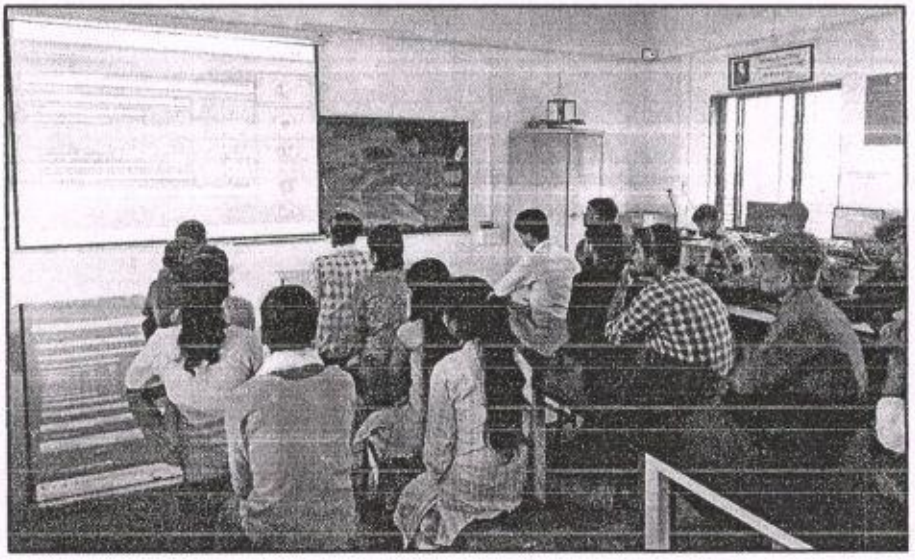
Rayat Shikshan Sanstha's,
Loknete Ramsheth Thakur Arts, Science & Commerce College, Mokhada,
Dist. Palghar- 401604
Email: asccmokhada@gmail.com
Website: www.asccmokhada.co.in **NAAC reaccredited 'A+' grade**
Affiliated to University of Mumbai, Mumbai

DEPARTMENT OF ZOOLOGY (2023-2024)

Report of Activity Under MOU

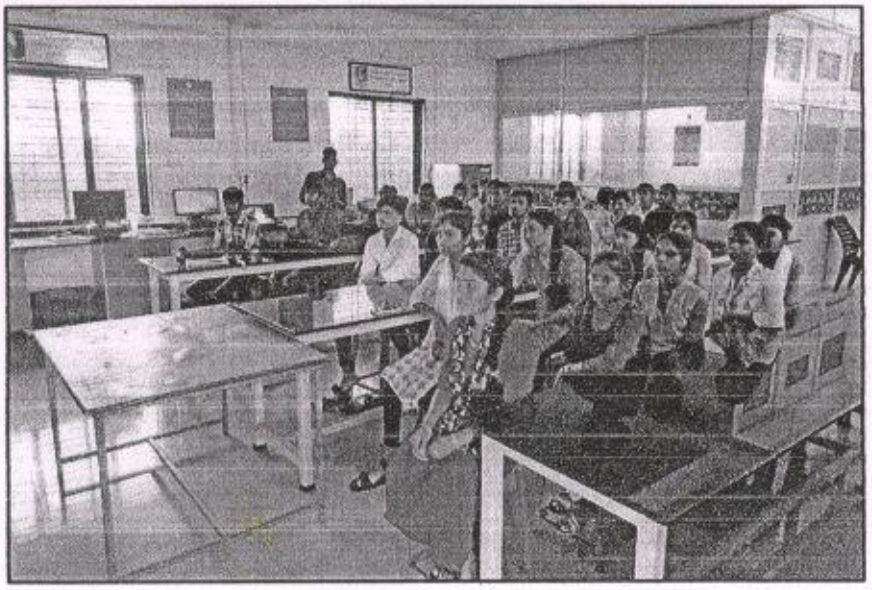
Name of the Department/ Committee	Department of Zoology
Name of the Head	Dr. S. K. Pawar
Title of the Event/ Programme	Activity under MOU (Student Participation in State Level Workshop on Sericulture)
Date /Period of Event/ Programme	Monday, 27th July 2023 at 11.00 am
Objective of the event/Programme	1. To create awareness about opportunities in the field of applied zoology. 2. To motivate the students through entrepreneurship development about the field of Sericulture.
Sponsored Agency /Institute	Department of Zoology, Arts, Commerce and Science College, Onde, Vikramgad Dist. Palghar
Total No. of the Participants	28
Total No. of the Teacher Participants	3
Name of the Expert /Invitee/Lecturer **(With Designation, Contact, Address & email etc.)**	**Mr. Vinit V. Kamble** **Research Scholar, Department of Zoology** **Shivaji University, Kolhapur, 416004**
Venue of the Event/ Programme	Laboratory, Department of Zoology
Programme Outcome	1. Awareness about opportunities in the field of applied zoology has created among the students. 2. Students got thorough knowledge about the Sericulture technology.

