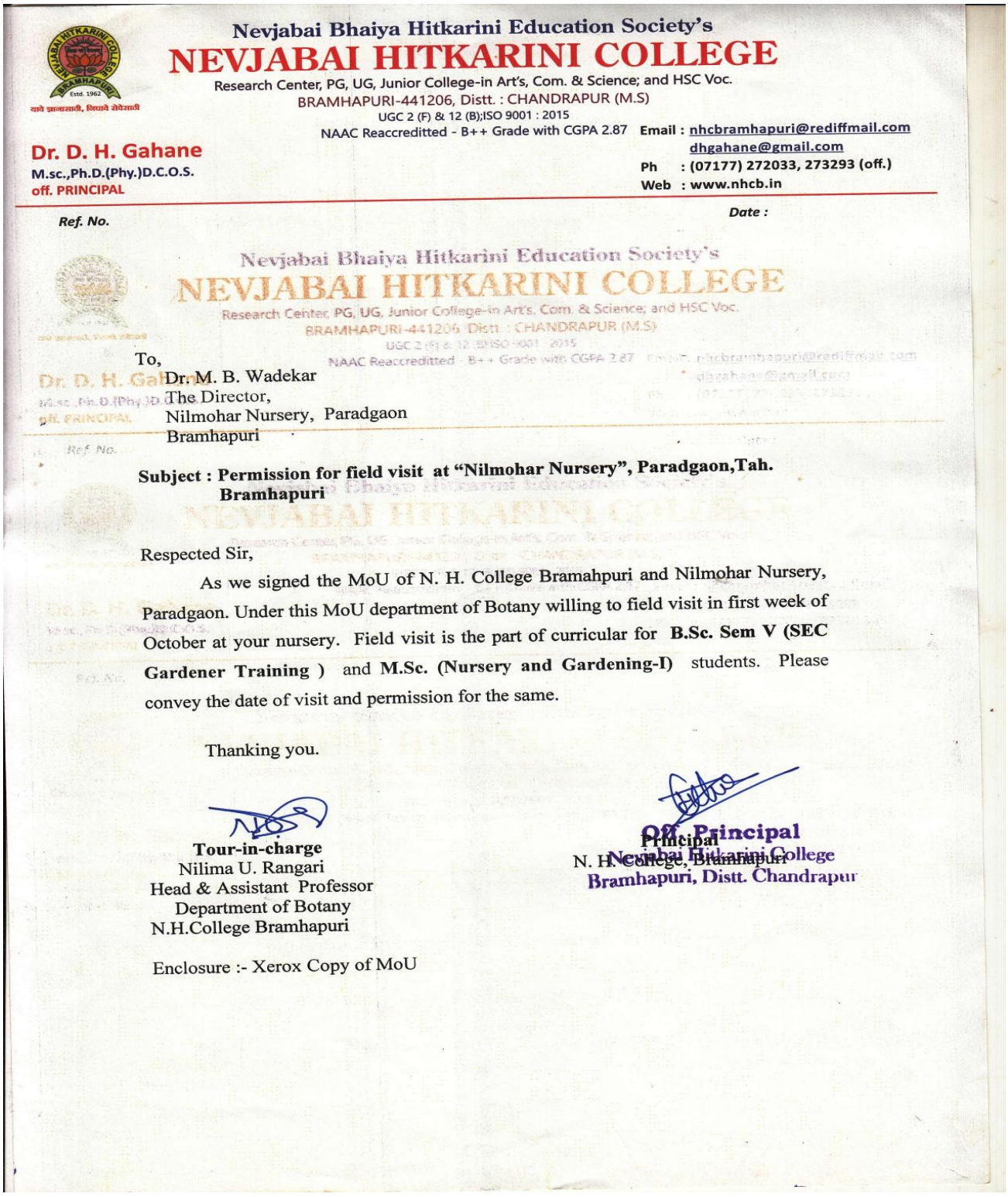
ADD-ON COURSE

BIOINFORMATICS: BASICS AND HANDS ON TRAINING

This is to certify that Mr./Ms. Mayuri Madhukar Nanne successfully participated in the Add-on Course on 'Bioinformatics: Basics and Hands on Training' held from 11th March to 18th March, 2024 in blended mode.

Dr. Prashant J. Wagh, Course Coordinator, Botany Department, ANC, Anandwan, Warora
Dr. Arvind J. Mungole, Course Coordinator, Botany Department, NH College, Bramhapuri
Dr. D. H. Gahane, Principal, Nevjabai Hitkarini College, Bramhapuri
Dr. Mrunal C. Kale, Principal, Anand Niketan College, Anandwan, Warora

Collaborative Activity through MOU with Nilmohar Nursery, Pardgaon, Tah. Bramhapuri (Educational Tour - Botanical Excursion)



Nevjabai Bhaiya Hitkarini Education Society's

NEVJABAI HITKARINI COLLEGE

Research Center, PG, UG, Junior College-in Art's, Com. & Science; and HSC Voc.
BRAMHAPURI-441206, Distt. : CHANDRAPUR (M.S)
UGC 2 (F) & 12 (B);ISO 9001 : 2015
NAAC Reaccreditted - B++ Grade with CGPA 2.87

Email : nhcbramhapuri@rediffmail.com
dhgahane@gmail.com
Ph : (07177) 272033, 273293 (off.)
Web : www.nhcb.in

Dr. D. H. Gahane
M.sc.,Ph.D.(Phy.)D.C.O.S.
off. PRINCIPAL

Ref. No. *Date :*

To,
Dr. M. B. Wadekar
The Director,
Nilmohar Nursery, Paradgaon
Bramhapuri

Subject : Permission for field visit at "Nilmohar Nursery", Paradgaon,Tah. Bramhapuri

Respected Sir,

As we signed the MoU of N. H. College Bramahpuri and Nilmohar Nursery, Paradgaon. Under this MoU department of Botany willing to field visit in first week of October at your nursery. Field visit is the part of curricular for **B.Sc. Sem V (SEC Gardener Training)** and **M.Sc. (Nursery and Gardening-I)** students. Please convey the date of visit and permission for the same.

Thanking you.

Tour-in-charge
Nilima U. Rangari
Head & Assistant Professor
Department of Botany
N.H.College Bramhapuri

Enclosure :- Xerox Copy of MoU

Principal
N. H. College, Bramhapuri

Off. Principal
Nevjabai Hitkarini College
Bramhapuri, Distt. Chandrapur

P. G. DEPARTMENT OF BOTANY

N. H. College, Bramhapuri

To,
The Principal,
N. H. College Bramhapuri

Subject : Botanical Excursion Tour at "Nilmohar Nursery", Paradgaon Tah. Bramhapuri

Respected Sir,

Department of Botany and Botanical Society, N. H. College Bramhapuri has organized one day Botanical Excursion Tour at **"Nilmohar Nursery", Paradgaon** for **B.Sc. Sem V** and **M.Sc.** students on **3rd Oct. 2023**. You are therefore requested to permit for the same.

The undertaking forms of accompanying students have been taken and submitted to the Department of Botany.

List of the students and staff members is attached herewith.

Thanking you.

Yours faithfully

Tour-in-charge
Nilima U. Rangari
Head & Assistant Professor
Department of Botany
N.H.College Bramhapuri

Department of Botany

N. H. College, Bramhapuri

LIST OF STAFF MEMBERS ON BOTANICAL EXCURSION TOUR

"Nilmohar Nursery", Paradgaon Tah. Bramhapuri

Date : 03/10/2023 (Session 2023-24)

Sr.No.	Name	Designation	Mobile No.	Signature
1	Nilima U. Rangari	Head & Assit. Prof.	9890903457	
2.	Rucha D. Wadkhede	C.H.B	9637610161	
3.	Shital V. Raut	C.H.B	9146807853	
4	Krupali Dhonge	CHB	9404165616	
5	Sahil Fulzele	CHB	7038403011	

Head
Department of Botany
N. H. College, Bramhapuri

Department of Botany

N. H. College, Bramhapuri

LIST OF STUDENTS ON BOTANICAL EXCURSION TOUR

"Nilmohar Nursery", Paradgaon Tah. Bramhapuri

Date : 03/10/2023 (Session 2023-24)

Class : B.Sc. Sem V

Sr.No.	Name	Mobile No.	Signature
1.	Rupali T. Meshram	8605336513	
2.	Shrawani P. Dhonge	7507466216	
3.	Prajakta T. Thakare	8550953017	
4.	Sejal D. Jirtkhan	8261092951	
5.	Shreya R. Rahate	9373579260	
6.	Rohini V. Dhore	9325235078	
7.	Dipali R. Bawane	9021583370	
8.	Nutan D. Thakare	9373275103	
9.	Payal R. Sayam	9420569854	
10.	Karan V. Tiwade	7719962821	
11.	Snehal C. Dhote	9657082377	
12.	Tejaswini E. Urkude	9322437947	
13.	Kunal G. Tekam	9322603489	
14.	Nayan santosh Hajare	8767038981	
15	Shubhangi. G. Dadmal	9834272085	
16	Gayatri D. Paliwal	8459249862	
17	Shraddha p. Warke	8459367522	
18)	Chanda K. Kose	8830983932	
19)	Chandani K. Ramteke	9284149592	

Department of Botany

N. H. College, Bramhapuri

LIST OF STUDENTS ON BOTANICAL EXCURSION TOUR

"Nilmohar Nursery", Paradgaon Tah. Bramhapuri

Date : 03/10/2023 (Session 2023-24)

Class : M.Sc. Sem I

Sr.No.	Name	Mobile No.	Signature
1.	Jayshree M. Tikale	8390281126	JMikale
2.	Jagruti B. Shende	9322796577	Bhende.
3	Neha. L. Bansod	7499968017	Bansod
4.	Payal A.Bhagadkar	8468800657	PBhagadkar
5.	Yamini J. Nakade	9637363807	Nakade
6.	Aswini S. Ramteke	9022266903	A.S.Ramteke
7.	Ketana V. Yendalwar	9284617595	
8.	Tanaya N. Naktode	7030592886	Naktode.
9.	Pranali C. Misar	8080220141	
10.	Pallavi K. Gaikwad	9699898751	Pgaikwad
11.	Shital R. Ramteke	9834540669	
12.	Salehin A. Pathan	9511291941	Sakkir
13.	Priyanka G. Padole	9881632131	Padole
14.	Trupti J. Nakhate	8698341827	
15.	Mahesh B. Vaidhya	9607863686	
16.	Ankush M. Belsare	9075169332	Belsare
17.	Pritam V. Khobragade	7559282427	

Head

Department of Botany

N. H. College, Bramhapuri

Department of Botany

N. H. College, Bramhapuri

LIST OF STUDENTS ON BOTANICAL EXCURSION TOUR

"Nilmohar Nursery", Paradgaon Tah. Bramhapuri

Date : 03/10/2023 (Session 2023-24)

Class : M.Sc. Sem III

Sr.No.	Name	Mobile No.	Signature
1.	Anjali M. Kamdi	8308214915	Akamdi
2.	Nemichand N. Pustode	9552832644	Npustode
3.	Chaitali H. Hatwar	7507760380	Chaus
4.	Santoshi M. Tekam	9623282507	Mtekam
5.	Kavita R. Gaykwad	9049638385	KRGaykwad
6.	Bhawika K. Sahare	9579156385	Bsahare
7.	Sima R. kamdi	9307031011	Rkamdi
8.	Mira A. Nageikar	7498322096	MAgeikar
9.	Priyanka P. Bankar	9307558718	Pbankar
10.	Lochana R. Munjamale	9158343208	Rmunjamale
11.	Mrunali S. Gandate	9822623734	MSGandate
12.	Dhanashri A. Bahekar	9921195601	DABahekar
13.	Bhagyashri R. Gedam	9370391115	Rgedam
14	Laxmi B. Baesagade	9307150277	Lbaesagade
15.	Mousami A. Jambhulle	9518931851	Majambhulle

Head

Department of Botany

N. H. College, Bramhapuri

N.H.College Bramhapuri
Department of Botany

UNDERTAKING FROM PARENTS/GUARDIAN

To,

The Principal
N. H. College, Bramhapuri

In consideration of my ward Ku. Shreya Ratan Rahate Class M.Sc. Sem. I/ M.Sc. Sem. III / B.Sc. Sem V (Botany) is going to Educational tour (Botanical Excursion) at "Nilmohar Nursery", Paradgaon Tah. Bramhapuri on 03/10/2023, I undertake that in case of any loss or injury or untoward happening to my ward, I shall not claim or demand compensation or hold responsible the accompanying teacher or the Principal or Management of N. H. College, Bramhapuri.

I further undertake to instruct my ward to abide by the instructions given by the accompanying teachers from time to time.

Signature of parent

Date : 3/10/2023

Name Ratan Sitaram Rahate

Contact No. of parent 8999109892

Contact No. of Student 9373579260

Nevjabai Hitkarini College Bramhapuri

Department of Botany

One Day Botanical Excursion Tour

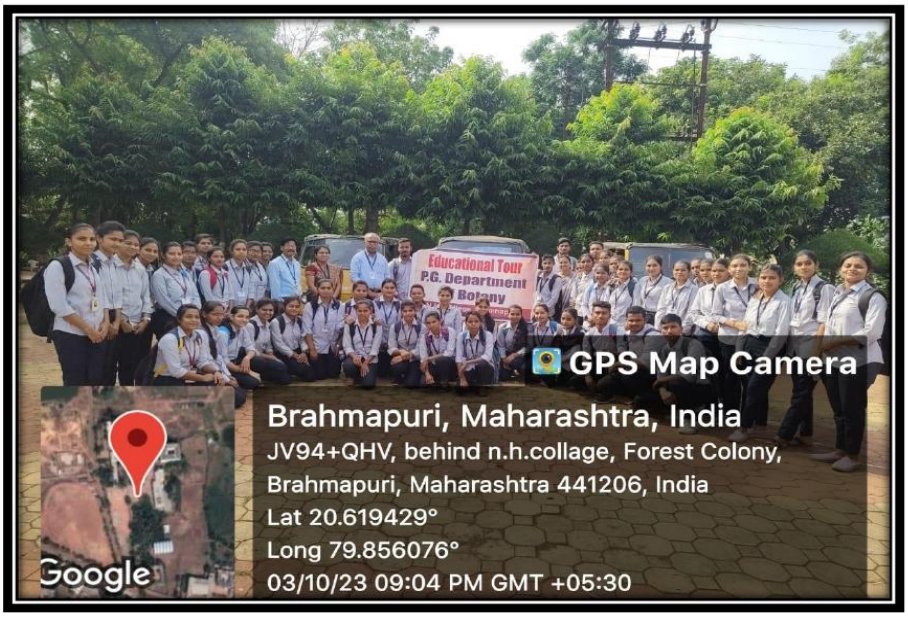
Under MoU Department of Botany, Nevjabai Hitakarini college, organised an educational tour at Nilmohar Nursery, Pardgaon for B. SC. III year and M. Sc. students of Botany course. On dated 3th oct.2023 In the morning Students were gathered in the college then Dr. D. H. Gahane, Principal of the college guided and gave his best wished for this visit. Dr. M. B. Wadekar worked as an Environmental Expert and Resource person who delivered guest lecture on topic "Nursery and Gardening" and motivate the students. In his talk he urged the students to develop the practical approach and cultivate the habit of tree plantation, nursery and gardening. The students were motivated which developed an interest in them to learn through experience. During the visit students learned various techniques and skill of gardening.

51 Students accompanied by Prof. Nilima U. Rangari, Head of Department of Botany, Ms. Rucha Wankhede, Ms. Shital Raut, Ms. Krupali Dhonge and Mr. Sahil Fulzele. and Mr. R. A. Meshram gave the best wishes and also help in the success of this tour.

Ms. Nilima U. Rangari
Head & Assistant Professor
Dept. of Botany
N. H. College, Bramhapuri

Nevjabai Hitkarini College, Bramhapuri-441206 (M.S.)
NAAC
Grade B++
CGPA 2.87

Principal
Nevjabai Hitkarini College
Bramhapuri-441206.


Educational Tour
P.G. Department
Botany
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JV94+QHV, behind n.h.collage, Forest Colony,
Brahmapuri, Maharashtra 441206, India
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03/10/23 09:04 PM GMT +05:30
Google


GPS Map Camera
Maldongri, Maharashtra, India
HVJQ+P7M, Maldongri, Maharashtra 441206, India
Lat 20.581842°
Long 79.887908°

Collaborative Activity through MOU with Shivprasad Sadanand Jaiswal College, Arjuni Morgaon (Faculty Development Program)

FDP Programme

Report on Faculty development programme
conducted by
Nevjabai Hitkarini College Brasmhapuri
in association with
Shivprasad Sadanand Jaiswal College (SSJ College) Arjuni Morgaon

The Internal Quality Assurance Cell (IQAC) of Nevjabai Hitkarini College, Bramhapuri, in association with Shri Sadanand Jaiswal College Arjuni Morgaon successfully organized a Faculty Development Programme (FDP) in offline and online (ZOOM platform) mode aimed at enhancing the skills and knowledge of faculty members to meet the standards required for NAAC accreditation. The six-day program from 5th December to 11th December 2023, titled "Empowering Excellence: Cultivating Effective Faculty Characteristics for NAAC Accreditation," featured a series of talks and seminars by distinguished speakers in various fields. The FDP programme was inaugurated by Chief Guest Honble Dr. Ishwar Mohurle Sir, Prinicipal SSJ college Arjuni Morgaon. For this inaugural programme Dr. D. H. Gahane Prinicpal N. H. College Bramhapuri were the Chairperson and Dr. K. J. Sibi NAAC Coordinator Dr. K. S. Naktode and convener Dr. B. L. Lengure were present prominently.

First day (5th Dec. 2023) of FDP commenced with a thought-provoking session by Mr. Prafful Parate, Junior Lecturer at N. H. College, Bramhapuri. Mr. Parate shared insights on the "Use of Smart T.V. for Teaching & Learning," emphasizing the integration of technology in the education process.

On second day, Dr. Swapnil Khubakar, Assistant Professor at Raisoni Engineering College, Nagpur, conducted an enlightening session on "How to Apply for Copyright," guiding participants through various techniques and procedures related to copyright, an essential aspect of academic work.

The third day witnessed an engaging presentation by Dr. Sanjay Sabale, Librarian at Anand Niketan College, Warora. Dr. Sabale shed light on the evolution of the "Reading Culture: Past and Future," emphasizing the role of libraries in shaping a knowledge-driven society.