Photos



Facility provided to the students for attending the workshop on online mode

Rayat Shikshan Sanstha's,
Loknete Ramsheth Thakur Arts, Science & Commerce College, Mokhada,
Dist. Palghar- 401604
Email: asccmokhada@gmail.com
Website: www.asccmokhada.co.in **NAAC reaccredited 'A+' grade**
Affiliated to University of Mumbai, Mumbai



Students Participation

Dr. S. K. Pawar
Head, Department of Zoology

Dr. A. N. Chandore
IQAC, Coordinator

Dr. L. D. Bhor
Principal

Arts, Science & Commerce College Mokhada

Principal
Arts, Science & Commerce, College
Mokhada Dist. Palghar

Maratha Vidya Prasarak Samaj's
Arts, Commerce And Science College, Tryambakeshwar
Dist. Nashik - 422 212 (Maharashtra) Phone No. : (02594) 233508, 234034
E-mail : tbkcollege294@gmail.com, Website : www.mvptryambakcollege.ac.in
Affiliated to Savitribai Phule Pune University ID No. : PU/NS/A/55/(1998)
Junior College No. J-13-14-008
Dr. Dilip Pundlik Pawar
M.A., B.Ed., SET, NET, Ph.D.
I/c Principal

Ref: 296/05/03/2024.

Appreciation Letter

To,

Dr. A. N. Chandore

Department of Botany

Rayat shikshan Sanstha's

ASC college Mokhada

Dear Sir,

We would like to take this opportunity to express our heartfelt thanks to you for your enthusiastic talk delivered during One day workshop on ***Medicinal plant*** organized under Board of Student Development, Savitribai Phule Pune University, Pune on 6th **March 2024**

Your speech will be memorable for Participants, Teachers and Students. Again, thanks a lot for your wholehearted participation in this event.

With best regards,

Dr. V.B. Sonawane
Co-ordinator

Dr. D. P. Pawar
Principal

Rayat Shikshan Sanstha's,
Arts, Science & Commerce College, Mokhada, Dist: Palghar
Email: ascmokhada@gmail.com
Website: www.ascmokhada.co.in
Affiliated to University of Mumbai, Mumbai

Internal Quality Assurance Cell (2023-2024)

Report of Plant Identification conducted under MoU

Name of the Department/ Committee	Botany
Name of the Coordinator	Prof. S. E. Saindanshiv
Title of the Event/ Programme	Plant identification
Date /Period of Event/ Programme	18/02/2024
Objective of the event/Programme	To know botanical names of plants
Sponsored Agency /Institute	Swami Muktanand college of science, Yeola Dist. Nashik.
Total No. of the Participant	25
Total No. of the Teacher Participant	04
Name of the Expert /Invitee/Lecturer (With Designation, Contact, Address & email etc.)	Prof. S. E. Saindanshiv Associate Professor ASC College Mokhada Dist. Palghar Mob. No. 9423755253 Subhash22081966@gmail.com
Venue of the Event/ Programme	Swami Muktanand college of science, Yeola Dist. Nashik.
Programme Outcome	Beneficiary understand the botanical names of plants.

Coordinator

Dr. A. N. Chandore
IQAC, Coordinator

Dr. L. D. Bhor
Principal

Principal
Arts, Science & Commerce, College
Mokhada, Dist. Palghar

Arts, Science & Commerce College Mokhada

Rayat Shikshan Sanstha's

Loknete Ramsheth Thakur Arts, Science & Commerce College, Mokhada, Dist. Palghar 401604

Email: asccmokhada@gmail.com

Website: www.asccmokhada.co.in

Affiliated to University of Mumbai, Mumbai

Internal Quality Assurance Cell (2023-24)

Report of Event/ Program

Name of the Department/ Committee	**Department of Chemistry**
Name of the Coordinator	**Prof. S. R. Vhande**
Title of the Event/ Program	**"Carrier Opportunities for TY B. Sc. Students in Medical Laboratories"**
Date /Period of Event/ Program	05/03/2024
Objective of the event/Program	1. To the development, implementation, and evaluation of laboratory policies, procedures, and protocols. 2. To Manage laboratory resources efficiently, including inventory control, equipment maintenance, and compliance with safety regulations. 3. To Develop experimental and data analysis skills. 4. Learn to use scientific apparatus. Learn to estimate statistical errors and recognize systematic errors.
Sponsored Agency /Institute	**Loknete Ramsheth Thakur ASC College Mokhada Dist. Palghar 401604**
Total No. of the Participant	**61**
Total No. of the Teacher Participant	**04**
Name of the Expert /Invitee/Lecturer (With Designation, Contact, Address & email etc.)	**Prof. Yogita Patil Department of PG- DMLT Sapkal Knowledge Hub Nashik 422213 Mob. No. 9881885664**
Venue of the Event/ Program	**Loknete Ramsheth Thakur ASC College Mokhada Dist. Palghar 401604**
Program Outcome	The following are the outcomes of medical Laboratories: 1. Knowledge, Technical Skills, and communication clinical studies.

	3. Educational Methodologies and Training Responsibilities. 4. Supervision, Management, and Administration. 5. Professional and Ethical Conduct and Continuing Professional Development.

Photo gallery

Prin. Dr. L. D. Bhor Felicitated Chief guest Speaker Prof. Yogita Patil on guest lecture organized for TY B. Sc. Students under MoU on 05/03/2024

Welcome Address and Introduction of guest speaker by Prof. S. R. Vhande on 05/03/2024

Chief guest Speaker Prof. Yogita Patil guiding to TY B.Sc. students under MoU

Chief guest Speaker Prof. Yogita Patil guiding to TY B.Sc. students under MoU

Prof. S. R. Vhande
Coordinator

Dr. A. N. Chandore
IQAC, Coordinator

Dr. L. D. Bhor
Principal

Principal
Arts, Science & Commerce, College
Mokhada Dist. Palghar

Arts, Science & Commerce, College
Mokhada

June - 1984

"Education Through Self - Help Is Our Motto" - Karmaveer

Rayat Shikshan Sanstha's

ARTS, SCIENCE AND COMMERCE COLLEGE, MOKHADA

Tal. : Mokhada, Dist.: Palghar - 401 604 (Maharashtra)

(Affiliated to University of Mumbai, Mumbai)

Ph: (O): 02529 295101
Ph: (R): 02529 299728

NAAC Reaccredited - 'A+' Grade (CGPA : 3.43)
ISO Certified 9001:2015

Email: asccmokhada@gmail.com
Website: www.asccmokhada.co.in

Principal
Dr. L. D. Bhor
(M.Com., B.Ed., M.Phil., Ph.D.)

Outward No. : By hand

Date: 01/03/2024

To,
Prof. Yogita Patil
Department of PG-DMLT
Sapkal Knoweledge Hub
Nashik (MS) 422213

Subject: Invitation as chief guest for One Day Worshop organized by Department of Chemistry in our college

Respected Madam,

With reference to above mentioned subject, I am happy to inform you that, Department of **Department of Chemistry, Loknete Ramsheth Thakur** ASC College Mokhada is organizing One day Workshop under MoU Scheme for benefits of B.Sc. students in our college on **Tuesday 05th March 2024 at 11:00 am**.

It is my immense pleasure and honour to invite you as chief guest speaker to deliver a lecture on the topic **"Carrier Opportunities for B.Sc. Students in Medical Laboratories"** program through offline platform in our college.

Therefore, you are requested, kindly accept our invitation, and oblige.

Thanking you!

Your Sincerely

Principal
Arts, Science & Commerce, College
Mokhada, Dist. Palghar

O/C

June - 1984

"Education Through Self - Help Is Our Motto" - Karmaveer

Rayat Shikshan Sanstha's

ARTS, SCIENCE AND COMMERCE COLLEGE, MOKHADA

Tal. : Mokhada, Dist.: Palghar - 401 604 (Maharashtra)

(Affiliated to University of Mumbai, Mumbai)

Ph: (O): 02529 295101
Ph: (R): 02529 299728

NAAC Reaccredited - 'A+' Grade (CGPA : 3.43)
ISO Certified 9001:2015

Email: asccmokhada@gmail.com
Website: www.asccmokhada.co.in

Principal
Dr. L. D. Bhor
(M.Com., B.Ed., M.Phil., Ph.D.)

Outward No. : By hand

Date: 05/03/2024

Appreciation Letter

To,
Prof. Yogita Patil
Department of PG-DMLT
Sapkal Knoweledge Hub
Nashik (MS) 422213

Respected Madam,

Loknete Ramsheth Thakur Arts, Science and Commerce College Mokhada, would like to thank you for taking part in One Day Workshop in Department of Chemistry as a chief guest & resource person. You delivered a talk on **"Carrier opportunities for B.Sc. Students in Medical Laboratories"** on Tuesday, 05th March 2024 for the benefits of B.Sc. students as well as teaches. It was an honour to have you as a chief guest & resource person for this event.

We believe that the knowledge you shared during will help immensely to give the lecture on **"Carrier opportunities for B.Sc. Students in Medical Laboratories"** to the staff and students. We know your time is precious and we are grateful as you shared some of it with us. We look forward to your participation in future events.

Thanking You!

Yours Sincerely

Principal
Arts, Science & Commerce, College
Mokhada, Dist. Palghar

O/C

Rayat Shikshan Sanstha's

Loknete Ramsheth Thakur Arts, Science and Commerce College,

Mokhada, Dist. Palghar 401604

Department of Chemistry

2023-24

Department of Chemistry & Department of PG-DMLT Sapkal Knowledge Hub, Nashik Under MoU Scheme Jointly organized a One Day Workshop on,

"Carrier Opportunities for B.Sc. Students in Medical Laboratories"

Students Attendance

Date: 05/02/2024

Following students were participated in this programme:

Sr. No	Name of Students	Class	Signature
1.	Pranali Santosh Bare	F.Y.B.Sc	
2.	Utkarsha Ashok Patil	F.Y BSc	
3.	Asha Ramdas Gavit	F.Y BSc	
4.	Hrishada Arun Satpute	F.Y BSC	
5.	Bhavika Ramchandra Satpute	F.Y.BSC	
6.	Mansi Madhukar Gavari	F.Y.BSC	
7.	Pramila Baichchu Girandhale	F.Y.BSC	
8.	Renuka Kashinath Khutade	F.Y.B Sc	
9.	Dhanashree Madhukar Mali	F.Y.BSC	
10.	Apeksha Balu Khade	F.Y.Bsc	
11.	Reshma Pandurang shinde	F.Y-BSC	
12.	Vaishali yashawant Barat	F.Y.BSC	
13.	Kamla vishnu Bambare	F.Y.BSc	
14.	Ashvini Dilip Mauli	S.Y.BSc	
15.	Yogita Ramesh pawar	S.Y.Bsc	
16.	Vaishnavi Narayan Gavari	F.Y BSC	
17.	Priyanka Narayan Chaudhari	F.Y.BSC	
18.	Sandip Tulshiram Waghade	F.Y Bsc	