On 8/12/2023, Dr. Dhammapal Fulzfale, Assistant Professor in the English Department at Dr. Babasaheb Ambedkar College, Bramhapur, shared valuable insights into effective reading strategies with his presentation on "How to Become an Effective Reader? Techniques & Strategies."

On 9/10/2023, Dr. Varsha Chandanshive, Associate Professor in Political Science at N. H. College, Bramhapuri, delivered a thought-provoking session on "Fundamental Rights & Duties Given in the Indian Constitution," exploring the constitutional principles that form the backbone of our democracy.

The FDP concluded with a captivating presentation by Dr. M. A. Sheikh, Professor and Head of the English Department at N. H. College, Bramhapuri. Dr. Sheikh enlightened the participants on the "Use of Tenses for Better Communication," emphasizing the importance of language proficiency in effective communication.

On the valedictory event Dr. D. H. Gahane, Principal of N. H. College congratulate and all faculty members of both the college have attended this programme.

The event was concluded with Presidential speech by Dr. D. H Gahane stating that "fostering a collaborative environment for knowledge exchange and skill development with promote the education system in higher education syatem". The IQAC at Nevjabai Hitkarini College remains committed to organizing such initiatives to empower faculty members and enhance the overall academic quality of the institution.

Convener
Dr. B. L. Lengure
Asso. Prof.
N. H. College Bramhapuri

Co-convener
Dr. K. S. Naktode
Co-ordinator
IQAC, N. H. College
Bramhapuri

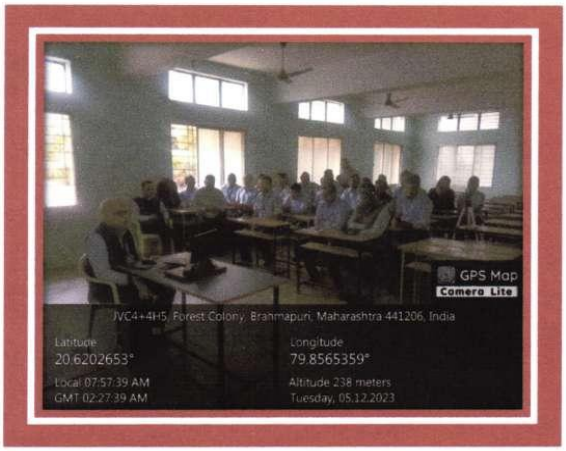
Co-convener
Dr. K. J. Sibi
Co-ordinator
IQAC, S.S.J. College
Arjuni (Mo)

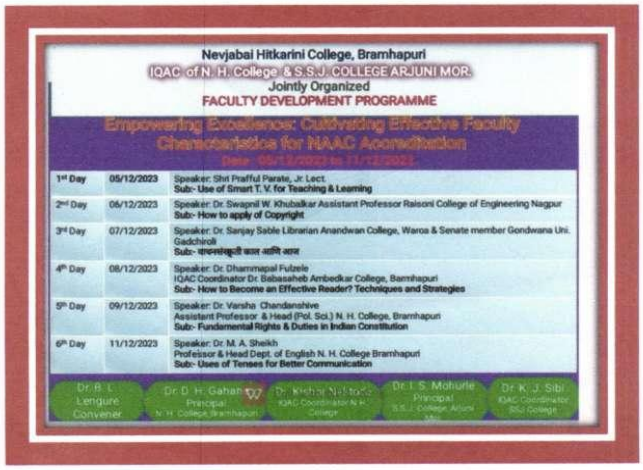
Dr. I. S. Mohurle
Principal
S.S.J. College Arjuni (Mo)

Dr. D. H. Gahane
Principal
N. H. College Bramhapuri

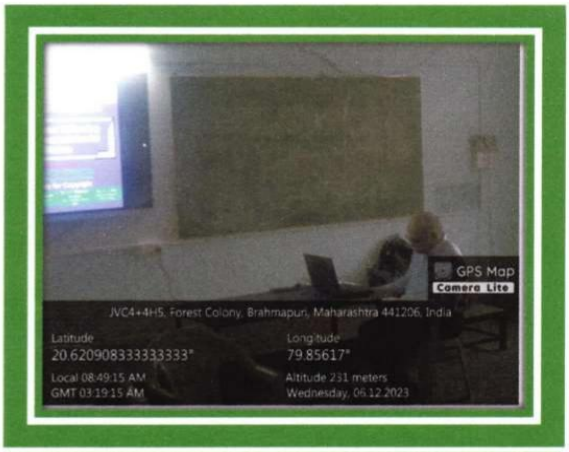
Principal
Nevjabai Hitkarini College
Bramhapuri - 441206

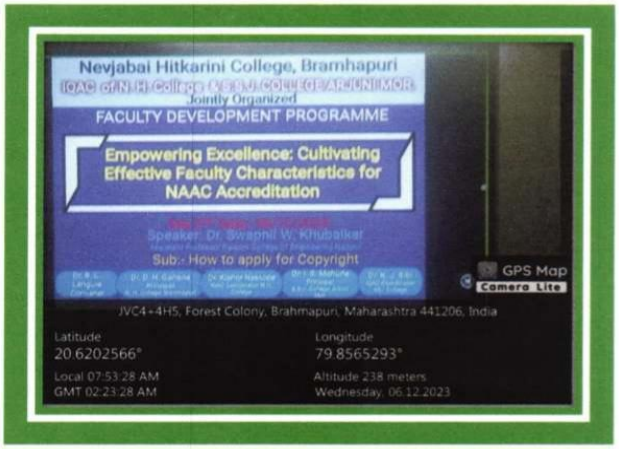
Faculty Development Program Day 01

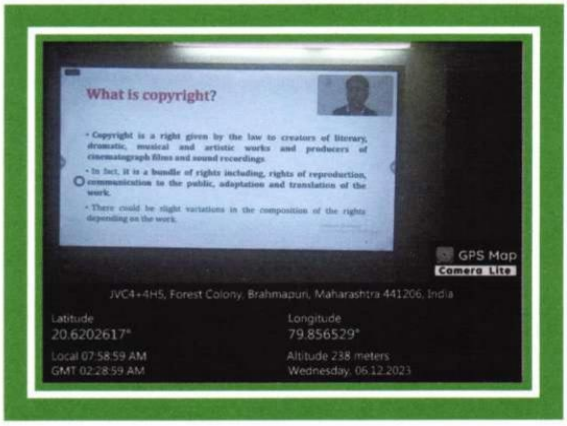




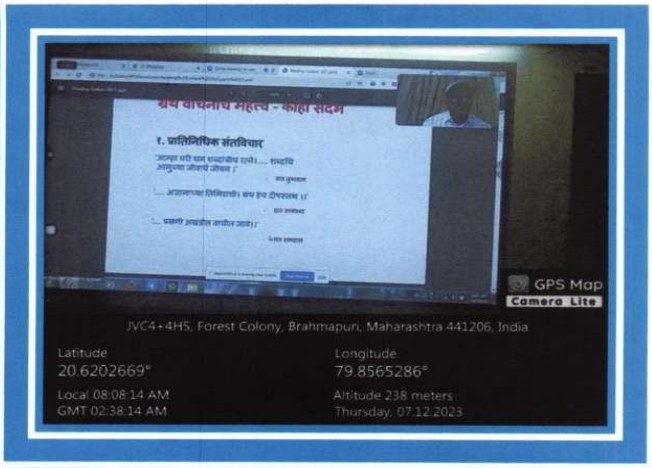
Faculty Development Programme Day 02

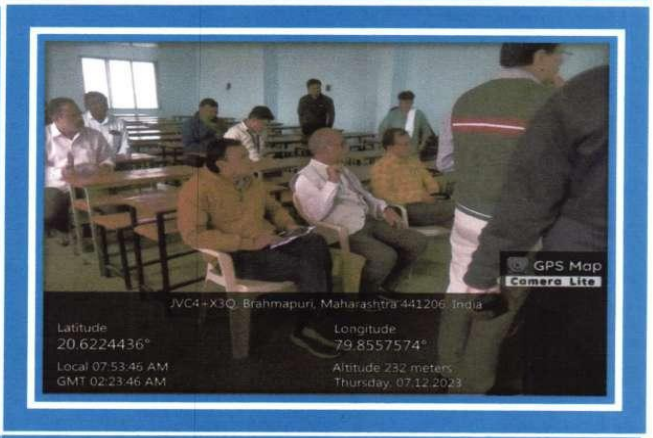




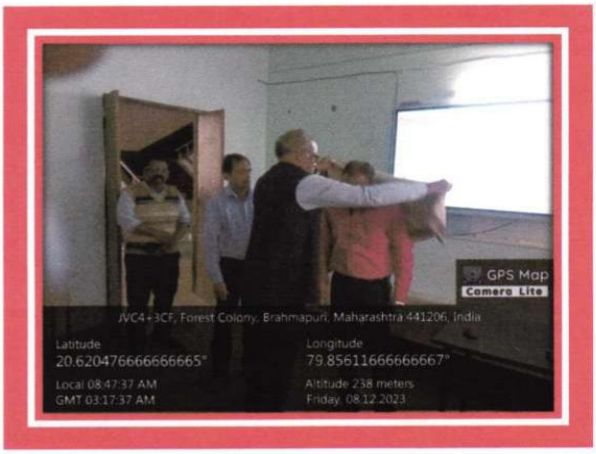


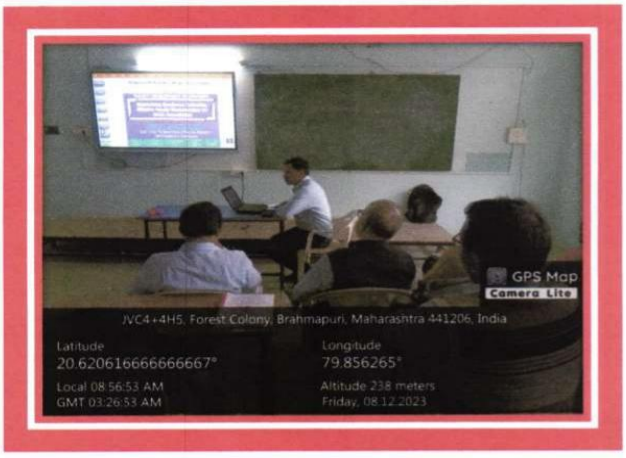
Faculty Development Programme Day 03



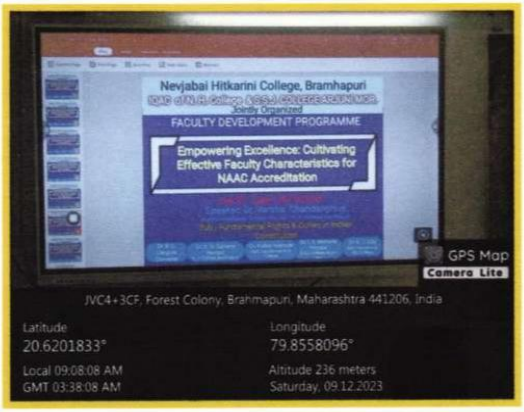


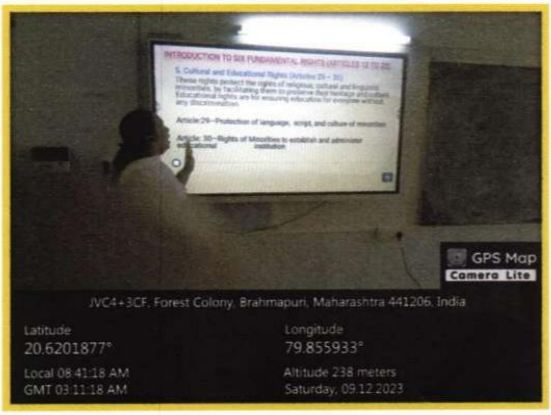
Faculty Development Programme Day 04

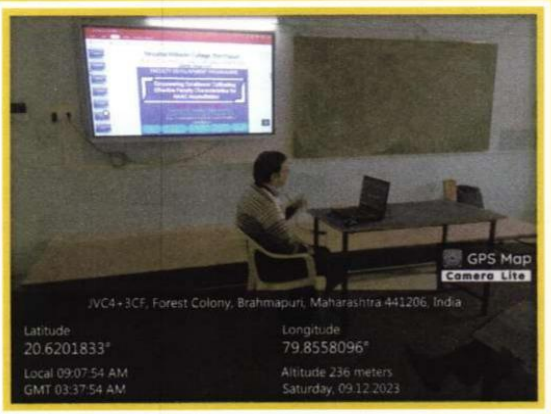




Faculty Development Programme Day 05







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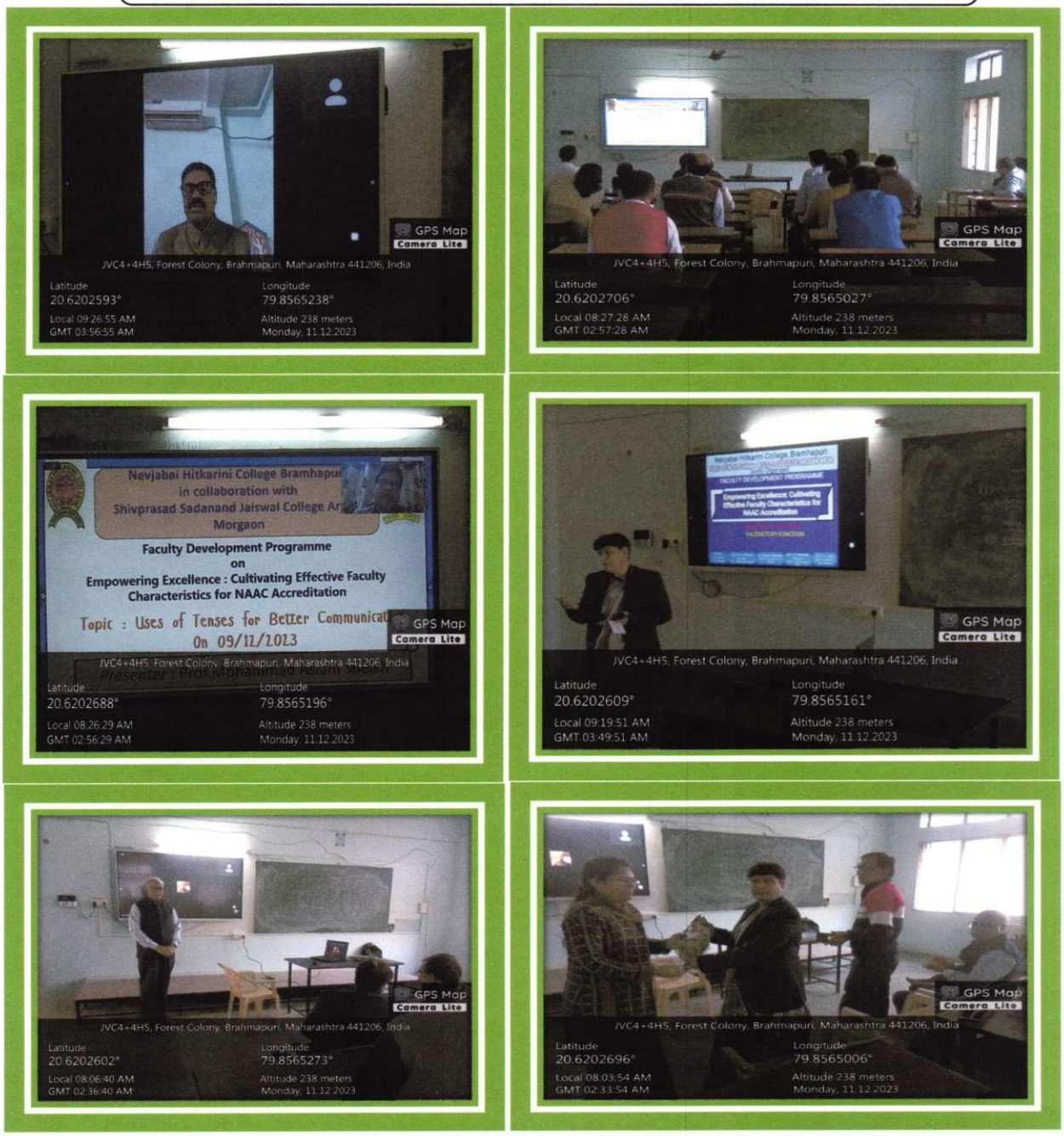


Collaborative Research Publication Under MOU Shivprasad Sadanand Jaiswal Arjuni, Morgaon, Gondia (01 Paper)

FOUNDRY JOURNAL[ISSN:1001-4977] VOLUME 27 ISSUE 10

A Comprehensive Review on synthesis, properties and applications of Cobalt Spinel Ferrites

S.H. Patle[1*], R.S. Meshram[2], D.L.Chaudhari[3], D.S. Choudhary[4]

[1, 2]*Department of Physics, N. H. College Bramhapuri, Chandrapur, 441206, India*
[3]*Department of Physics S. S. Jaiswal College, Arjuni/Mor, Gondia, 441701, India*
[4]*Department of Physics, D. B. Science College, Gondia, 441601, India*
**Corresponding author*

Phone No.-9049798624

Abstract: This comprehensive review provides a thorough investigation into the synthesis, properties, and applications of cobalt spinel ferrites. It encompasses an extensive examination of synthesis methodologies such as the sol-gel auto combustion method, co-precipitation method, solid state method, hydrothermal technique, spray pyrolysis technique, precursor technique, etc., and their effects on material properties. Furthermore, the review explores the diverse range of applications of cobalt spinel ferrites in electronics, telecommunications, catalysis, and biomedical engineering. Through a comprehensive analysis, this review highlights the significant advancements made in the understanding of cobalt spinel ferrites and their potential for future technological innovations. By consolidating current knowledge and identifying research gaps, this review aims to provide a valuable resource for researchers and professionals working in materials science and related fields.

Keywords: Nanoparticles, Spinel ferrites, Cobalt, Sol-gel method, co-precipitation method etc.