19.	~~Dodke shubham~~ Dodke shubham	F.Y.B.Sc	[signature]
20.	Rohit Jitendra Khorpade	-u-	[signature]
21.	Ajay Bhaurao Mirake	S.Y.BSc	[signature]
22.	Lahare Pravin Ananda	-11-	[signature]
23.	Yogesh Chander Varthe	S.Y.BSC	[signature]
24.	Ritesh Bhaskar Warghade	F.Y.BSC	[signature]
25.	Amit Harichandra Jadhav	S.Y.BSC	[signature]
26.	Dhiresh Baliram Jadhav	T.Y.BSC	[signature]
27.	Ajay Prakash Koli	F.Y.BSC	[signature]
28.	Manoj Ramesh mali	F.Y.B.Sc	[signature]
29.	Mahindra Kisan Lakhan	F.Y.B.SC	[signature]
30.	Harshad Janardan Moule	F.Y.BSC.	[signature]
31.	Chetan Ravindra Shinde	F.Y.B.Sc	[signature]
32.	Kishor Harichadra Tumade	F.Y.B.Sc	[signature]
33.	Rakesh Ramesh Kharapade	F.Y.B.Sc	[signature]
34.	Tushar Kailas Shingade	F.Y.B.Sc	[signature]
35.	Lahare Pravin Ananda	S.Y.B.Sc	[signature]
36.	Tushar Chandar Korada	F.Y.BSc	[signature]
37.	Rudras Ramesh Dhondaga	S.Y.BSC	[signature]
38.	Sanjay Budhya Rajhe	F.Y.BSC	[signature]
40.	Amit Eknath Dighe	F.Y.BSC	[signature]
41.	Jagdish Chandar Bagul	F.Y.BSC	[signature]
42.	Ketan Laxman Gadge	T.Y.BSC	[signature]
43.	Prasad [illegible] [illegible]	-u-	[signature]
44.	Nilesh Vasant Dhuy	F.Y BSC	[signature]
45.	Sandip Narayan Padher	T.Y.BSC	[signature]
46.	Khade Jagdish Padmakar	F.Y.B.SC	[signature]
47.	Sachin. R. Gangoda	-11-	[signature]
48.	Dinesh Sitaram Lakhan	-11-	[signature]
49.	Bhogade Pankaj Kashinath	S.Y.BSC	[signature]
50.	Mali Akshay Sarvanji	S.Y.BSC	[signature]
51.	Garel Videsh Vijay	S.Y.B.SC	[signature]

52.	Garel Amit Santosh	S.Y.BSC	[signature]
53.	Kanhav Bhavesh Bhaskar	F.Y.B.SC	[signature]
54.	Khatade tukaram Ramesh	F.Y.B.SC	[signature]
55.	Asha Vikas Janathe	S.Y.BSC	[signature]
56.	Sanjana prakash satpute	S.Y.BSC	[signature]
57.	Ashvini Khutade	T.Y.BSC	[signature]
58.	mittal warghade	—"—	[signature]
59.	Harshada pawar	—"—	[signature]
60.	Ashvini wagh	—"—	[signature]
61.	prathiksha Khunzode	S.Y.B.SC	[signature]
62.			
63.			
64.			
65.			
66.			
67.			
68.			
69.			
70.			
71.			
72.			
73.			
74.			
75.			
76.			
77.			
78.			
79.			
80.			
81.			
82.			
83.			

Arts, Sci. & Com. Colle... Mokh...

Rayat Shikshan Sanstha's
Loknete Ramsheth Thakur Arts, Science & Commerce College, Mokhada,
Dist: Palghar-401604.
Email:asccmokhada@gmail.com
Website: www.asccmokhada.co.in
Affiliated to University of Mumbai, Mumbai

Department of Economics

Report of Event/Programme

Name of the Department/ Committee	Department of Economics
Name of the Coordinator	Dr. Y. H. Ulvekar
Title of the Event/ Programme	'संघर्षाकडून उत्कर्षाकडे'
Place of Visit	S.M.D.L.College, Kalamboli Raigad
Date /Period of Event/ Programme	07th Oct, 2023 at 9:00 am (IST)
Objective of the event/Programme	To guide students of S.M.D.L.College,Kalamboli about successful life
Total No. of the Participant	80
Total No. of the Teacher Participant	05
Prŏgramme Outcome	With the help of this event/activity the students of S.M.D.L.College,Kalamboli had understand the importance of hard work in successful life.

Coordinator

IQAC Coordinator

PRINCIPAL
Principal
Arts Science and Commerce College
Mokhada, Dist. Palghar

Arts Science & Com. College ★ Mokhada ★

Rayat Shikshan Sanstha's
Loknete Ramsheth Thakur Arts, Science & Commerce College, Mokhada,
Dist: Palghar-401604.
Email:asccmokhada@gmail.com
Website: www.asccmokhada.co.in
Affiliated to University of Mumbai, Mumbai

Ignoration function of Guest lecture

Dr. Yashwant Ulvekar guide to students' importance of hard work in successful life

Dr. Yashwant Ulvekar guide to students' importance of hard work in successful life

Prin. Priti Mahajan Expressing Vote of thanks of Guest

Coordinator

IQAC Coordinator

Principal

PRINCIPAL
Arts Science and Commerce College
Mokhada. Dist. Palghar

Arts Science & Com. College Mokhada

Rayat Shikshan Sanstha's
Arts, Science and Commerce College, Mokhada
Dist. Palghar 401604
Email: asccmokhada@gmail.com
Affiliated to University of Mumbai, Mumbai
Reaccredited by NAAC with A+ (CGPA 3.43)

2023-2024
DEPARTMENT OF MATHEMATICS

Sr. No.	Faculty Exchange Programme - Expert Lecture	
1	**Name of the Department**	Mathematics
2	**Head of Department**	Mr. P. K. Patil
3	**Name of the Coordinator**	Mr. P. K. Patil
4	**Title of the Event/ Programme**	Faculty Exchange Programme - Expert Lecture
5	**Date /Period of Event/ Programme**	4th March 2024
6	**Objective of the event/Programme**	Expert lecture will help students • to know more about concept of L-Hospital's Rule. • to gain knowledge about Derivatives of function & Limit of indeterminate form.
7	**Sponsored Agency /Institute**	Loknete Ramsheth Thakur Arts, Science and Commerce College Mokhada, Dist. Palghar
8	**Total No. of the Participant**	18
9	**Total No. of the Teacher Participant**	02
10	**Name of the Expert /Invitee/Lecturer (With Designation, Contact, Address & email etc.)**	Mr. Vaibhav. B. Jagzap, Assistant Professor, HoD of Mathematics Mahatma Phule Arts, Science & Commerce College, Panvel
11	**Venue of the Event/ Programme**	Online (Google Meet)
12	**Topic Name**	L-Hospital Rule

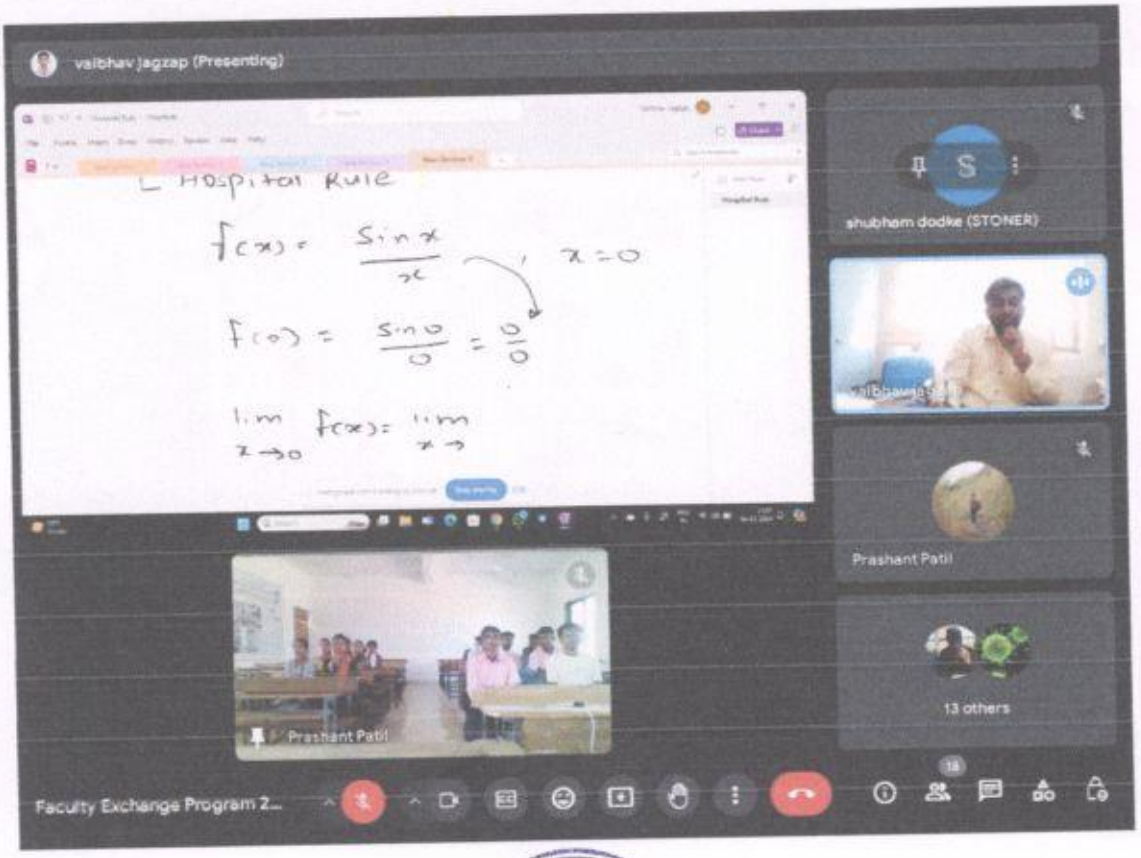
Arts, Science & Com. College Mokhada

Program Outcomes:

The expert lecture has helped students to understand concept of L-Hospital Rule. This activity helped students to understand certain concepts from syllabus by sharing and exchanging of knowledge by faculty from other institute. Students were excited to hear & understand knowledge of faculty from other institute.

Photographs of the activity:

Lecture by Mr. Vaibhav B. Jagzap:- Topic Name: L-Hospital Rule



Rayat Shikshan Sanstha's

Arts, Science and Commerce College, Mokhada

Dist. Palghar 401604

Email: asccmokhada@gmail.com

Affiliated to University of Mumbai, Mumbai

Reaccredited by NAAC with A+ (CGPA 3.43)