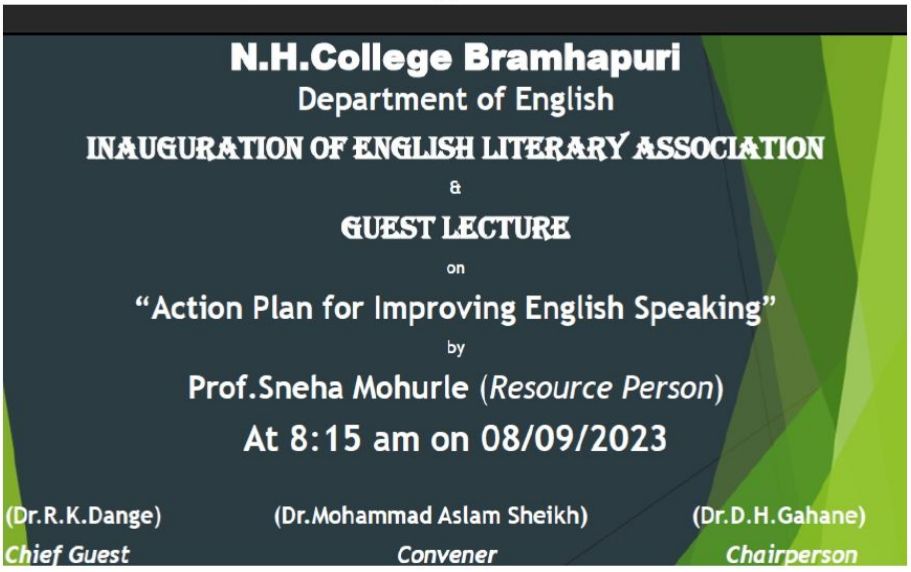
1. Introduction

Nanomaterials are categorized into four important classes based on their crystal structure. Such as spinel ferrite, garnet ferrite, hexa-ferrite, and ortho-ferrite [121]. Nano-ferrites are magnetic materials made up of metal oxide. It's widely used in different technological fields [3]. The spinel ferrite is a famous nanoparticle due to its unique properties [5] and its variety of applications, such as biomedical [9], water treatment, and industrial electronic devices [4-5]. Metal oxides of AB2O4 (SFNPS) [1]. In the above formula, A and B are metallic cations situated at two distinct crystallographic sites, as shown in Fig. 1. site-A tetrahedral and site-B octahedral. The cations of both positions are tetrahedral and octahedral coordinated to the oxygen atom [1], respectively, as shown in Fig. 1. The general formula for spinel ferrites is MFe2O4, [where M is Mg2+, Co2+, Ni2+, Mn2+, Zn2+, and Cu2+] [1]. Cobalt is a hard, shiny, silvery-blue magnetic metal with a melting temperature of 1.4950 °C. and the atomic number 27 [9]. Cobalt is formed in the earth's crust with a chemically combined form. Cobalt ferrite [CoFe2O4], is a hard magnetic material, including cubic spinel structures that have magnetic, dielectric, optical, catalytic, and antibacterial characteristics. Its magnetism is mild, and its coercivity is strong [6]. It is used as a magnetostrictive sensor and actuator and is also used for magnetic resonance imaging (MRI) and computer tomography (CT-Scan). It has many various applications in electronics, telecommunications, and environmental science. Why choose cobalt ferrite? because there are three reasons The first reason is that it is well known as a hard magnetic material with high coercivity between 233 and 2002 Oe and moderate magnetization between 47 and 56 emu/g [6]. The second reason is that it has high invariant activity [8], and the third reason is that it is very useful in various fields. I realize that many investigators focus on the improvement of the EM (electromagnetic) properties of ferrite (MFe_2O_4) by divalent ion substitution [7]. Generally, the divalent (M^{2+}) metal ions; Zn, Ni, Cu, Mn, Mg, Co, or composites of these are substituted in different spinel ferrites [6]. The effects of various divalent cations in substituted Co ferrite, along with other MFe_2O_4 spinel ferrites), are reviewed below.

Cobalt spinel ferrites ($CoFe_2O_4$) represent a fascinating category of magnetic materials that have increasingly become the focus of extensive research due to their outstanding magnetic properties and broad technological applications. As a pivotal component in the family of spinel ferrites, $CoFe_2O_4$ has been synthesized using various methods, each influencing its structural and magnetic behaviors in unique ways (Smith et al., 2018; Johnson & Wang, 2020.) This comprehensive review aims to meticulously examine the diverse synthesis techniques, from traditional ceramic and sol-gel processes to novel sonochemical and microwave-assisted methods (Lee et al., 2019), and their impact on the resulting properties of cobalt spinel ferrites [$CoFe_2O_4$]. The properties of $CoFe_2O_4$, such as high coercivity, moderate saturation magnetization, and chemical stability (Kumar & Sharma, 2021), render it

Collaborative Activity through MOU with Mahatma Gandhi Arts, Science, Commerce College, Armori

Guest Lecture *Action Plan for Improving English Speaking* delivered by Sneha Mohurle, Assistant Professor, M.G.College Armori under MoU

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Google


GPS Map Camera
Brahmapuri, Maharashtra, India
JVC4+4H5, Forest Colony, Brahmapuri, Maharashtra 441206, India
Lat 20.620361°
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Google

N.H.College Bramhapuri
Department of English
Inauguration of English Literary Association
&
Guest Lecture
on
"Action Plan for Improving English Speaking"
by
Prof.Sneha Mohurle (*Resource Person*)
At 8:15 am on 08/09/2023

Name of the convener : Prof. M.A. Sheikh

Sr. No.	Name of the Student	Class	Signature
1	Supriya T Bawankule	BA V Sem	
2)	Shubhangi D. Khobragade	BA V Sem	
3)	Prajakta P. Adkine	B.A V Sem	
4)	Akansha B. Newarre	B.A III Sem	
5)	chaitali A. Nasute	B.A. III Sem	
6)	Neha L. Thengari	B.A. I Sem	
7)	Rohini Rajendra Waghade.	B.A. I Sem	R.R. waghade.
8)	Prachi Pramod kasare	B.A. I sem	P.P. kasare.
9)	Chinmayi C. Madavi	B.A. I sem	
10)	Dipali D. Wagh	B.A. I Sem	
11)	Snehal U. Zure	B.A. I sem	
12)	Darshana A. sukare	BA - I sem	
13)	Tinu P. Maske	BA - I sem	
14)	Savitri J. katangale	BA - I sem	
15)	Dhanashri R. Shende	B.A. I	
16)	Pranju B. Raut	B.A. I	P.B. Raut
17)	Sapna vinay Donadkar	B.A I	S.V. Donadkar
18)	Kajal Kisan Kuthe	B.A I	K.K.
19)	Sukeshna Mahadeo Patankar	B.A I	
20)	Sneha Vilas Bawankule	B.A. I	
21)	kajal suresh Ithankar	B.A. I	K.S. Ithankar
22)	Sonal G. Pilare	B.A. I	
23)	Prachi K. Gayakwad	B.A. I	P.K. Gayakwad.
24)	Nilita G. Telkar	B.A. I	
25)	Payal G. chauke	B.A. I	p.G. chauke
26)	Payal P. Bawane	B.A. I	P.P. Bawane
27)	Hemant N. Gadkari	B.A. I	
28)	Bindiya B. Meshram	B.A. I	
29)	Mamta A. Naitam	B.A. I	M.A. Naitam
30)	Ritik P. Kumare	B.A. I	
31)	Manish J. Nanhodc	B.A. I	
32)	Suryakant R. Thakare	B.A I	
33)	Kamita D. Nandeve	B.A. I	

Inauguration of English Literary Association
&
Guest Lecture
on
"Action Plan for Improving English Speaking"
by
Prof.Sneha Mohurle (*Resource Person*)
At 8:15 am on 08/09/2023

Name of the convener : Prof. M.A.Sheikh

Sr. No.	Name of the Student	Class	Signature
34)	Dipak D. Puram	B.A.I	
35)	Anand T. Repalliwar	B.A.I	
36)	Pranay K. Dupare	B.A.I	P.K.Dupare
37)	Suraj D. Dalshahe	B.A.I	
38)	Amit B. Nanhe	B.A.I	
39)	Mrunal N. Nathate	B.A.I	
40)	Mithun Y. Dakhane	B.A.I	
41)	Sahil N. Kambali	B.A.I	
42)	Ajay R. Bhande	B.A.I	
43)	Sandip G. Meshram	B.A.I	
44)	Gunjan S. Nikure	B.A.I	G.S. Nikure
45)	Sujan S. Kale	B.A.I	
46)	Yugal V. Kore	B.A.I	V. Kore
47)	Aniket M. Shende	B.A.I	
48)	Alok A. Shivankar	B.A.I	A Shivankar
49)	Ajay D. Athode	B.A.I	Athode
50)	Jnandeep B. Ramteke	B.A.I	
51)	Mohd N. Khobragade	B.A.I.	M.N.Khobragade
52)	Dhammapal U. Ramteke	B.A.I	D.U.Ramteke
53)	Sanjana N. Kambali	B.A.I	S.N.Kambali
54)	Tejas Receiving power	B.A.I	
55)	Sonam Narayan Kambali	B.A.I	
56)	Nikhil Ramesh Naitam	B.A.III	
57)	Saurabh S. Burade	B.A.III	Burade
58)	Vijay V. Deotale	B.A.III	
59)	Tejaswini L. Dhote	B.A.III	
60)	Ankita D. Khukshinge	B.A.III	A.D.Khukshinge
61)	Pranali V. Bhoyar	B.A.III	Bhoyar
62)	Bhumika R. Sonwane	B.A.III	B.R.Sonwane
63)	Saundarya D. Hajare	B.A.III	Hajare
64)	Prachi A. Makade	B.A.III	P.A.Makade
65)	Samiksha P. Pandit	B.A.III	Pandit
66)	Chandani W. Bavankule	B.A.III	Bavankule

Inauguration of English Literary Association
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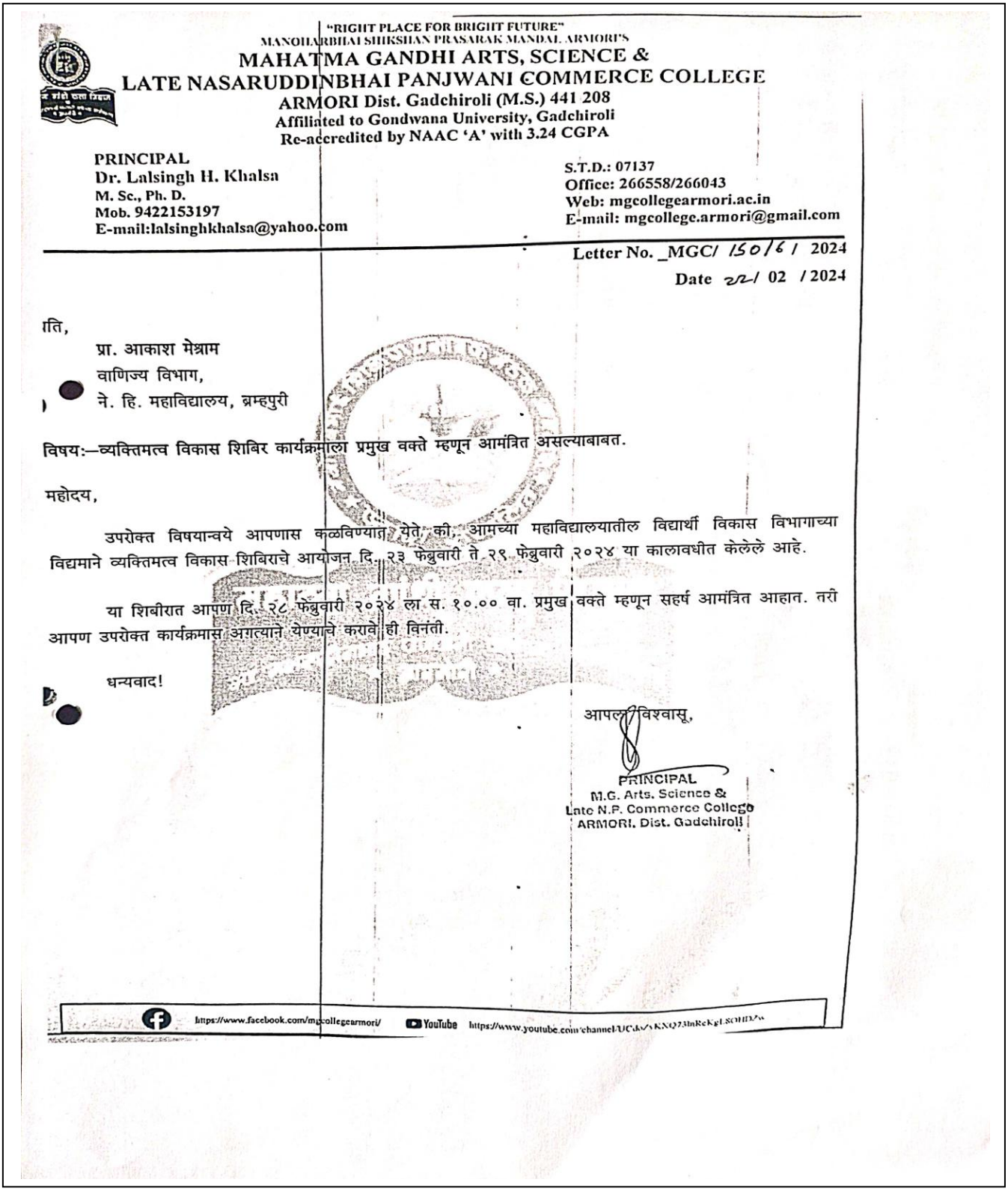
Name of the convener: Prof M.A Sheikh

Sr. No.	Name of the Student	Class	Signature
67	Rachi K. meshram	B.A.III	R.K. meshram
68	Vishakha S. kumare	B.A III	S.kumare
69	Riya A. Kamble	B.A III	Kamble
70	Reshama. R. nannaware	B.A III	Rnannaware
71	Pallavi V. Mand	B.A.III	Pmand
72	Pragati G. Deshmukh	B.A.III	Pdeshmukh
73	gauri S. makode	B.A. I	Gallai
74	Archana M. Chulke	B.A. I	Achulke
75	Gayatri S. Makode	B.A.I	G.S. Makode
76	Swaal G. Khaskate	B.A.I	Gkhaskate
77	Riya B. Bhoyar	B.A.I	R. B. Bhoyar
78	Poornima T. Gurnule	B.A.I	Pgurnule
79	Ambika V. Nakrode	B.A.I	Ambika v. Nakrode
80	Sakshi G. chahande	B.A.I	Schande
81	Kavana G. Inchurkar	B.A.I	Kinchurkar
82	Punam R. Bawane	B.A III	Rbawane
83	Vaishnavi V. Lute	B.A.I	V.V. Lute
84	Sulbha M. Dani	B.A.I	Mdani
85	Pratibha P. Shirsikar	B.A.I	
86	Nikki V. Raut	B.A.I	Nikraut
87	Nilima G. Raut	B.A.I	Graut
88	Nandini V. Radke	B.A I	N.V. Radke
89	Ridhdeshwari V. Talmale	B.A.I	Vtalmale
90	Mohini P. Argelwar	B.A.I	Margelwar
91	yashasvi K. Thakre	B.A.I	KThakre
92	Gayatri Ch. Dandekar	B.A.III	Ch.Ch. Dandekar
93	Madhuri P Pendam	B.A III	Ppendam

(M.A Sheikh)

Collaborative Activity through MOU with Mahatma Gandhi Arts, Science, Commerce College, Armori (Guest Lecture in Six Days Workshop)



"RIGHT PLACE FOR BRIGHT FUTURE"
MANOHARBHAI SHIKSHAN PRASARAK MANDAL ARMORI'S
MAHATMA GANDHI ARTS, SCIENCE &
LATE NASARUDDINBHAI PANJWANI COMMERCE COLLEGE
ARMORI Dist. Gadchiroli (M.S.) 441 208
Affiliated to Gondwana University, Gadchiroli
Re-accredited by NAAC 'A' with 3.24 CGPA

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Letter No. _MGC/ 150/61 / 2024
Date 22/ 02 / 2024

प्रति,
प्रा. आकाश मेश्राम
वाणिज्य विभाग,
ने. हि. महाविद्यालय, ब्रम्हपुरी

विषय:—व्यक्तिमत्व विकास शिबिर कार्यक्रमाला प्रमुख वक्ते म्हणून आमंत्रित असल्याबाबत.

महोदय,

उपरोक्त विषयान्वये आपणास कळविण्यात येते की, आमच्या महाविद्यालयातील विद्यार्थी विकास विभागाच्या विद्यमाने व्यक्तिमत्व विकास शिबिराचे आयोजन दि. २३ फेब्रुवारी ते २९ फेब्रुवारी २०२४ या कालावधीत केलेले आहे.

या शिबीरात आपण दि. २८ फेब्रुवारी २०२४ ला स. १०.०० वा. प्रमुख वक्ते म्हणून सहर्ष आमंत्रित आहात. तरी आपण उपरोक्त कार्यक्रमास अगत्याने येण्याचे करावे ही विनंती.

धन्यवाद!

आपला विश्वासू,

PRINCIPAL
M.G. Arts, Science &
Late N.P. Commerce College
ARMORI, Dist. Gadchiroli

https://www.facebook.com/mgcollegearmori/ YouTube https://www.youtube.com/channel/UCdvAKNQ73lnRcKgLSOHDZw

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Letter No. _MGC/ 161 / 2024

Date 28 / 02 / 2024

आभार पत्र

प्रति,

प्रा. आकाश मेश्राम
वाणिज्य विभाग,
ने.हि. महाविद्यालय, ब्रम्हपुरी

महोदय,

आमच्या महाविद्यालयात दि. २३ फेब्रुवारी ते २९ फेब्रुवारी २०२४ या कालावधीत आयोजित व्यक्तिमत्व विकास शिबिरामध्ये आपण दि. २८ फेब्रुवारी २०२४ ला **'व्यक्तिमत्व विकास आणि उद्योजकता'** या विषयावर मार्गदर्शक म्हणून महाविद्यालयात उपस्थित राहून प्राध्यापक व विद्यार्थी यांना मौलिक मार्गदर्शन केले.