Arts, Science & Com. College Mokhada

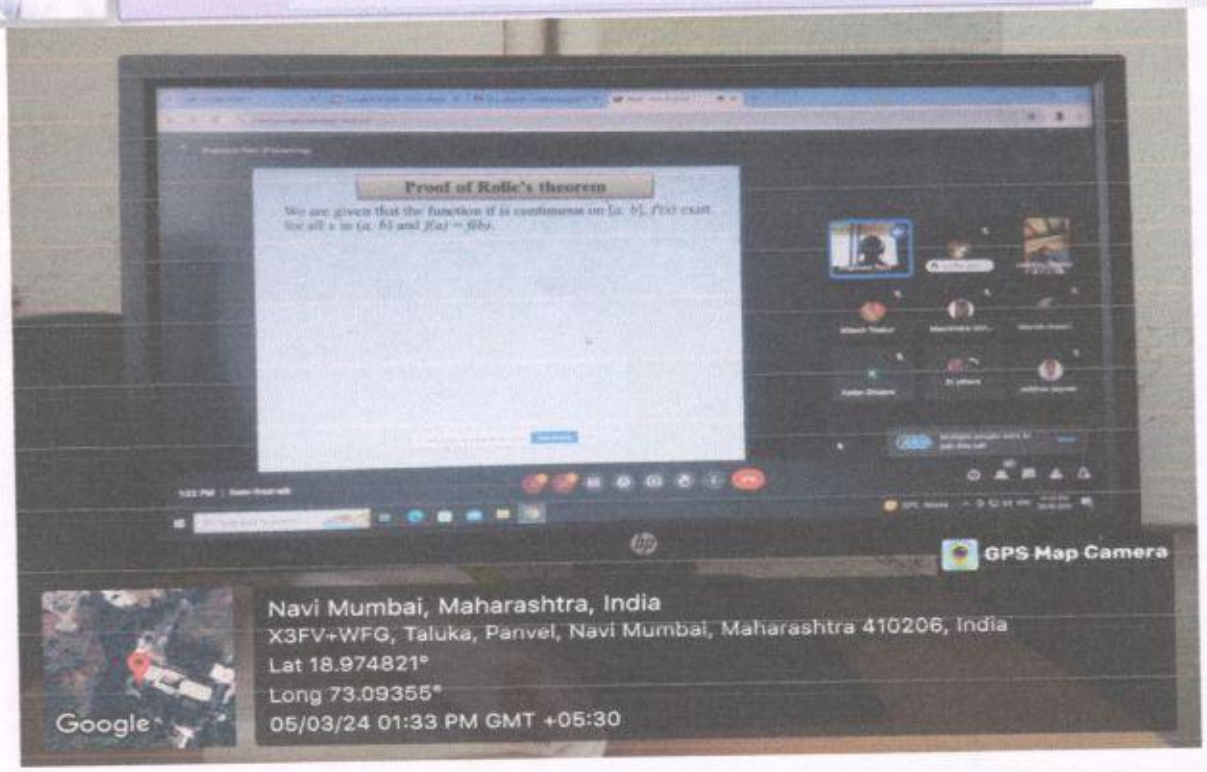
Arts, Science & Com. College Mokhada

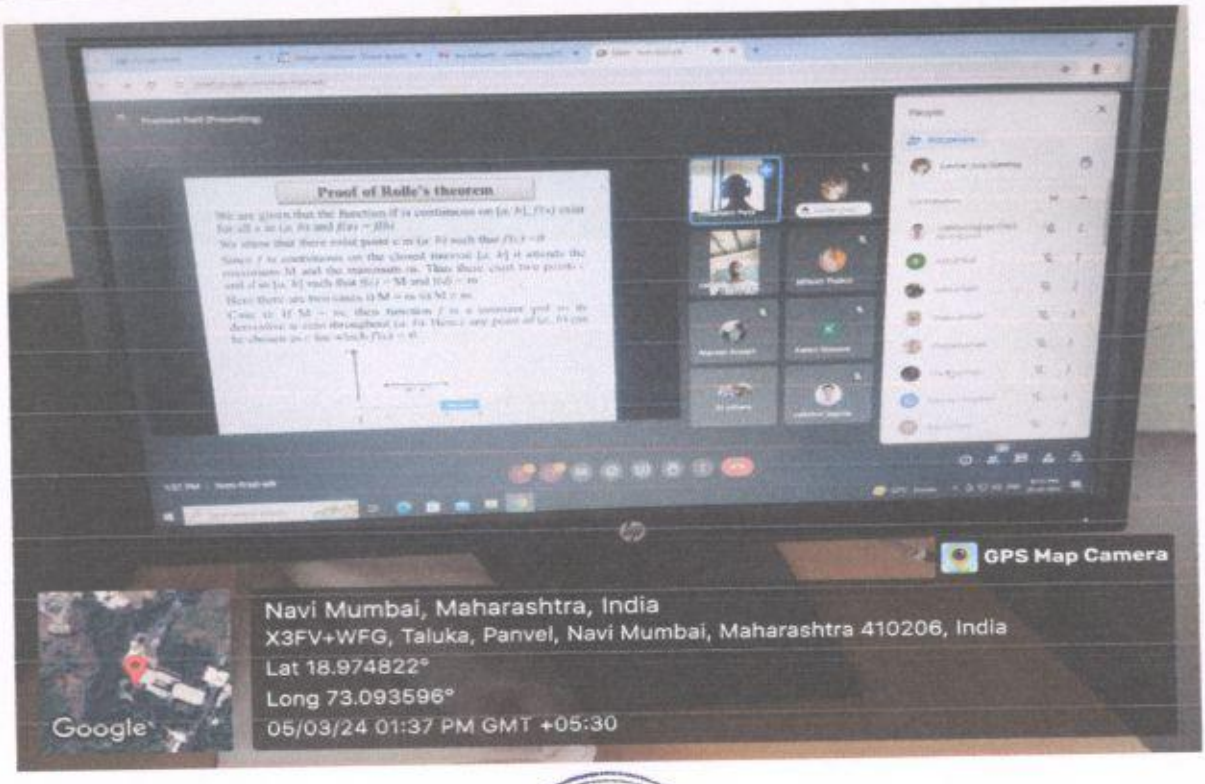
Rayat Shikshan Sanstha's
Arts, Science and Commerce College, Mokhada
Dist. Palghar 401604
Email: asccmokhada@gmail.com
Affiliated to University of Mumbai, Mumbai
Reaccredited by NAAC with A+ (CGPA 3.43)

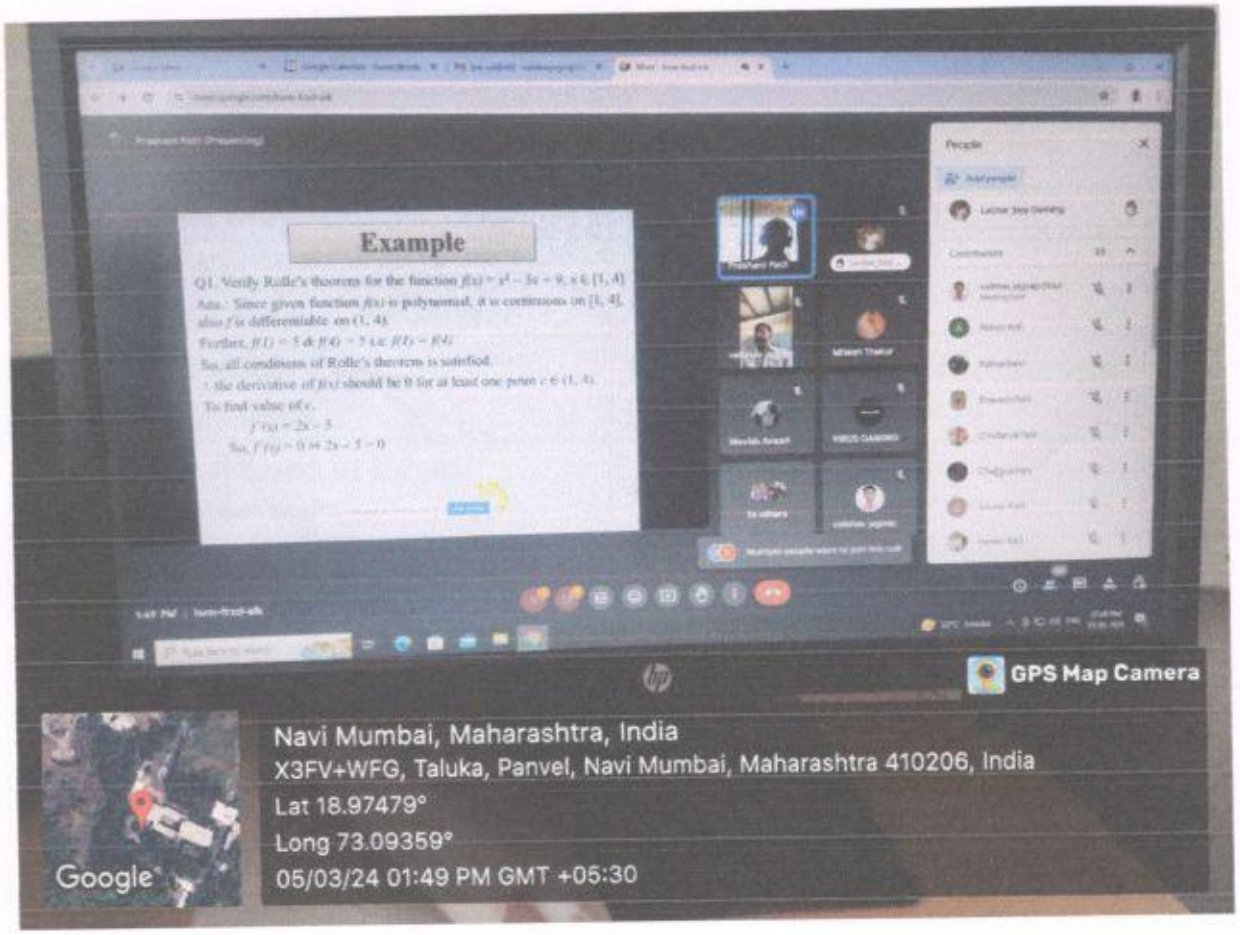
Lecture by Mr. Prashant K. Patil:- Topic Name: Application of Derivatives - Rolle's Theorem & Example

Sr. No.	Faculty Exchange Programme - Expert Lecture	
1	**Name of the Department**	Mathematics
2	**Head of Department**	Mr. V. B. Jagzap
3	**Name of the Coordinator**	Mr. V. B. Jagzap
4	**Title of the Event/ Programme**	Faculty Exchange Programme - Expert Lecture
5	**Date /Period of Event/ Programme**	5th March 2024
6	**Topic Name**	Application of Derivatives - Rolle's Theorem & Example.
7	**Sponsored Agency /Institute**	Mahatma Phule Arts, Science and Commerce College, Panvel
8	**Total No. of the Participant**	41
9	**Total No. of the Teacher Participant**	02
10	**Name of the Expert /Invitee/Lecturer (With Designation, Contact, Address & email etc.)**	Mr. Prashant K. Patil, Assistant Professor, HoD of Mathematics Loknete Ramsheth Thakur Arts, Science and Commerce College Mokhada, Dist. Palghar
11	**Venue of the Event/ Programme**	Online (Google Meet)

Arts, Science & Com. College Mokhada


Proof of Rolle's theorem
GPS Map Camera
Navi Mumbai, Maharashtra, India
X3FV+WFG, Taluka, Panvel, Navi Mumbai, Maharashtra 410206, India
Lat 18.974821°
Long 73.09355°
05/03/24 01:33 PM GMT +05:30
Google


Proof of Rolle's theorem
GPS Map Camera
Navi Mumbai, Maharashtra, India
X3FV+WFG, Taluka, Panvel, Navi Mumbai, Maharashtra 410206, India
Lat 18.974822°
Long 73.093596°
05/03/24 01:37 PM GMT +05:30
Google



Coordinator

IQAC Coordinator

Principal
Arts, Science & Com. College
Mokhada, Dist. Palghar

Arts, Science & Com. College Mokhada

Rayat Shikshan Sanstha's

Arts, Science & Commerce College, Mokhada, Dist: Palghar-401604.