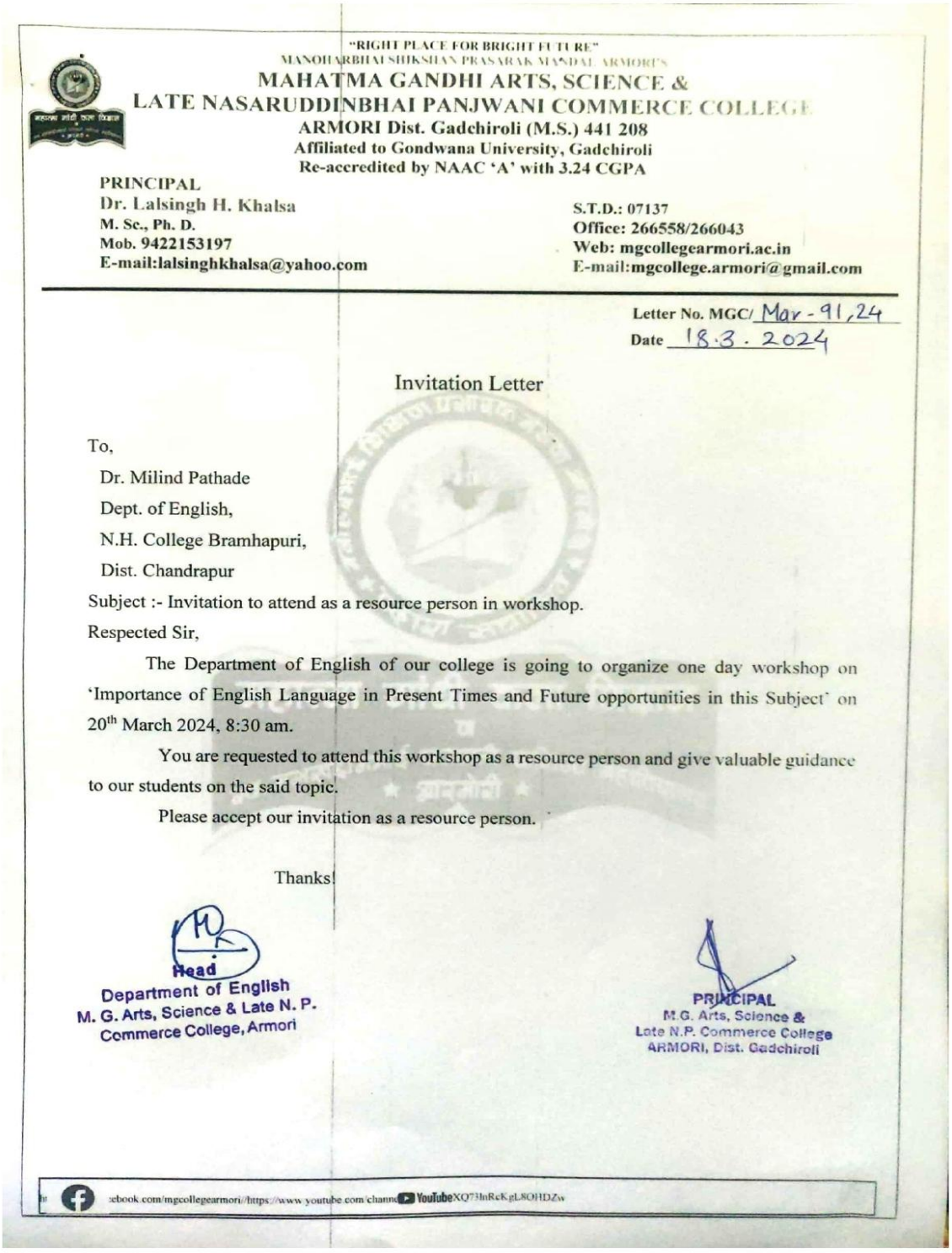
आपण केलेले मार्गदर्शन आम्हा सर्वांच्या चिरकाल स्मरणात राहील.

धन्यवाद!

आपला विश्वासू,

PRINCIPAL
M.G. Arts, Science &
Late N.P. Commerce College
ARMORI, Dist. Gadchiroli

Collaborative Activity through MOU M.G. College, Armori
(Guest Lecture Delivered- Dr. M.A. Pathade)



"RIGHT PLACE FOR BRIGHT FUTURE"
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E-mail:mgcollege.armori@gmail.com

Letter No. MGC/ Mar-91,24
Date 18.3.2024

Invitation Letter

To,
Dr. Milind Pathade
Dept. of English,
N.H. College Bramhapuri,
Dist. Chandrapur

Subject :- Invitation to attend as a resource person in workshop.

Respected Sir,

The Department of English of our college is going to organize one day workshop on 'Importance of English Language in Present Times and Future opportunities in this Subject' on 20th March 2024, 8:30 am.

You are requested to attend this workshop as a resource person and give valuable guidance to our students on the said topic.

Please accept our invitation as a resource person.

Thanks!

Head
Department of English
M. G. Arts, Science & Late N. P.
Commerce College, Armori

PRINCIPAL
M.G. Arts, Science &
Late N.P. Commerce College
ARMORI, Dist. Gadchiroli

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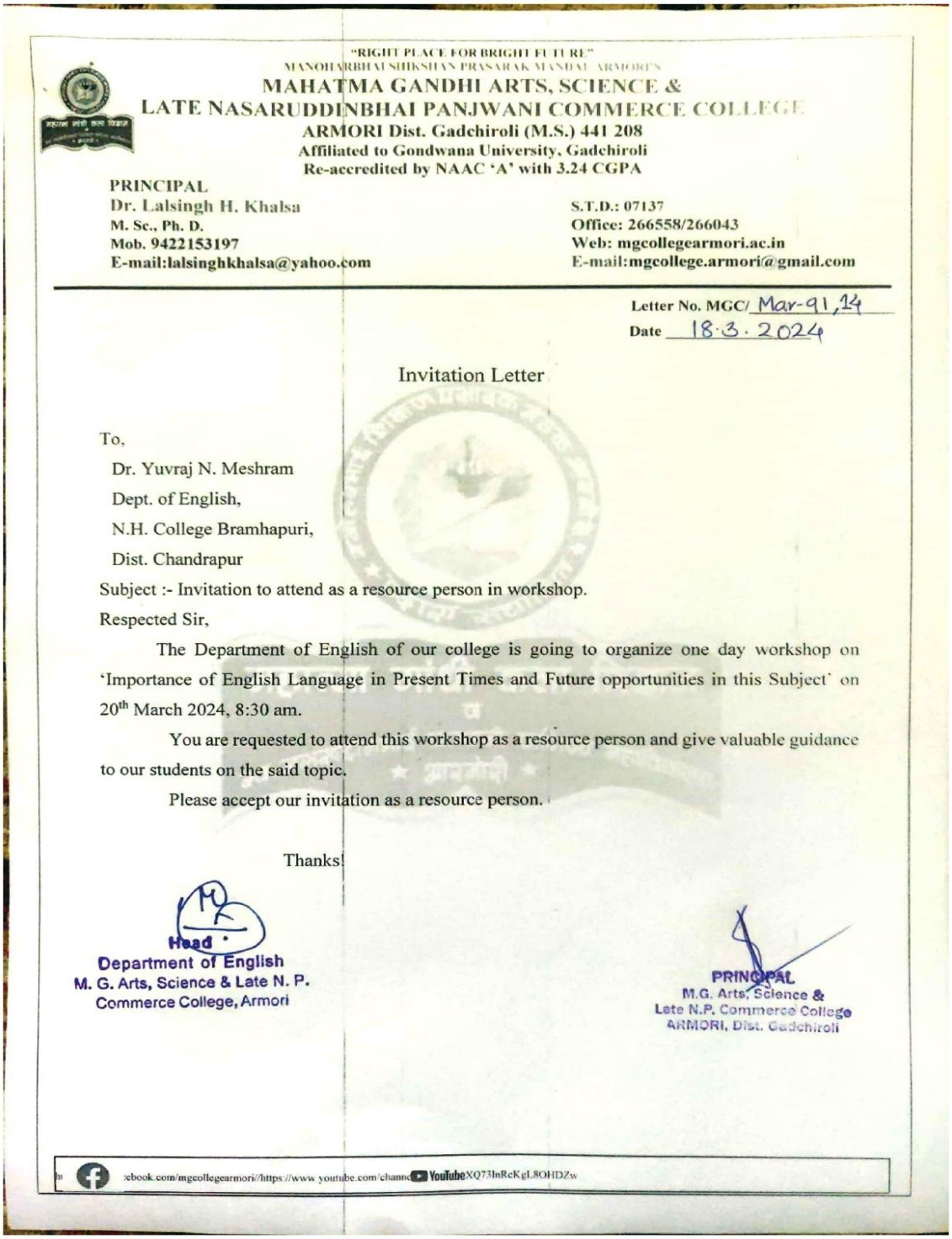
Collaborative Activity through MOU M.G. College, Armori
(Guest Lecture Delivered- Dr. Y.N. Meshram)



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Letter No. MGC/ Mar-91,14
Date 18.3.2024

Invitation Letter

To,
Dr. Yuvraj N. Meshram
Dept. of English,
N.H. College Bramhapuri,
Dist. Chandrapur

Subject :- Invitation to attend as a resource person in workshop.

Respected Sir,

The Department of English of our college is going to organize one day workshop on 'Importance of English Language in Present Times and Future opportunities in this Subject' on 20th March 2024, 8:30 am.

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ARMORI, Dist. Gadchiroli

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इंग्रजी भाषा व्यक्तिमत्त्व विकासाचे महाद्वार

● प्रा. डॉ. युवराज मेश्राम यांचे प्रतिपादन ● महात्मा गांधी महाविद्यालयात इंग्रजी भाषा कार्यशाळेचे आयोजन

◆ आरमोरी, २२ मार्च

इंग्रजी भाषा आज ज्ञानभाषा झाली असून, इंग्रजीचे ज्ञान वर्तमानातील विद्यार्थ्यांसाठी अतिशय महत्त्वाचे झाले आहे. इंग्रजी भाषा ही प्रयत्न व आत्मविश्वासातून सहज साध्य करता येते. इंग्रजी भाषा ही व्यक्तिमत्त्व विकासाचे महाद्वार आहे. त्यामुळे विद्यार्थ्यांनी इंग्रजीची भीती न बाळगता आव्हान म्हणून स्वीकारावे व यशाचे शिखर गाठावे, असे प्रतिपादन ब्रह्मपुरी येथील नेवजाबाई हितकारिणी महाविद्यालयाच्या इंग्रजी विभागाचे प्रा. डॉ. युवराज मेश्राम यांनी केले.

स्थानिक महात्मा गांधी कला, विज्ञान व स्व. न. पं. वाणिज्य महाविद्यालयाच्या इंग्रजी विभागाच्या वतीने प्राचार्य डॉ. लालसिंग खालसा यांच्या मार्गदर्शनाखाली आयोजित 'इंग्रजी भाषेचे वर्तमान युगात महत्त्व व इंग्रजी भाषेतील भविष्यकालीन संधी' या विषयावरील कार्यशाळेत ते प्रमुख वक्ते म्हणून मार्गदर्शन करत होते. अध्यक्षस्थानी महात्मा गांधी महाविद्यालयाचे इंग्रजी विभागप्रमुख प्रा. डॉ. नोमेश मेश्राम, तर प्रमुख अतिथी म्हणून प्रा. डॉ. मिलिंद पाठाडे उपस्थित होते.

मार्गदर्शन करताना प्रा. डॉ. युवराज मेश्राम. व्यासपीठावर प्रा. डॉ. नोमेश मेश्राम, प्रा. डॉ. मिलिंद पाठाडे

प्रा. डॉ. मिलिंद पाठाडे यांनी इंग्रजीचे महत्त्व अधोरेखित करताना या भाषेने जगाला खूप जवळ आणले असून, चांगले संभाषण कौशल्य असलेल्यांना प्रगतीचे आकाश खुले करून दिले आहे. भाषांतरकार, लेखक, शिक्षक, पत्रकार अशा विविध क्षेत्रात इंग्रजीचे ज्ञान असलेल्यांना भविष्यात संधी असल्याचे ते म्हणाले.

प्रा. डॉ. नोमेश मेश्राम यांनी इंग्रजी संभाषण कौशल्ये विकसित करण्याचे काही मार्ग सांगितले. इंग्रजीचे ज्ञान प्राप्त करतानाच स्थानिक बोलीभाषांचाही वापर करून आपल्या भाषा व संस्कृतीचे जतन करण्याचा सल्लाही त्यांनी दिला.

प्रास्ताविक प्रा. अनिल राऊत यांनी केले. संचालन प्रा. स्नेहा मोहुर्ले यांनी, तर आभारप्रदर्शन प्रा. वैभव पडोळे यांनी केले. कार्यशाळेच्या यशस्वितेसाठी प्रा. दिलीप घोनमोडे, किशोर कुथे, शीला घोडीचोरे, प्रवीण प्रधान यांनी सहकार्य केले. *(तभा वृत्तसेवा)*

Collaborative Research Publication Under MOU Mahatma Gandhi College, Armori (01 Paper)

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Journal in Arts, Commerce, Education & Social Sciences

ISSN 2277-8071

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RESEARCH, INNOVATION, CHALLENGES & OPPORTUNITIES IN HIGHER EDUCATION
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In collaboration with
Saraswati Kala Mahavidyalaya, Dahihanda
Arts And Science College, Kurha,
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DR. SUBHASH M. SHEKOKAR

Director of Physical Education & Head
N.H.College,
Bramhapuri,. Dist.
Chandrapur (M.S.)

PROF.MILIND A.SALVE

Jr.College Lecturer
M.G.Jr.College,
Armori,
Dist.Gadchiroli (M.S.)

ANALYSIS ON IMPACT OF YOGIC PRACTICES ON MENTAL AND PHYSICAL WELLNESS

ABSTRACT

The current paper centers to study the significance of Yoga on wellbeing Normal solid volunteers with age at the very least 20 years and not over 60 years, from region chandrapur. Estimations/Variables, WHO Quality of life – Brief. The reaction was gathered from 50 respondents out of them 25 as control gathering and 25 as a yoga practice bunch. Tests for Normality (Shapiro Wilk's) completed for every one of the information factors showed an ordinarily dispersed information. Matched 'T' test was utilized to dissect inside bunch contrasts in the yoga and control gatherings and Independent examples 'T' test was utilized to examine the between bunch impact. The current investigation estimated the adequacy of Yoga on Quality of life areas on typical solid volunteers contrasted with control bunch. The investigation showed a huge improvement in yoga bunch on every one of the four spaces of WHO QOL scale like actual wellbeing, mental area, social relationship area and ecological space contrasted with control bunch. With this a straightforward and simple act of standard Yoga strategy helps in working on the personal satisfaction.

KEY WORD: *Yoga, Wellbeing, WHO, Improvement, Yoga Strategy, Personal Satisfaction*

Introduction

Man has ventured into the 21st century. Clinical science and men are working with many better technologies to provide better medical care. The mission of the World Wellness Association is to consider the state of global wellness and find important ways to increase wellness expectations. High-tech clinical offices with interesting advances in medical procedures with spare parts, despite being more pleasant to life and with a future more important than 70 years, ordinary personal satisfaction, kindness and harmony are completely far from the real world. Pressure issues, stress related issues, anxiety, family separation all increase. Well being experts who began to give help to the extinct creatures they experienced with medicines and treatments are now facing such fresher questions because of the great important need. Most normal well-being and social problems cannot be solved by bacterial hypotheses, antimicrobial drugs or medical interventions. The appearance of attractive analytical instruments began to emphasize the work of the psyche. Specialists in biochemistry, psycho-neurophysiology, immunology see a large number of these millennial difficulties in brain work, lifestyle, repressed emotions, stress, etc. Some research sections on the value of positive thinking, attraction, recovery, mind-body medicine, yoga, acupuncture and energy medicine fill clinical journals, ignoring the organized scientists on crazy substance drugs and medical procedures.

Yoga is becoming mainstream on the planet. It gives comfort to a troubled psyche. For those who are destroyed, it is a protection. For the average person, it's all about planning your day to keep yourself fit and beautiful. Some use it to build memory, knowledge and imagination. With its many advantages, it becomes part of the school. Experts use it to unlock new cognitive layers as they move toward flawlessness. Given its objective starting point, the advanced clinical framework has replaced almost all traditional drug frameworks in various regions of the world. It has proven itself best in saving people from the deadly hands of contagious and irresistible diseases. Be that as it may, new widespread psychosomatic diseases and mental health problems are an incredible test of the advanced clinical framework.

N. H. College, Bramhapuri
Department of Commerce & Management
Educational Industrial Tour
Visit Report

Date: 28 March 2024

Destination: Y.G. Lakhani Cloth Mall, Bramhapuri

Objective: To gain practical knowledge and insight into the textile industry and retail management.

Introduction:

On 28 March 2024, our 25 Students of B. Com III & Teacher group embarked on an educational tour to Y.G. Lakhani Cloth Mall, Bramhapuri a renowned textile destination. The tour aimed to provide us with hands-on experience and knowledge about the textile industry, retail management, and customer service.

Observations and Learnings:

1. Textile Variety: We were amazed by the vast array of textiles on display, including fabrics, garments, and accessories. This exposure helped us understand the diversity of textile products and their applications.

2. Retail Management: We observed the store's layout, display, and merchandising strategies. This helped us grasp the importance of visual merchandising, customer flow, and inventory management in a retail setting.

3. Customer Service: We witnessed the staff's interaction with customers, noting their helpful and courteous attitude. This highlighted the significance of providing excellent customer service in a competitive retail environment.

4. Supply Chain Management: We gained insight into the mall's supply chain management, including procurement, storage, and distribution. This understanding helped us appreciate the complexities of managing a large textile retail operation.

Conclusion:

The educational tour to Y.G. Lakhani, Bramhapuri Cloth Mall was an enriching experience, providing us with valuable knowledge and practical insights into the textile industry and retail management. We appreciate the opportunity to learn from this esteemed institution and look forward to applying our newfound understanding in our future endeavors.

Recommendations:

- Regular educational tours to industry sites can enhance students' practical knowledge and understanding.

- Interactions with industry experts and professionals can provide valuable insights and networking opportunities.

- Incorporating hands-on experiences and project-based learning can make education more engaging and effective.

Acknowledgments:

We express our gratitude to the management and staff of Y.G. Lakhani Cloth Mall for their hospitality and cooperation during our visit. We also appreciate the efforts of our educators and organizers in making this educational tour a success.

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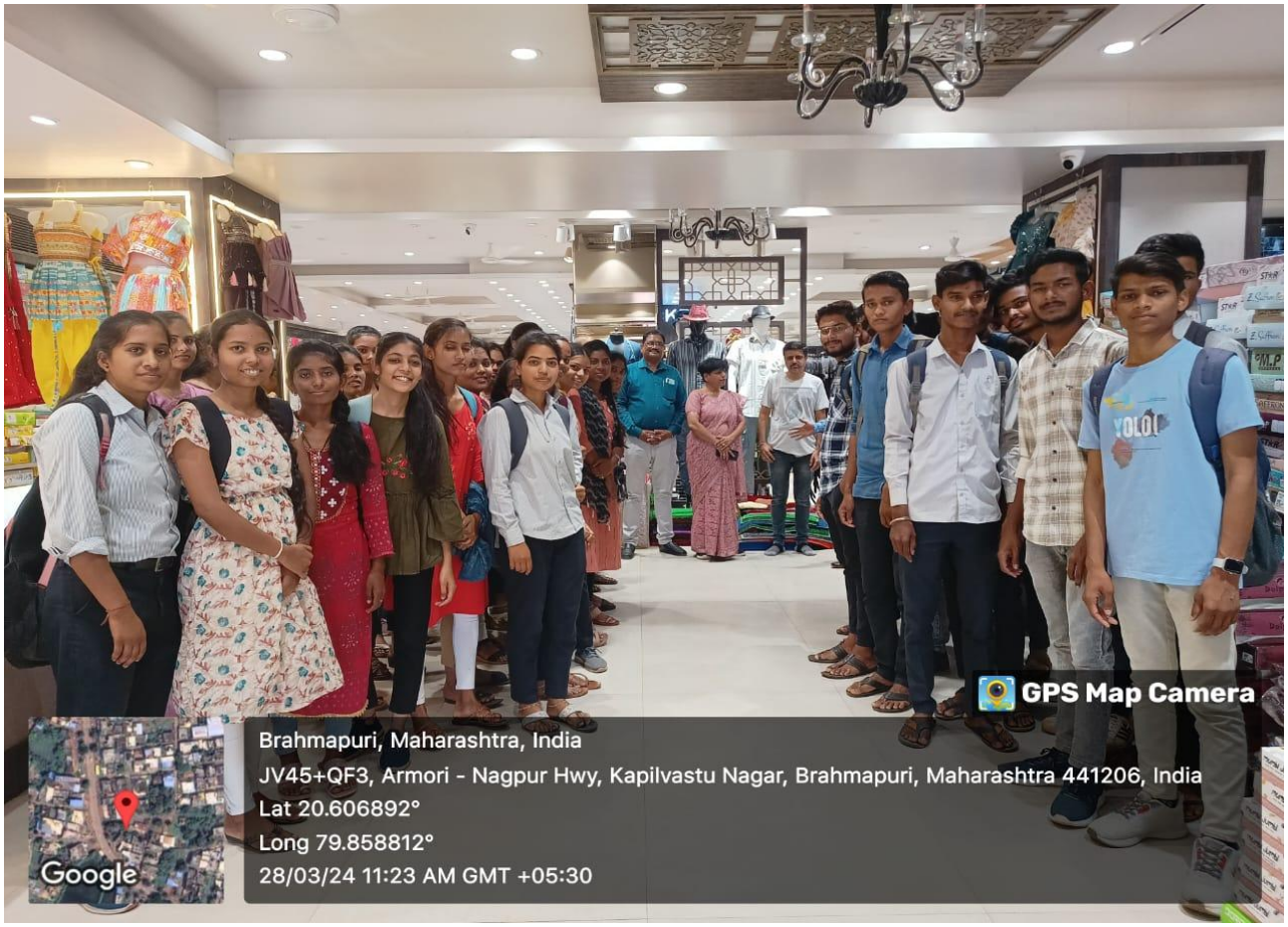
HOD
Faculty of Commerce & Management

Principal
N. H. Kelzarkar College,
Bramhapuri, Dist. Chandrapur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N. H. College, Bramhapuri
Department of Commerce & Management
Educational Industrial Tour
Visit Report

Date: 3 April 2024

Destination: Balaji Rice Products, Bramhapuri

Objective: To gain practical knowledge and insight into the rice processing and manufacturing industry.

Introduction:

On 3 April 2024, our 25 Students of B. com I & Teachers group embarked on an educational tour to Balaji Rice Products, a renowned rice processing unit located in Bramhapuri. The tour aimed to provide us with hands-on experience and knowledge about the rice processing industry, its operations, and management.

Observations and Learnings:

1. Rice Processing: We observed the various stages of rice processing, including sorting, cleaning, husking, and polishing. This exposure helped us understand the importance of quality control and efficient processing techniques.

2. Manufacturing Operations: We witnessed the manufacturing operations, including packaging and labeling. This helped us grasp the significance of proper packaging and branding in the food industry.

3. Quality Control Measures: We were impressed by the quality control measures in place, including regular testing and inspection of raw materials and finished products.

4. Hygiene and Safety: We observed the emphasis on maintaining a clean and hygienic environment, as well as the safety measures in place to prevent accidents and injuries.

Conclusion:

The educational tour to Balaji Rice Products was an enriching experience, providing us with valuable knowledge and practical insights into the rice processing and manufacturing industry. We appreciate the opportunity to learn from this esteemed organization and look forward to applying our newfound understanding in our future endeavors.

Recommendations:

- Regular educational tours to industry sites can enhance students' practical knowledge and understanding.

- Interactions with industry experts and professionals can provide valuable insights and networking opportunities.

- Incorporating hands-on experiences and project-based learning can make education more engaging and effective.

Acknowledgments:

We express our gratitude to the management and staff of Balaji Rice Products for their hospitality and cooperation during our visit. We also appreciate the efforts of our educators and organizers in making this educational tour a success.

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N. H. College, Bramhapuri
Department of Commerce & Management
Educational Industrial Tour
Visit Report

Date: 6 April 2024

Destination: Ramdevbaba Solvent Private Limited, Borgaon

Participants : 25 (B. Com II Students)

The Commerce department organized an educational tour to Ramdevbaba Solvent Private Limited, Borgaon, on 6 April 2024. The tour aimed to provide Commerce students with practical exposure to the manufacturing industry, focusing on the production of edible oils and other solvent-based products.

Objectives:

1. To understand the manufacturing process of edible oils and solvent-based products.

2. To gain insight into the company's operations, management, and marketing strategies.

3. To develop practical knowledge and skills in the field of commerce and industry.

Details of the Visit:

Upon arrival, we were warmly welcomed by the company's management team. The tour began with a brief introduction to the company's history, mission, and vision. We were then taken through the manufacturing facility,

where we observed the production process of edible oils, including refining, bleaching, and packaging.

Highlights of the Visit:

1. Manufacturing Process: We gained a thorough understanding of the manufacturing process, including the use of solvents, refining, and quality control measures.

2. Quality Control: We observed the company's quality control measures, including laboratory testing and inspection of raw materials and finished products.

3. Marketing and Sales: We learned about the company's marketing and sales strategies, including branding, packaging, and distribution.

4. Financial Management: We gained insight into the company's financial management, including budgeting, costing, and financial reporting.

Outcome of the Visit:

The educational tour to Ramdevbaba Solvent Private Limited was an enriching experience for our Commerce students. The tour provided them with practical exposure to the manufacturing industry, helping them to develop a deeper understanding of the concepts learned in the classroom. The students were able to ask questions, clarify doubts, and gain valuable insights into the industry.

Acknowledgments:

We express our gratitude to the management team of Ramdevbaba Solvent Private Limited for their hospitality and cooperation during our visit. We appreciate the efforts of our faculty members in organizing this educational tour and providing our students with a valuable learning experience.

Dr. R.B. Meshram
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Faculty of Commerce & Management

Principal
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Department of Political Science

MOU Report 2023-24

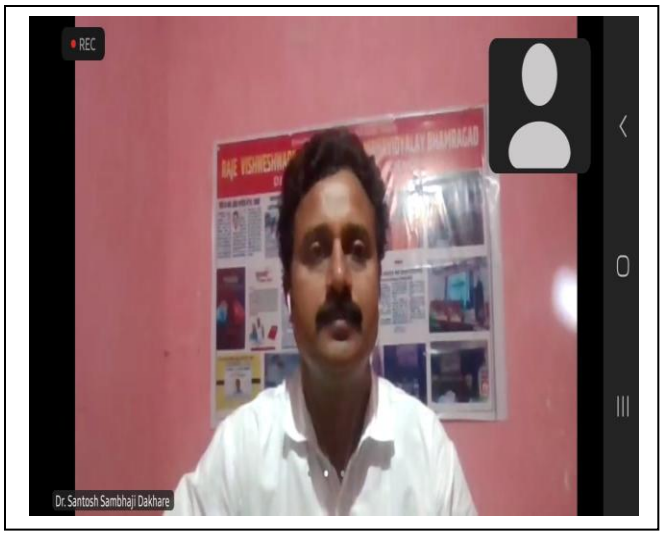
The Nevjabai Hitkarini College having MOU with Mahatma Jyotibha Fule Arts college, Ashti jointly Organized a seminar on " India in a International politics " dated on 04/04/2024. The Programme is Jointly organized by the department of Political science N. H. College Bramhapuri and department of Political Science of Mahatma Jyotibha Fule Arts college, Ashti .

Aim: Collaborative work of Imparting Knowledge

Objective : 1. Faculty Exchange

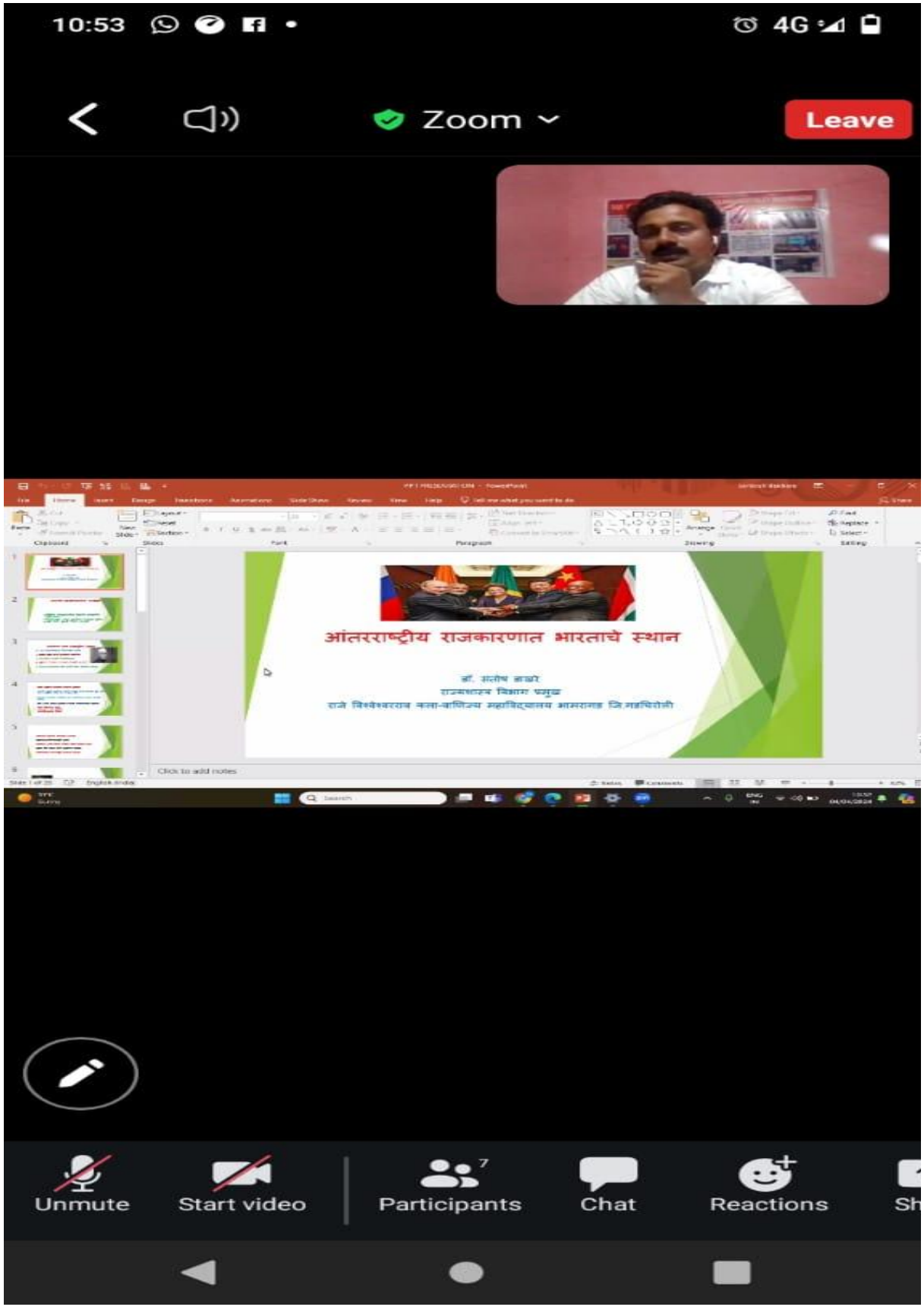
2. Students Exchange

As a MOU with Mahatma Jyotibha Fule Arts college, Ashti, N.H.College Bramhapuri has jointly organized a Seminar for the students beneficial for both the college . Where the Dr.D.H.Gahane was president of this seminar, delivered the inaugural speech he gives best wishes for this joint activity. The resource Person was Dr. Santosh Dakhare Raje Vishweshwarrao Arts, commerece college Bhamaragad who imparting his knowledge to the student about the various stages at time of various priminister era that affected the international policies and make India stronger at international politics. Dr.Sanjay D.Fulzele principal of Mahatma Jyotibha Fule Arts college gives Concluding remark to the seminar. The Programme is Conducted by the Prof. Varsha Chandanshive N. H. College Bramhapuri where Vote of thank delivered by Dr. Ganesh Khune. Students from both College Join this Seminar in Online mode.



Dr. Santosh Dakhare

Prof. Varsha Chandanshive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Collaborative Research Publication Under MOU Mohasinbhai Zaweri Mahavidyalay, Desaiganj (04 Papers)

J Opt
https://doi.org/10.1007/s12596-023-01130-z

RESEARCH ARTICLE

Wet chemical synthesis and photoluminescence study of Eu^{3+} activated orthophosphate-based phosphor for n-UV-based solid-state lighting

C. M. Nandanwar[1] · N. S. Kokode[2] · R. M. Yerojwar[3] · A. N. Yerpude[1] · R. S. Meshram[1]

Received: 1 October 2022 / Accepted: 3 February 2023

Abstract The wet chemical synthesis was used to make a series of $Sr_3La(PO_4)_3:Eu^{3+}$ phosphors. X-ray diffraction (XRD), morphology, photoluminescence characteristics and chromaticity were thoroughly investigated. The X-ray diffraction was used to confirm the cubic phase with the space group $I-4\,3\,d$ (220). The $Sr_3La(PO_4)_3:Eu^{3+}$ phosphors show a strong excitation peak at 394 nm. Upon 394 nm excitation, two emission peaks were observed at 594 nm (orange) and 615 nm (red), which corresponding to the transitions $^5D_0 \rightarrow {}^7F_1$ and $^5D_0 \rightarrow {}^7F_2$ of Eu^{3+} ions, respectively. The concentration quenching occurred at 0.5 mol % of Eu^{3+} ions. The chromaticity coordinates of wavelength 594 nm are ($x=0.597$, $y=0.401$), and wavelength 615 nm is ($x=0.680$, $y=0.319$). The $Sr_3La(PO_4)_3:Eu^{3+}$ phosphors are a series of candidate phosphors for near-UV-based solid-state lighting.

Keywords XRD · SEM · Wet chemical synthesis · Phosphor · Photoluminescence · Solid-state lighting

Introduction

White light emitting diodes (w-LEDs) have received a lot of interest in recent years due to their better conversion efficiency and more flexible control of photometric parameters as compared to traditional incandescent lighting [1–3].

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Published online: 21 February 2023

Luminescence is well established field of scientific research. The last few decades have witnessed dramatic changes in research in luminescence. Photoluminescence is emission produced by excitation with the light photons. It is found that the orthophosphate is a prominent host owing to the high molecular yield, low sintering temperature, excellent physical chemistry stability as well as thermal stability. Therefore, orthophosphate is a type of suitable host for photoluminescence materials. The proposed research work will be focused on the preparation of various lanthanide ions-activated orthophosphate phosphors [4, 5]. Commercial w-LED is now based on a blue InGaN LED chip that excited a yellow-emitting YAG:Ce phosphor, which has a very low colour rendering index (CRI) due to a colour deficit in the red region [6]. To compensate for these shortcomings, another method of producing white light is to combine a near-ultraviolet (*n*-UV) (370–410 nm) LED with tricolour (red, green, and blue) (RGB) phosphors [7, 8]. $Y_2O_2S:Eu^{3+}$ (R), $ZnS:Cu^{2+}$, Al^{3+}(G), and $BaMgAl_{10}O_{17}:Eu^{2+}$ (B) are the current main phosphors suitable for use in n-UV InGaN-based LEDs [9, 10]. Because of its good colour rendering index, high colour tolerance, and high conversion efficiency into visible light, n-UV phosphor-converted w-LEDs are expected to have a wide range of possible applications [11]. As a result, there has been a lot of interest in finding new extremely efficient RGB phosphors that are excited by n-UV LEDs to produce white light. Unfortunately, $Y_2O_2S:Eu^{3+}$ has lower absorption in the n-UV range and is unfriendly to the environment [12]. Furthermore, the luminous efficacy of red phosphors excited by n-UV is substantially lower than that of green and blue phosphors. As a result, great focus has been placed on the development of novel red phosphors with high efficiency excited by n-UV chips for the manufacturing of w-LEDs.

J Opt
https://doi.org/10.1007/s12596-023-01387-4

RESEARCH ARTICLE

Wet chemical synthesis and photoluminescence properties of $NaSrPO_4:Dy^{3+}$ and $NaSrPO_4:Eu^{3+}$ phosphors for near UV-based w-LEDs

C. M. Nandanwar[1] · N. S. Kokode[2] · A. N. Yerpude[1] · R. M. Yerojwar[3] · S. K. Sayyad[4]

Received: 12 February 2023 / Accepted: 26 August 2023

Abstract The $NaSrPO_4:Dy^{3+}$and $NaSrPO_4:Eu^{3+}$phosphors were synthesized with success via wet chemical synthesis. XRD and photoluminescence properties of the prepared phosphors were thoroughly investigated. The XRD was used to confirm the hexagonal phase with $P6_3/mmc$ (194) space group. The emission peaks of $NaSrPO_4:Dy^{3+}$ phosphor are observed at 484 and 574 nm under excitation at 350 nm. When $NaSrPO_4:Eu^{3+}$ phosphor was stimulated at 394 nm, the emission bands at 591 and 613 nm are found. The CIE coordinates indicate that the present phosphors have high colour purity. The results indicate that $NaSrPO_4:Dy^{3+}$ and $NaSrPO_4:Eu^{3+}$ phosphors were blue-yellow and orange-red emitting under n-UV converting w-LEDs.

Keyword Wet chemical synthesis · XRD · Phosphor · Photoluminescence · w-LED

Introduction

It is widely acknowledged that the invention of w-LEDs in this century has resulted in a significant revolution in illumination techniques due to their excellent properties such as luminous quality, energy saving, excellent stability, high efficiency and environmental friendliness [1–4]. Blue, green and red phosphors have been studied for application in w-LEDs [5–8]. Phosphors are an important material in lighting technology and have received a lot of attention in phosphor converted w-LEDs [9, 10]. As a result, it is important to discover new white phosphors with enhanced brightness, which originate from a single phosphor.

The most popular technique for creating w-LEDs was developed by S. Nakamura et al. in 1997 [11], combining both the blue-based InGaN LED (light-emitting diode) chip and the yellow-emitting (yttrium aluminium garnet) $YAG:Ce^{3+}$ phosphors. A poor colour executing index (CRI, Ra 7000 K) brought due to the absence of a red component and significant thermal quenching are two shortcomings of the pc-w-LEDs previously discussed [12, 13]. Extraordinary rare earth-doped inorganic phosphors are entrancing and have been generally investigated through ongoing numerous years. In this particular circumstance, the uncommon superior properties of trivalent ions doped phosphate materials of the type $ABPO_4$, where A and B are monovalent and divalent cations, independently, have drawn a lot of interest [14]. To determine these issues, single-part white light-communicating phosphors have procured pervasiveness due to their high brilliance efficiency, assortment reproducibility and modest collecting costs [15, 16].

The Dy^{3+} ion has two primary emission groups: blue (470–500 nm) because of the magnetic dipole $^4F_{9/2} \rightarrow {}^6H_{15/2}$ transition and yellow (570–600 nm) connected with the touchy electric dipole $^4F_{9/2} \rightarrow {}^6H_{13/2}$ transition [17, 18]. Orthophosphate is regarded as an important host for luminescent materials due to its excellent properties, which include a large band gap and high absorption of PO_4^{3-} in the n-UV region, moderate phonon energy, high chemical stability, exceptional optical damage threshold and low sintering temperature. Numerous investigations have been

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Combustion synthesis and photoluminescence study of novel Sm^{3+} activated $K_3La(PO_4)_2$ phosphor for n-UV solid state lighting

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ARTICLE INFO

Keywords:
XRD
SEM
Photoluminescence
Combustion synthesis
Solid state lighting

ABSTRACT

In the present study, a novel $K_3La(PO_4)_2:Sm^{3+}$ phosphor was prepared by the combustion method. The synthesized $K_3La(PO_4)_2:Sm^{3+}$ phosphor was characterized by XRD, SEM, PL (emission and excitation) and color chromaticity. The recorded X-ray diffraction pattern for the phosphor matches JCPDS no. 00–047–0468. From the SEM analysis, the phosphor had an average particle size of 2–25 micrometers and had a solid microcrystalline structure with specific uneven shapes and aggregation between the crystalline grains. The maximum excitation peak occurs at 403 nm, which corresponds to the $^6H_{5/2} \rightarrow {}^4F_{7/2}$ transition of the Sm^{3+} ions. From all the observed transitions, the emission band at 598 nm ($^6G_{5/2} \rightarrow {}^6H_{7/2}$) shows an orange-red emission with prominent intensity. The emission intensity of the $K_3La(PO_4)_2:Sm^{3+}$ phosphor could reach a maximum of 1 mol % and then concentration quenching occurs. Further, concentration quenching is explained using Blasse's equation and Dexter's theory. The chromaticity findings of the synthesized phosphor had a CIE coordinate of (0.617, 0.381) and hence might be used for an orange-red emission in solid state lighting.

1. Introduction

Orthophosphate phosphors are a type of phosphor material that is commonly used in fluorescent lighting and display technologies. Orthophosphate phosphors have a high conversion efficiency, which means they can convert a large portion of the input energy into light [1–5]. They produce a high level of brightness compared to other types of phosphors, making them ideal for use in applications where bright light is required. Orthophosphate phosphors produce a relatively broad spectrum of light, which makes them capable of rendering colors accurately [6–9]. They have a relatively long lifespan, which means they can last for a long time without needing replacement. Orthophosphate phosphors are highly stable and resistant to degradation, which makes them suitable for use in harsh environments. They are non-toxic and environmentally friendly, which makes them safe to use in a variety of applications [10–12].

When Sm^{3+} ions are incorporated into the orthophosphate lattice, they interact with the surrounding ions and lattice structure in several ways. The crystal field can split the energy levels of the Sm^{3+} ions into different states, which can affect the emission and absorption spectra of the material [13–15]. When Sm^{3+} ions are incorporated into an orthophosphate lattice, they may create charge imbalances that need to be compensated for by other ions in the lattice. This can lead to the formation of defects or the incorporation of other ions into the lattice [16,17]. The size of the Sm^{3+} ions can affect the crystal structure of the orthophosphate lattice. Sm^{3+} ions in the orthophosphate lattice can exhibit luminescence properties due to their energy level structure [18,19]. The luminescence properties can be influenced by crystal field effects and the surrounding structure [20,21]. To.

Sm^{3+} activated $K_3La(PO_4)_2$ phosphors have a range of potential applications due to their luminescent properties. In solid-state lighting, Sm^{3+} activated $K_3La(PO_4)_2$ phosphors can be used as luminescent materials in white LED lighting applications. The phosphor may be activated by blue light and its red emission can be combined with other colors to produce white light. Sm^{3+} activated $K_3La(PO_4)_2$ phosphors can be used in display technologies, such as plasma displays, to produce orange and red emissions. The phosphors can also be used in color filters and backlighting for LCD displays [22,23]. The orange-red emission from Sm^{3+} activated $K_3La(PO_4)_2$ phosphors can be used in biomedical imaging applications, such as fluorescence microscopy and bio-imaging, to label and detect biological molecules. Sm^{3+} activated $K_3La(PO_4)_2$ phosphors have been studied for their potential use in radiation

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Indian J Phys
https://doi.org/10.1007/s12648-023-02853-2

ORIGINAL PAPER

Synthesis and photoluminescence properties of $AlPO_4$:Ln (Ln = Dy^{3+}, Eu^{3+} and Sm^{3+}) phosphors for near UV-based white LEDs application

C M Nandanwar[1]*, R M Yerojwar[2], N S Kokode[3], A N Yerpude[1] and S J Dhoble[4]

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Received: 28 October 2022 / Accepted: 11 July 2023

Abstract: A series of $AlPO_4$:Ln (Ln = Dy^{3+}, Eu^{3+} and Sm^{3+}) phosphors were synthesized by the combustion technique. The phosphor's XRD and luminescent properties were thoroughly investigated. The trigonal crystal structure with the space group P 31 2 1 (152) was verified by X-ray powder diffraction. Under UV excitation (350 nm), $AlPO_4$:Dy^{3+} phosphor shows emission peaks at 484 and 574 nm, respectively. When $AlPO_4$:Eu^{3+} phosphor was excited at 395 nm, the emission spectra showed strong bands at 592 and 615 nm. When stimulated at 403 nm, the emission spectra of $AlPO_4$:Sm^{3+} phosphor showed an emission peak at 565 nm generated by a purely magnetic dipole, a second peak at 646 nm produced by a purely electric dipole and a third peak at 599 nm generated by both magnetic and electric dipoles, respectively. Our research showed that $AlPO_4$:Ln (Ln = Dy^{3+}, Eu^{3+} and Sm^{3+}) was a blue-yellow, orange-red, and yellow-orange-red emitting phosphor, which provides an excellent candidate for solid-state lighting, specifically for n-UV w-LED applications.

Keywords: XRD; Combustion synthesis; Phosphor; Lanthanide doped; CIE chromaticity coordinates; w-LEDs

1. Introduction

White-emission diodes (w-LEDs) stand out in the strong state enlightenment lighting in its fourth-generation strong state lighting source [1–4]. When contrasted with regular illuminants, w-LEDs offer a few advantages, including long life, high-security coefficient, high productivity and energy saving [5–7]. In the business lighting area these days, a mixture of multi-light variety phosphors has accomplished standard warm white brightening. Nonetheless, different impediments of half and half multi-light phosphor-based LED sources arise, including a low variety delivery record and an absence of adequate red emission inferable from multi phosphor re-absorption [8]. The most broadly involved strategy for creating white-light discharging diodes (w-LEDs) is to cover a yellow-producing phosphor on a blue radiating InGaN LED. For this reason, yttrium aluminium doped with cerium (YAG:Ce, $Y_3(Al, Ga)_5O_{12}$:Ce^{3+}, $(Y, Gd)_3AlO_{12}$:Ce^{3+}) is ordinarily utilized as the yellow phosphor. Not with standing, as a result of the absence of a red part, w-LEDs fabricated thus produce dual-colour white light with unfortunate variety quality (CRI ~ 70) [9]. One of the most encouraging procedures for creating white light in w-LEDs is to utilize a UV-LED (360–400 nm) covered with blue, green, and red tri-variety phosphors. This strategy delivers a more adjusted white range than standard blue producer and yellow phosphor gadgets and is simpler to work with than gadgets that create white light by individually joining red, green, and blue LEDs [10].

Extraordinary earth-doped inorganic phosphors are extraordinarily entrancing and have been generally investigated through ongoing numerous years. In this particular circumstance, the uncommon brilliance properties of trivalent doped phosphate-based materials of the sort $ABPO_4$, where A and B are mono-valent and divalent cations, independently, have drawn a lot of interest [11]. These phosphor materials have been generally examined

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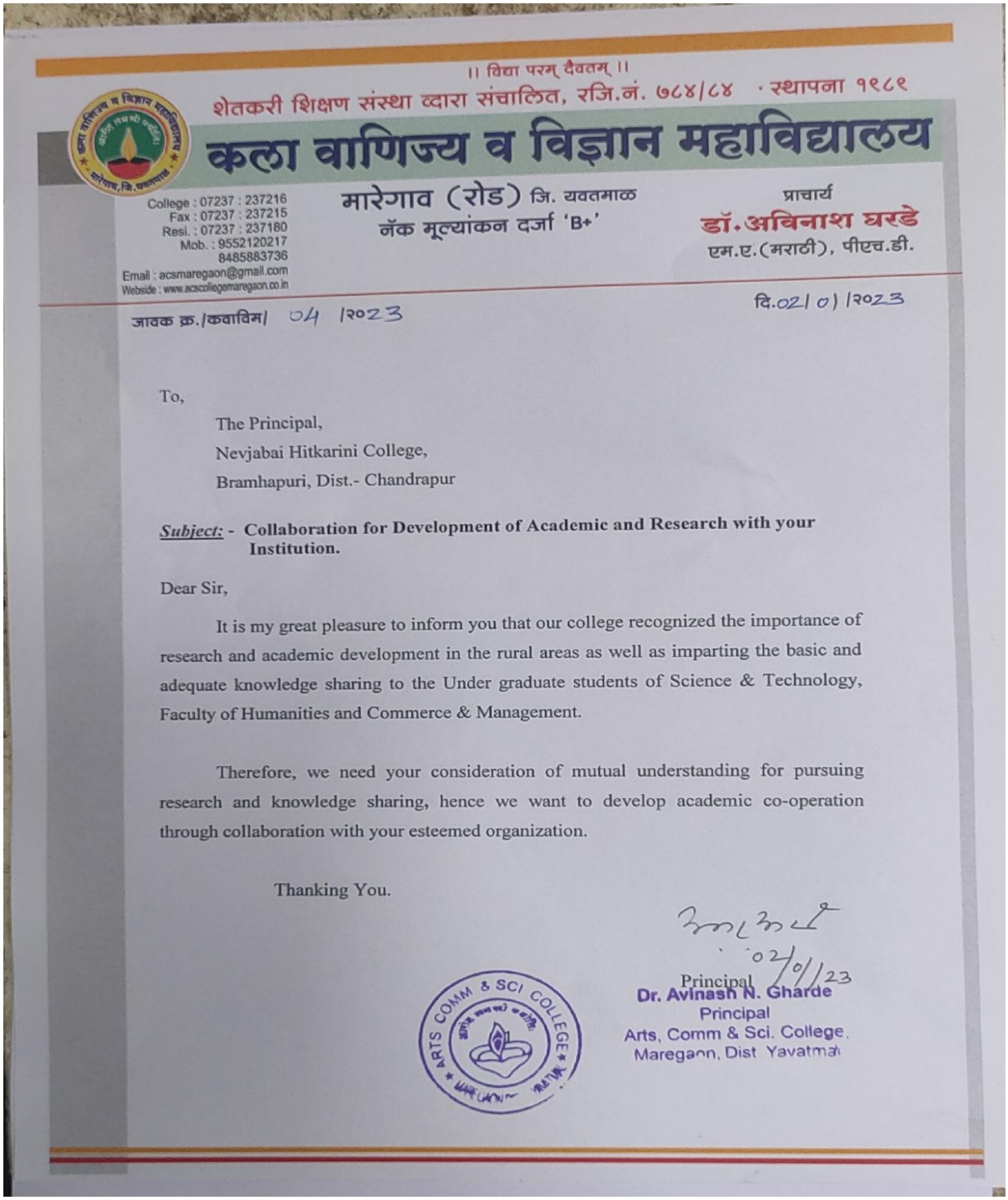
Published online: 09 August 2023

Collaborative Activity through MOU with Nutan Mahavidyalay,Umred (Guest Lecture Delivered)

Collaboration Letter with Arts, Commerce and Science College Maregaon, Yavatmal

Research and Academic Co-Operation



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To,

The Principal,
Nevjabai Hitkarini College,
Bramhapuri, Dist.- Chandrapur

Subject: - **Collaboration for Development of Academic and Research with your Institution.**

Dear Sir,

It is my great pleasure to inform you that our college recognized the importance of research and academic development in the rural areas as well as imparting the basic and adequate knowledge sharing to the Under graduate students of Science & Technology, Faculty of Humanities and Commerce & Management.

Therefore, we need your consideration of mutual understanding for pursuing research and knowledge sharing, hence we want to develop academic co-operation through collaboration with your esteemed organization.

Thanking You.

02/0/23

Principal
Dr. Avinash N. Gharde
Principal
Arts, Comm & Sci. College,
Maregaon, Dist Yavatmal

ARTS COMM & SCI COLLEGE

Nevjabai Bhaiya Hitkarini Education Society's
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BRAMHAPURI-441206, Distt. : CHANDRAPUR (M.S)
NAAC Reaccreditted - B++ Grade with CGPA 2.87, UGC 2 (F) & 12 (B);ISO 9001 : 2015

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Ref. No. 130A/2023

Date : 05/01/2023

To,

The Principal,
Arts, Commerce and Science College,
Maregaon, Dist- Yavatmal -445303, India

Reference : Your letter no. कवाविम /04/2023 dated 02/01/2023

Subject: - Acceptance letter for Development of Academic and Research Collaboration with your institute.

Dear Sir,

As per your letter no. कवाविम /04/2023 it's my great pleasure to inform you that our college also recognized the importance of research and academic development in the rural areas as well as imparting the basic and adcquatc knowledge sharing to the Under graduate students of Science & Technology, Faculty of Humanities and Commerce & Management.

Therefore, in consideration of your letter the mutual understanding for pursuing research and knowledge sharing, we are accepting proposal of academic and research co-operation through collaboration with your esteemed organization.

Thanking You.

Principal
Nevjabai Hitkarini College,
Bramhapuri

Collaborative Research Publication with Arts, Commerce and Science College Maregaon, Yavatmal (03 Papers)

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DOI: 10.1002/bio.4568

RESEARCH ARTICLE

LUMINESCENCE WILEY
The Journal of Biological and Chemical Luminescence

Structural, morphological, and photoluminescence properties of RE (RE = Dy^{3+}, Eu^{3+}, Sm^{3+})-doped $CaAlBO_4$ phosphor synthesized by combustion method

Roshana T. Maske[1] | Atul N. Yerpude[1] | Rupesh S. Wandhare[2] | Sanjay J. Dhoble[3]

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Abstract

The $CaAlBO_4$:RE (RE = Dy^{3+}, Eu^{3+}, Sm^{3+}) phosphor were prepared via combustion synthesis and studied by X-ray diffraction (XRD), Fourier-transform infrared (FTIR) analysis, scanning electron microscopy (SEM), energy-dispersive X-ray spectroscopy (EDS), photoluminescence (PL) spectra and CIE coordinates. The phase formation of the obtained phosphor was analyzed by XRD and the result was confirmed by standard PDF Card No. 1539083. XRD data successfully indicated pure phase of $CaAlBO_4$ phosphor. The crystal structure of $CaAlBO_4$ phosphor is orthorhombic with space group Ccc2 (37). The SEM image of $CaAlBO_4$ phosphor reveals an agglomerated morphology and non-uniform particle size. The EDS image provides evidence of the elements present and the chemical makeup of the materials. Under the 350 nm excitation, the emission spectrum of Dy^{3+} activated $CaAlBO_4$ phosphor consists of two main groups of characteristic peaks located at 484 and 577 nm which are ascribed to $^4F_{9/2} \rightarrow {}^6H_{15/2}$ and $^4F_{9/2} \rightarrow {}^6H_{13/2}$ transition of Dy^{3+} respectively. The PL emission spectra of $CaAlBO_4$:Eu^{3+} phosphor shows characteristics bands observed around 591 and 613 nm, which corresponds to $^5D_0 \rightarrow {}^7F_1$ and $^5D_0 \rightarrow {}^7F_2$ transition of Eu^{3+} respectively, upon 395 nm excitation wavelength. The emission spectra of Sm^{3+} activated $CaAlBO_4$ phosphor shows three characteristic bands observed at 565, 601 and 648 nm which emits yellow, orange and red color. The prominent emission peak at the wavelength 601 nm, which is attributed to $^4G_{5/2} \rightarrow {}^6H_{7/2}$ transition, displays an orange emission. The CIE color coordinates of $CaAlBO_4$:RE (RE = Dy^{3+}, Eu^{3+}, Sm^{3+}) phosphor are calculated to be (0.631, 0.368), (0.674, 0.325) and (0.073, 0.185). As per the obtained results, $CaAlBO_4$:RE (RE = Dy^{3+}, Eu^{3+}, Sm^{3+}) phosphor may be applicable in eco-friendly lightning technology.

KEYWORDS
borate, combustion synthesis, phosphor, photoluminescence, SEM, X-ray diffraction

1 | INTRODUCTION

In the past decades, research and the scientific community have been more interested in the development of lanthanide-activated phosphor because of its large applications in areas such as plasma display, solar cells, laser, white light, bio-imaging and phototherapy [1–4]. In the current investigation, there are a number of research papers on the development of inorganic phosphors and on trying to improve the

J Opt
https://doi.org/10.1007/s12596-023-01391-8

RESEARCH ARTICLE

Photoluminescence studies of $SrAlBO_4$: RE^{3+} (RE^{3+} = Dy^{3+} and Sm^{3+}) phosphor synthesized by combustion method for W-LEDs

Roshana T. Maske[1] · A. N. Yerpude[1] · Rupesh S. Wandhare[2] · S. J. Dhoble[3]

Received: 13 July 2023 / Accepted: 26 August 2023

Abstract In the present work, we have prepared a series of different concentrations of $SrAlBO_4$: RE^{3+} ($RE = Dy^{3+}$ and Sm^{3+}) phosphors by using conventional combustion method and characterized through FTIR and photoluminescence spectra. The photoluminescence spectrum of Dy^{3+} ion-activated $SrAlBO_4$ phosphor exhibits two characteristic bands about 483 nm and 575 nm which emit blue and yellow color due to $^4F_{9/2} \rightarrow {}^6H_{J/2}$ (J = 15,13) transition of Dy^{3+} ions, respectively, monitored at 350 nm excitation wavelength. The photoluminescence spectrum shows that the synthesized $SrAlBO_4$: Sm^{3+} phosphor material can be well excited under 403 nm to get yellow, orange and red emission wavelength at 562 nm, 598 nm and 644 nm, respectively. The energy migration mechanism of Dy^{3+} and Sm^{3+} ions was determined to be dipole–dipole (d-d) and quadrupole–quadrupole (q-q) interactions, respectively, based on Dexter's theory. The CIE color coordinates of $SrAlBO_4$: Dy^{3+} material are located in the blue and yellow regions, while the $SrAlBO_4$: Sm^{3+} phosphor's color coordinates are positioned in the orange–red regions. The influence of varying concentrations of rare earth ions on luminescence emission intensity was also examined. The experimental result indicates that $SrAlBO_4$ phosphor doped with Dy^{3+} and Sm^{3+} ions exhibits its potential from various applications involving white light emission.

✉ A. N. Yerpude
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[2] Department of Physics, ACS College, Maregaon, Dist- Yavatmal 445303, India

[3] Department of Physics, RTM Nagpur University, Nagpur 440033, India

Published online: 15 September 2023

Keywords Dy^{3+} ions · Sm^{3+}ions · Photoluminescence · White light-emitting diodes

Introduction

Borate phosphors are a type of luminescent materials; they are commonly used in lighting applications such as CRT displays, plasma displays, fluorescent lamps, phosphorescence paint and solid-state lighting (SSL). Borate phosphors are known for their excellent optical properties, high thermal stability and chemical durability, which make them ideal for use in high-performance lighting applications [1–3]. They can be designed to emit light in a large range of colors, including yellow, green, red, orange and blue. Luminescent centers, which emit light upon being excited by an external energy source like an electric current, are generated through the process of doping these rare earth elements into the borate matrix. Borate phosphors are also attractive for use in SSL applications because they can be easily integrated into LEDs, which are high energy efficient and longer lasting than traditional lighting sources [4–6]. Overall, borate phosphors constitute a crucial class of luminescent materials that play a pivotal role in modern lighting technology. Recently, white light-emitting diodes (W-LEDs) are becoming popular as a change for fluorescent and incandescent lamps. They offer several advantages such as affordability, small size, low power consumption, environmental friendliness, high luminescence efficiency and long lifespan. W-LEDs are often called the "fourth generation" of lighting sources. [7, 8]. White LEDs have recently emerged as a formidable competitor in the lighting industry, where they have a wealth of advantages. LEDs hold great promise for the low-cost lighting systems of the future. Due to their ability to emit light of a specific color across the need for color filters, LEDs are

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BIOSYNTHESIS OF COPPER OXIDE NANOPARTICLES USING *Uraria picta* (JACQ.) PLANT EXTRACT AND ITS CHARACTERIZATION

SARTAJ SHEIKH[1], ARVIND J. MUNGOLE[2]*, HARSHA P. KANFADE[3], A. P. PAWAR[4], MRUNAL I. WARHADE[1], SNEHAL BHANDAKKAR[6] AND A. N. YERPUDE[7]

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[2]Department of Botany, [4]Department of Chemistry,[7]Department of Physics
Nevjabai Hitkarini College, Bramhapuri, Maharashtra - 441 206, INDIA.
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[6]Department of Botany, ACS College Maregaon, Maharashtra - 445 303, INDIA.
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KEYWORDS
Uraria picta
Biosynthesis
CuO nanoparticles,

Received on :
24.01.2023

Accepted on :
12.03.2023

***Corresponding author**

ABSTRACT
The complete plant extract from Uraria picta was used in the current study as a natural reagent to synthesize CuO nanoparticles. A large part of the synthesis in response to the plant extract served as a reducing and stabilizing agent, resulting in copper oxide nanoparticles (NPs) of different sizes and forms. The synthesized nanoparticles were characterized using XRD, FTIR, UV-Vis spectroscopy, SEM and TEM. Strong absorbance peaks at 294 nm in the UV-visible spectrum are caused by the formation of CuO. The synthesized CuO XRD diffraction peaks closely matched those of the previously published CuO XRD. According to FTIR studies, the Cu-O bond stretching can be seen in the absorption bands at 515.50 cm-1 and 623.64 cm-1. The SEM micrographs show that the CuO particles are spherically formed, densely packed together, and irregularly dispersed. The TEM picture showed an average particle size of 50 nm. In this study, copper oxide nanoparticles of Uraria picta (JACQ.) plant extract prepared using the biosynthesis and characterized.

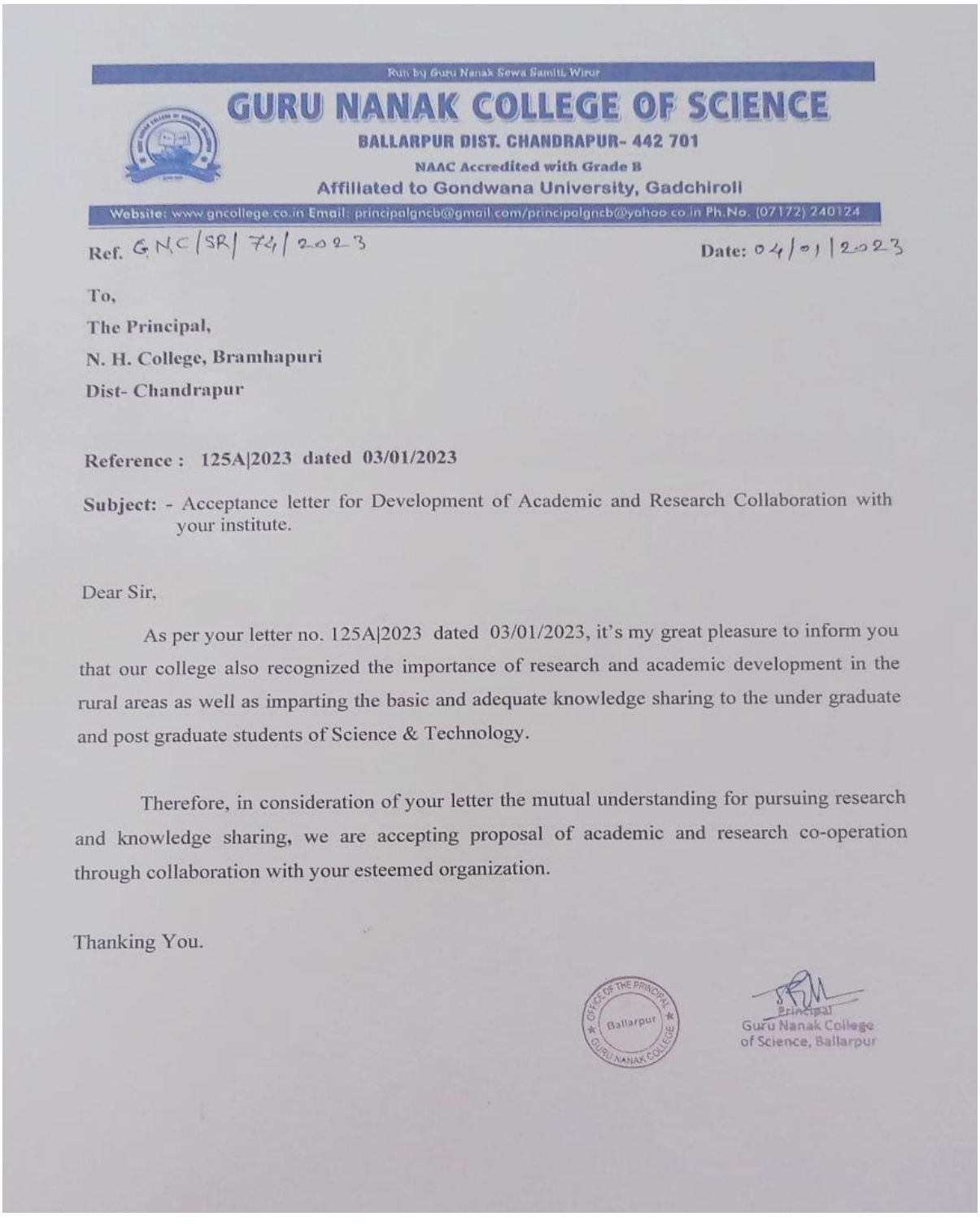
INTRODUCTION

Biosynthesis of metal oxide nanoparticles, mediated by plant extracts has become a promising area of research due to their intensive applications in the environmental, pharmaceutical, nanofluids food and cosmetics industries (Chang *et al.*, 2011). Biological synthesis has received widespread attention as a reliable, sustainable, and environmentally friendly method for the synthesis of metal or metal oxide nanoparticles (Singh *et al.*, 2018). Nanoparticle biosynthesis is considered to be an important tool in reducing the destructive effects associated with traditional nanoparticle synthesis methods used in laboratories and industries (Jeevanandam, *et al.*, 2016 and Chauke *et al.*, 2020).

Nanoparticles with their unique size-dependent property have the ratio of the surface area to volume. The smaller the sized particles carry a greater aspect ratio *i.e.*, greater surface area compared to their volume. This increasing field of smaller nanoparticles enhances the nanoparticle's reaction with the surrounding molecules. Metal oxides at the nanoscale can restrict the movement of electrons due to their small size. They can tune their band gaps and can therefore control their light absorption and emission wavelengths (Mungole *et al.*, 2021). Potential applications of copper oxide nanoparticles (CuONPs) in field launch transmitters, agriculture, gas sensing, waste treatment, catalysis, batteries, food preservation, high-temperature superconductors, solar energy conversion, photovoltaic devices, dye removal, *etc.* have been established (Akintelu *et al.*, 2020). Due to CuO nanoparticle's high thermal conductivity, optical, magnetic, and electrical properties (Chandrasekar *et al.*, 2021) researchers are truly attracted to it. Besides these applications, CuONPs also have biomedical activities such as anticancer (Rehana *et al.*, 2017), antimicrobial (Ahamed *et al.*, 2014), and antioxidant as well as catalytic efficacy (Dobrucka *et al.*, 2018). The extensive application in wound healing by copper nanoparticles synthesized by *Falcaria vulgaris* leaf extract were examined by . Zangeneh, *et al.*, 2019). Weiss *et al.*, reviewed applications of nanoparticles in food nanotechnology also (Weiss *et al.*, 2006).Presently nanoparticles of various metals using different plants are synthesized with different goals (Pawar *et al.*, 2023; Dandapat *et al.*,2023., Padhiary *et al.*,2023).

For the synthesis of CuONPs, physical and chemicals methods used traditionally might be a tedious process (Akintelu *et al.*, 2021) and can give rise to hazardous chemical by-products (Ananda Murthy *et al.*, 2018). On the contrary, the biosynthesis of CuO nanoparticles has been carried out by various biological materials like bacteria, fungi, alga, and plant extract. Among all these methods of biosynthesis of copper oxide nanoparticles, the plant extract mediated approach is a comparatively simple and easy process to produce nanoparticles at a larger scale to bacteria and fungi-mediated

Collaboration Letter with Guru Nanak College of Science, Ballarpur
Research and Academic Co-Operation



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Website: www.gncollege.co.in Email: principalgncb@gmail.com/principalgncb@yahoo.co.in Ph.No. (07172) 240124

Ref. GNC/SR/74/2023 Date: 04/01/2023

To,
The Principal,
N. H. College, Bramhapuri
Dist- Chandrapur

Reference : 125A|2023 dated 03/01/2023

Subject: - Acceptance letter for Development of Academic and Research Collaboration with your institute.

Dear Sir,

As per your letter no. 125A|2023 dated 03/01/2023, it's my great pleasure to inform you that our college also recognized the importance of research and academic development in the rural areas as well as imparting the basic and adequate knowledge sharing to the under graduate and post graduate students of Science & Technology.

Therefore, in consideration of your letter the mutual understanding for pursuing research and knowledge sharing, we are accepting proposal of academic and research co-operation through collaboration with your esteemed organization.

Thanking You.

OFFICE OF THE PRINCIPAL Ballarpur GURU NANAK COLLEGE

Principal
Guru Nanak College
of Science, Ballarpur

Nevjabai Bhaiya Hitkarini Education Society's

NEVJABAI HITKARINI COLLEGE

Research Center, PG, UG, Junior College-in Art's, Com. & Science; and HSC Voc.
BRAMHAPURI-441206, Distt. : CHANDRAPUR (M.S)
NAAC Reaccreditted - B++ Grade with CGPA 2.87, UGC 2 (F) & 12 (B);ISO 9001 : 2015

Dr. D. H. Gahane
M.sc.,Ph.D.(Phy.) D.C.O.S.
PRINCIPAL

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Mob : 9209637579
Web : https://nhcb.in/

Estd. 1962
यावे ज्ञानाराणी, निपावे सेवेसाठी

Ref. No. 125A/2023

Date : 03/01/2023

To,

The Principal,
Guru Nanak College of Science
Ballarpur Dist.- Chandrapur

Subject: **- Collaboration for Development of Academic and Research with your Institution.**

Dear Sir,

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Thanking You.

Principal
N. H. College, Bramhapuri

Collaborative Research Publication with Guru Nanak College of Science, Ballarpur (02 Papers)

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Contents lists available at ScienceDirect

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

Research Article

Combustion synthesized novel $SrAlBO_4:Eu^{3+}$ phosphor: Structural, luminescence, and Judd-Ofelt analysis

R.T. Maske [a], A.N. Yerpude [a, *], R.S. Wandhare [b], Amol Nande [c], S.J. Dhoble [d]

[a] Department of Physics, N.H. College, Bramhapuri, Dist-Chandrapur, 441206, India
[b] Department of Physics, Arts, Commerce and Science College, Maregaon, Dist-Yavatmal, 445303, India
[c] Guru Nanak College of Science, Ballarpur, 442701, India
[d] Department of Physics, RTM Nagpur University, Nagpur, 440033, India

ARTICLE INFO

Keywords:
Phosphor
XRD
SEM
EDAX
Judd-Ofelt

ABSTRACT

A series of new phosphor $SrAlBO_4$ doped by Eu^{3+} was synthesized by using very known Combustion method. The structural and optical properties explored using X-ray diffraction (XRD). The XRD pattern was matched well with the standard PDF card no. 1542236.The obtained phosphor had orthorhombic structure with space group Pccn (56). The image of Scanning electron microscope shows the external morphology of $SrAlBO_4$ phosphor material, which revails the irregular morphology and the material showed the non uniform structure with agglomerates' size was size ranging in several micrometers. The confirmation of present element and their percentage also shown in the EDX image. The luminescence properties of rare earth activated $SrAlBO_4$ phosphor were determined by measurement of excitation and emission spectra. The PL emission spectra of Eu^{3+} doped $SrAlBO_4$ phosphor show characteristics bands at 590 nm & 614 nm which corresponds due to $^5D_0 \rightarrow ^7F_1$ and $^5D_0 \rightarrow ^7F_2$ transition of Eu^{3+} ions upon 395 nm excitation. The effect of different concentration of Eu^{3+} on luminescence emission intensity of $SrAlBO_4$ phosphor was also studied. Further, concentration quenching is explained using Blasse's equation and Dexter's theory. Also, Judd-Ofelt analysis was performed on photoluminescence emission spectra. On investigation synthesized rare earth activated $SrAlBO_4$ phosphor can be suitable for all lighting application devices.

1. Introduction

The various issues for the increasing human population are arises, related to the environmental pollution and energy saving, providing the force for the new research on WLEDs as the next path of lighting for the purpose of energy saving. Luminescence have a wide range of applications, including in lighting, displays, medical imaging, sensors, material science and even in biomedical research and therapy [1,2]. A white light emitting diode (w-LED) is a type of LED that emits white light. Unlike traditional light bulbs, which produce white light by heating a filament to high temperatures, w-LEDs are more energy-efficient than traditional incandescent bulbs and have a longer lifespan. LEDs have many applications in the solid state lighting devices such as low cost, stability and reliability and most important high electro optical efficiency. They are widely used in a variety of applications, such as lighting for homes, offices, and outdoor spaces, as well as in electronic devices like TVs, smartphones, and laptops. Phosphor for white light emitting diode that can be excited in near ultraviolet region around 400 nm and suitable CIE chromaticity Coordinate is essential. Generally, there are three types of techniques for which to realizes WLEDs: combination of blue LED chip with yellow phosphor or mixing of RGB LEDs (red, green, blue), excitation of multiphosphors using near ultra violet LEDs.The WLEDs are manufactured from mixture of phosphors which exhibits low efficiency and strong reabsorption. The following host materials are employed for lightning applications: silicate, borate, aluminate, phosphates, oxides, nitrides, etc [3–11]. Among that borate are good candidate of host material due to their wide application in solid state lighting and high luminescence properties [12,13]. Borate is often used in solid-state lighting applications, such as LED lighting and displays [14–17]. Borate has several advantages over other types of phosphors. They are more efficient at converting blue light to other colors, which means that they can produce brighter and more vivid colors. They also have good thermal stability, which means that they can maintain their brightness even at high temperatures. Lanthanides doped borate phosphors can be

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Assistant Director of Physical Education, Nevjabai Hitkarini College, Bramhapuri, Chandrapur, Maharashtra, India

Dr. Mahesh Chand Sharma
Director of Physical Education, Guru Nanak College of Science, Ballarpur, Chandrapur, Maharashtra, India

Corresponding Author:
Dr. Mahesh Chand Sharma
Director of Physical Education, Guru Nanak College of Science, Ballarpur, Chandrapur, Maharashtra, India

Investigating the role of information technology and its impact on physical education and sports

Dr. Kuljeet Kaur Maheshchand Sharma and Dr. Mahesh Chand Sharma

Abstract
The domain of physical education and sports wields a profound influence on the integration of technologies into our daily lives, as it meticulously evaluates both the advantages and drawbacks of emerging information technologies on the holistic development of individuals, encompassing their physical wellbeing and cognitive faculties. Information technology assumes a pivotal role in human endeavors, particularly in the realm of sports and games, where its utilization is experiencing exponential growth. For example, novel devices serve diverse purposes such as assisting referees in decision-making processes and quantifying athletes' performances during competitions, thereby enabling coaches to devise bespoke training regimens and game strategies. Moreover, it facilitates error reduction in the organization and administration of various sports events at a global scale. Information technology has engendered a robust scientific discipline within sports, fostering research activities that enhance learning methodologies, coaching techniques, biomechanical analyses, and field research methodologies. Notably, technology's contributions are discernible across multiple sports disciplines, notably cricket, athletics, and basketball. Within the sports industry, five innovative technologies are revolutionizing performance assessment and enhancement: instant replay systems, sensor based tools, precise timing mechanisms, RFID chips for enhanced player tracking, and advancements in equipment development.

Keywords: Information technology, physical education, sports, athletics, basketball, cricket

Introduction

The concept of technology encompasses a broad spectrum of entities, ranging from tangible to intangible, all crafted through the amalgamation of mental and physical endeavors aimed at achieving utility. In its essence, technology pertains to the array of tools and machinery utilized to address real-world challenges within the sphere of sports and games. Its role in the evolution and progress of sports mirrors its influence in various other domains of human existence. Notably, the advent of ground breaking technologies has bestowed upon athletes distinct advantages through the utilization of specialized sporting equipment, a phenomenon perceived by some as antithetical to the intrinsic ethos of sportsmanship.

The integration of cutting-edge technological trends has notably enhanced safety protocols within sports, fostering a multitude of benefits. A prime example lies in the emergence of smart helmets and wearable technologies, heralding a new era of injury monitoring and prevention. These innovations afford athletes heightened protection by facilitating early detection and prompt medical intervention in cases of potential trauma, thus minimizing the risk of exacerbating injuries on the field.

Among the remarkable technological advancements shaping contemporary sports landscapes, instant replay stands as a quintessential exemplar. This sophisticated tool affords officials an unparalleled vantage point, offering meticulous scrutiny and unbiased adjudication of critical moments in sporting events across diverse disciplines such as cricket, American football, rugby, soccer, and combat sports. Similarly, sensorbased technologies have revolutionized the precision and accuracy of decision-making processes, particularly in instances where human perception alone may fall short. In sports like cricket and tennis, sensor tools such as Hawk-Eye and laser systems ascertain the veracity of game-changing occurrences, from determining the trajectory of a cricket ball to adjudicating the boundaries of a tennis court.

The refinement of timing systems represents yet another paradigm shift in the realm of sports technology, obviating the reliance on conventional methods like stopwatches in favor of

Collaboration Letter with Department of Physics, R.T.M. University, Nagpur
Research and Academic Co-Operation

RASHTRASANT TUKADOJI MAHARAJ
NAGPUR UNIVERSITY
DEPARTMENT OF PHYSICS
University Campus, Amravati Road
NAGPUR - 440033, INDIA
Phone: 09822710204

Date - 20th July, 2015

To
Dr. N.S. Kokode,
Principal,
N.H. College,
Bramhapuri-441206.

Subject: Response to your interest in developing research collaboration with my lab.

Dear Sir,

I take pleasure in accepting your proposal for building research collaboration between my lab and the Department of Physics of your institute. I too anticipate that this will be a fruitful collaboration and the outcome of this will surely be remembered for years to come.

Hoping for the best,

Yours sincerely,

Dr. S.J. Dhoble,
Associate Professor,
R.T.M. Nagpur University,
Nagpur-440033.

Associate Professor
Department of Physics
Rashtrasant Tukadoji Maharaj
Nagpur University, Nagpur.

Chemical Data Collections 43 (2023) 100979

Contents lists available at ScienceDirect

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

Data Article

Effect of dopant concentration on luminescence properties of $Ba_3(PO_4)_2$:RE (RE= Sm^{3+}, Eu^{3+}, Dy^{3+}) phosphor for solid-state lighting

C.M. Nandanwar [a], N.S. Kokode [b], A.N. Yerpude [a,*], S.J. Dhoble [c]

[a] Department of Physics, N.H. College, Bramhapuri, Dist-Chandrapur 441206, India
[b] N. H. College, Bramhapuri, Dist. Chandrapur 441206, India
[c] Department of Physics, RTM Nagpur University, Nagpur 440033, India

ARTICLE INFO

Keywords:
Photoluminescence
Wet chemical method
Phosphor
Rare-earth doped
Solid state lighting

ABSTRACT

Wet chemical synthesis was used for the first time to make $Ba_3(PO_4)_2$: RE (RE= Sm^{3+}, Eu^{3+}, Dy^{3+}) phosphors. The phosphor X-ray diffraction (XRD), structural and photoluminescence characteristics were thoroughly investigated. Under UV excitation 402 nm, the emission spectra of the $Ba_3(PO_4)_2$:Sm^{3+} phosphors consists emission peaks at 561 nm (yellow) and 598 nm (orange), respectively. When the $Ba_3(PO_4)_2$:Eu^{3+} phosphor was excited at 394 nm, the emission spectra exhibited prominent bands at 593 nm (orange) and 614 nm (red). The emission wavelengths of $Ba_3(PO_4)_2$:Dy^{3+} phosphor were 474 nm (blue) and 573 nm (yellow), respectively. According to the photoluminescence results, $Ba_3(PO_4)_2$:RE (RE = Sm^{3+}, Eu^{3+} and Dy^{3+}) phosphors might be useful in the fields of near UV-excited solid state lighting.

Specifications Table

Subject area	Luminescence, Material Physics, etc
Compounds	Barium nitrate, ammonium dihydrogen phosphate, samarium oxide, europium oxide and dysprosium oxide and urea.
Data Category	synthesized materials, XRD
Data acquisition format	Photoluminescence, X-ray diffraction (XRD),
Data type	Experimental and Analyzed
Procedure	The Sm^{3+}, Eu^{3+} and Dy^{3+} ions doped $Ba_3(PO_4)_2$ phosphor were synthesized using a wet chemical technique. The sample preparation was performed with Barium nitrate, dysprosium oxide, europium oxide, ammonium dihydrogen phosphate and samarium oxide. Analytical Reagent (AR) grade materials and chemicals are used. The samples should be placed first on the sample weighing and weight box. For the preparation of $Ba_3(PO_4)_2$:Sm^{3+} phosphor, raw materials are weighing according to stoichiometry ratio and dissolved separately in distilled water in a beaker. By dissolving Dy_2O_3 into an HNO_3 solution, dysprosium oxide is converted to dysprosium nitrate. The solutions were then combined in one beaker to produce the desired compound. After 30 minutes of stirring, the sample became transparent, and after 10 hours of heating at 100°C in a Hot Air Oven, a powder product was obtained. The resulting white powder was crushed into small particles in a pestle and mortar. A similar technique is used for synthesis of $Ba_3(PO_4)_2$:Eu^{3+}, and $Ba_3(PO_4)_2$:Dy^{3+} phosphors.
Data accessibility	Within this manuscript.

* Corresponding author.
E-mail address: atulyerpude@gmail.com (A.N. Yerpude).

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Synthesis and photoluminescence study of $KCaPO_4:Eu^{3+}$ phosphors for solid state lighting

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ABSTRACT

A series of $KCaPO_4:Eu^{3+}$ phosphors was effectively synthesized utilizing a wet chemical method. The photoluminescence excitation and emission properties of the phosphor were investigated. The $KCaPO_4:Eu^{3+}$ phosphor was efficiently excited at 394 nm, and the PL (Photoluminescence) emission spectra were obtained at 591 and 614 nm. Concentration quenching occurred at a Eu^{3+} ion concentration of 0.5 mol%. The present work suggests that the $KCaPO_4:Eu^{3+}$ phosphors may be a potential candidate as a near-UV (Ultraviolet) convertible material for solid state lighting applications.

1. Introduction

Due to advantageous great brightness, consumption of low power, and extended operating life, w-LEDs have been regarded as significant solid state light sources. Lanthanide ions phosphors have long attracted the attention of researchers because of their vital applications in a variety of fields like solid state lasers, biomolecule detection, sensing devices, diagnostic imaging, plasma displays, and w-LEDs [1–4]. Due to the presence of exceptional properties, such as strong light efficiency, eco-friendliness, absence of hazardous mercury, long life, compact nature, and durability, pc-w-LEDs had lately been recognized as the most promising technological developments in the current generation of the SSL industry [5,6]. They are utilized in a variety of applications, including indicators, automotive headlights, backlights, and general illumination [7,8]. The most popular technique for creating w-LEDs was developed by S. Nakamura *et al.* in 1997 [9], combining both the blue-based InGaN LED (Light Emitting Diode) chip and the yellow-emitting (yttrium aluminum garnet) $YAG:Ce^{3+}$ phosphors. A poor colour executing index (CRI, Ra 7000 K) brought due to the absence of a red component and significant thermal quenching are two shortcomings of the pc-w-LEDs previously discussed [10–12].

As a result, the creation of novel, highly efficient phosphors triggered by near-UV chips has received a lot of attention in the process of making w-LEDs [13]. Due to transitions $^5D_0 \rightarrow {}^7F_J$ ($J=0, 1, 2, 3, 4$), the trivalent europium ion has been identified as one of the best activators in the phosphors. Due to their outstanding luminescence, cheap cost, and high efficiency, orthophosphate phosphate Eu^{3+} doped with rare earth elements like $Sr_3La(PO_4)_3:Eu^{3+}$ [14], $BiPO4:Eu^{3+}$ [15] and $Ba_3(PO_4)_2$: RE (RE = Sm^{3+}, Eu^{3+}, Dy^{3+}) [16], are employed to generate these phosphors prepared by wet chemical synthesis. In this study, the $KCaPO_4:Eu^{3+}$ phosphors were prepared utilizing a wet chemical technique. We carefully investigated the photoluminescence properties and CIE coordinates. The $KCaPO_4:Eu^{3+}$ phosphors were produced by a wet chemical technique and the phosphors have great potential in solid-state lighting.

2. Experimental

The wet chemical method was used to synthesize the $KCaPO_4:xEu^{3+}$ (where x = 0.1, 0.3, 0.5, 1 mol%) phosphor. The sample was prepared using potassium nitrate, calcium nitrate, ammonium dihydrogen phosphate, and europium oxide. Analytical Reagent grade materials and chemicals are utilized. The samples should be put first on the sample weighing and weight box. Eu_2O_3 is dissolved into an HNO_3 solution to change europium oxide into europium nitrate. Potassium nitrate, calcium nitrate, and ammonium dihydrogen phosphate were all independently dissolved in separate beakers with double distilled water. A single beaker containing the mixed dissolved solutions was placed on the magnetic stirrer. The sample became transparent after 30 min of stirring, and a powder product was achieved after 14 h of heating at 80 °C in a

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Regular Article

Combustion synthesis of $KZnPO_4$: RE (RE = Dy^{3+} and Sm^{3+}) Phosphors for n-UV based w-LEDs

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Abstract. In this work, $KZnPO_4:Dy^{3+}$ and $KZnPO_4:Sm^{3+}$ phosphors are synthesized using the Combustion technique. The phosphor XRD and photoluminescence properties were studied. The XRD was used to confirm the orthorhombic phase with the space group P n a 21. The PL emission spectra of the synthesized $KZnPO_4:Dy^{3+}$ phosphor shows a strong emission at 482 and 574 nm under 350 nm excitation, which is ascribed due to $^4F_{9/2}\rightarrow{}^6H_{15/2}$ and $^4F_{9/2}\rightarrow{}^6H_{13/2}$ electronic transitions of the Dy^{3+} ions, respectively. When the $KZnPO_4:Sm^{3+}$ phosphor was excited at 402 nm, the emission spectra exhibited prominent bands located at 562 and 597 nm. The CIE coordinates show that the current phosphors have high colour purity. The $KZnPO_4:Dy^{3+}$ and Sm^{3+} phosphors provide an excellent candidate for n-UV-based w-LEDs.

1 Introduction

Recently, white-light emitting diodes (w-LEDs) as the fourth-generation solid state lighting (SSL) source have gotten a lot of interest in solid-state illumination lighting [1–4]. White-light emitting diodes (w-LEDs) offer several benefits over traditional illuminants, including extended life, eco-friendly, efficiency, and energy savings [5,6]. In the commercial lighting sector, hybrid multi-light colour phosphors have currently attained mainstream warm white illumination. A hybrid multi-light phosphor source's colour rendering index is poor due to the reabsorption of the multiple phosphors, and its red emission is not appropriate [7]. The luminous performance of phosphors may be significantly improved by doping them with appropriate auxiliary activators. Most of lanthanides are doped as Sm^{3+} ions and have specific optical properties. In general, a phosphor with multi-colour emission peaks is created by doping lanthanide ions in a host matrix. Dy^{3+} ions, one of the lanthanide ions, is one of the possible luminous centers owing to their emission peaks in the yellow and blue areas. The Sm^{3+} ions are active ions for numerous inorganic host matrix and mostly function as a prominent emission center because of their energy level structure and strong luminescence efficiency [8].

Researchers investigated orthophosphates such as $KSrPO_4$ [9], $BiPO_4$ [10], $NaBaPO_4$ [11], and $LiBaPO_4$ [12], which had good optical characteristics and were proposed as novel phosphors materials for use in w-LEDs. The characteristics of $KZnPO_4$ phosphors with rare earth ions have been studied. Due to the combined synthesis of its yellow and blue emissions, Dy^{3+} ions have been extensively employed in a range of host materials for direct w-LEDs. Duan [13] reported the $KZnPO_4:Dy^{3+}$, Sm^{3+} phosphor prepared by solid state reaction method. The combustion method is one of the most well-known ways of producing a variety of phosphors because of its simplicity, wide applicability, and ease of production with required composition. The solid-state method, which is simple to use and has advantages including high yield, environmental friendliness, homogenous distribution of particle sizes, and controllable size, can meet these needs. Tamrakar et al. reported the comparison of photoluminescence properties of Gd_2O_3 phosphor prepared by solid state method and combustion method and found that the overall shape of the emission spectra does not change [14]. Also according to Tamrakar et al., the emission intensity of the phosphor synthesized using the solid state method is higher than that of the phosphor synthesized using the combustion method [14]. According to Dwivedi et al., the green emission intensity of $YVO_4:Ho^{3+},Yb^{3+}$ phosphor prepared by the solid-state method is higher than that of phosphor prepared by combustion method [15]. In this work, we have prepared the $KZnPO_4:Dy^{3+}$ and $KZnPO_4:Sm^{3+}$ phosphors by combustion synthesis. The luminescence property of $KZnPO_4:Dy^{3+}$ and $KZnPO_4:Sm^{3+}$ phosphors is thoroughly investigated in this work. The resulting materials were examined using XRD and the photoluminescence properties of $KZnPO_4:Dy^{3+}$ and $KZnPO_4:Sm^{3+}$ phosphors were studied.

2 Experimental

A series $KZnPO_4:xDy^{3+}$ ($x = 0.1$, 0.3, 0.5 and 1 mol%) and $KZnPO_4:xSm^{3+}$ ($x = 0.3$, 0.5, 1 and 1.5 mol%) phosphors were synthesized using a combustion technique. The fuel

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Collaboration Letter with Shri Ramdevbaba College of Engineering, Nagpur Research and Academic Co-Operation

To,
Dr. N. S. Kokode
Principal
N. H. College, Bramhapuri

Date 14-09-21

Subject: Research Collaboration among the faculty member.

Dear Sir,

I take pleasure in accepting your proposal for building collaboration among the faculty members of Department of Chemistry, Shri Ramdeobaba College of Engineering and Management, Nagpur and faculty members your Institution.

I would also like to acknowledge that Dr. C. P. Pandhurnekar, Assistant Professor of Chemistry Department, RCOEM is presently doing collaborative research work with Dr. Arvind J. Mungole, Assistant Professor, Department of Botany of your Institute.

I too anticipate that this will be a fruitful research collaboration and the outcome of this will surely remembered for years to come.

Hoping for the best.

(Dr. C. P. Pandhurnekar)

Yours Truly

(Dr. A. V. Bharati)

Head
Department of Chemistry
Shri Ramdeobaba College of
Engineering and Management, Nagpur-13

Recent Advances in the Rare Earth Metal Doped Nanomaterials and Their Applications in Biomedical Imaging Techniques

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Abstract. A possible technique for giving different materials new properties is impurity doping. Since the 18th century, rare-earth ions have been thoroughly investigated as active dopants in inorganic crystal lattices because of their distinctive optical, magnetic, and electrical capabilities. Rare-earth doping can change doped nanomaterials' size, shape, and crystallographic phase, producing tunable optical responses and improved mechanical and electronic functionalities. Additionally, rare-earth doping can significantly enhance energy conversion and harvesting via tunable and scalable control over doped nanomaterials' final electrical and catalytic performance. A comprehensive repertoire of functional nanomaterials for real-world applications must first be developed, which requires a greater understanding of the crucial role played by rare-earth doping. Different rare earth-doped nanomaterials have been extensively studied for their applications in NIR Bioimaging, photocatalytic activity, bone tissue engineering and implantology, ceramics and composites, micro/nano-electronics, and many more. From the extensive literature survey, it was thought noteworthy to collect and report some of the very recent(period of 2020-2022) synthesized rare-earth doped nanomaterials and their applications in a concise manner in this short review paper.

INTRODUCTION

Nanomaterials have emerged as an exciting class of materials that are in high demand for a range of practical applications as shown in Figure 1 [1]. Almost all the emerging and industrially important areas are widely using nanomaterials in their product design and fabrication [2]. Areas related to the production of protective coatings [3], green hydrogen storage [4], electrocatalysis [5], lithium and sodium ion batteries [6], fuel cells [7], fluorescent sensors [8], carbon dioxide capturing [9], supercapacitors [10], different biosensors [11], textiles [12], water purification [13], composites [14] and many more [15] have started exploring the uses of different kinds of nanomaterials such as O-D, 1-D, and 2-D particles [16]. Some of the very frequently used nano-materials belong to the carbon family such as carbon single-walled and multi-walled nanotubes, graphene, and fullerenes [17]. Another noteworthy member in a such category is the different metal nanoparticles such as Au and Ag nanoparticles [18]. Looking at the recently published articles in the field of nano-materials, it was prominently observed that rare-earth metal-doped nano-particles have a widespread application in the field of biomedical imaging especially in the IR and near IR region which makes them prominent in therapeutic uses such as cancer detection, and many more [19-25]. In the subsequent

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