Email: asccmokhada@gmail.com

Website: www.asccmokhada.co.in

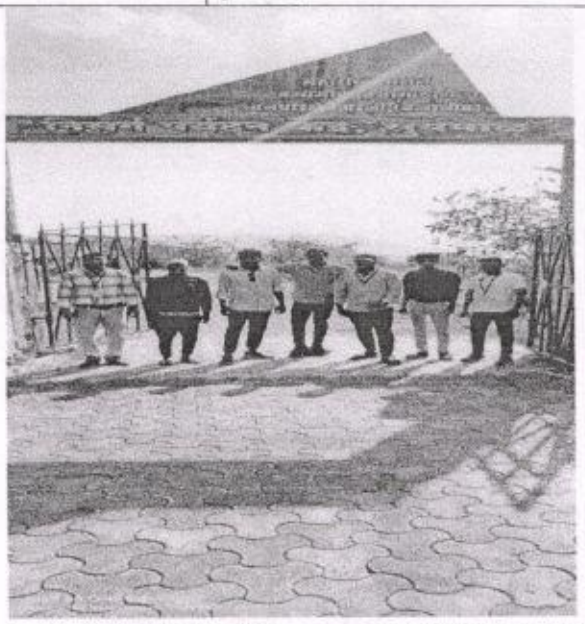
Affiliated to University of Mumbai, Mumbai

Internal Quality Assurance Cell (2023-2024)

DEPARTMENT OF HISTORY

Report of Event/ Programme

Name of the Department/ Committee	Department of History
Name of the Coordinator	Mr. D. R. Bhoye
Title of the Event/ Programme	Field Visit to at **Suryamal Hill Station,** Tal. Mokhada District. Palghar
Date /Period of Event/ Programme	Thursday, 07Thusdayth April 2023 at 11:00 am (IST)
Objective of the event/Programme	To spreading Awareness among the History Students about the importance of local natural heritage Tourism. To understand the concept of Natural Heritage tourism. To aware students about employment through Natural heritage tourism.
Total No. of the Participant	07
Total No. of the Teacher Participant	01
Programme Outcome	Through this field visit students learned importance of Natural heritage tourism and conservation of tourism places.



History Department students to Visit at Suryamal Hill Station Tal. Mokhada District. Palghar for understand the importance of Historical Heritage tourism on 07th Dec, 2023.

Rayat Shikshan Sanstha's
Arts, Science & Commerce College, Mokhada, Dist: Palghar-401604.
Email: ascmokhada@gmail.com
Website: www.ascmokhada.co.in
Affiliated to University of Mumbai, Mumbai

History Department students to Visit at Suryamal Hill Station Tal. Mokhada District. Palghar for understand the importance of Historical Heritage tourism on 07th Dec, 2023.

History Department students to Visit at Suryamal Hill Station Tal. Mokhada District. Palghar for understand the importance of Historical Heritage tourism on 07th Dec, 2023.

Arts, Science & Com. College Mokhada

Rayat Shikshan Sanstha's
Arts, Science & Commerce College, Mokhada, Dist: Palghar-401604.
Email: ascmokhada@gmail.com
Website: www.ascmokhada.co.in
Affiliated to University of Mumbai, Mumbai

History Department students to Visit at Suryamal Hill Station Tal. Mokhada District. Palghar for understand the importance of Historical Heritage tourism on 07th Dec, 2023.

Coordinator **IQAC Coordinator** **Principal**

PRINCIPAL
Arts Science and Commerce College
Mokhada, Dist. Palghar

Arts, Science & Com. College Mokhada

Rayat Shikshan Sanstha's

Arts, Science & Commerce College, Mokhada, Dist: Palghar-401604.

Email: ascemokhada@gmail.com

Website: www.ascemokhada.co.in

Affiliated to University of Mumbai, Mumbai

History Department students to Visit at Suryamal Hill Station Tal. Mokhada District. Palghar for understand the importance of Historical Heritage tourism on 07th Dec, 2023.

Coordinator **IQAC Coordinator** **Principal**

PRINCIPAL
Arts Science and Commerce College
Mokhada, Dist. Palghar

Arts, Science & Com. College Mokhada

Rayat Shikshan Sanstha's

Loknete Ramsheth Thakur Arts, Science & Commerce College – Mokhada, Tal - Mokhada, Dist - Palghar.

Department of History

Date 07/12/2023

Field visits the Hill Station at Suryamal in Mokhada taluka

Students Attendance

Sr. No.	Students Name	Class	Signature
1]	Neelesh R Bhoite	M.A ~~M~~. - II.	
2)	Tambada Shailesh Ramesh	M.A - II	
3)	Pravin Shankar Gonel	M.A - II	
4)	Kishor Mule Narayan	MA . II	
5)	Manoj Laxman Hilim	M.A - II	
6.]	Pagi Jitesh Ramdas	M.A.I	

Arts Science & Com. College * Mokhada *

Founder : Karmaveer Bhaurao Patil

Rayat Shikshan Sanstha's

Arts, Science and Commerce College, Mokhada
Dist. Palghar 401604
Department of Botany

Field Visit 2023-24

Rayat Shikshan Sanstha's

Art, Science and Commerce College, Mokhada, Dist.: Palghar

Department of Botany

Field Visit 2023-24

Students list: Field Visit 2023-24

Sr. No.	Roll No.	Name of the students
1	3401	PATIL SUJIT DEVCHAND
2	3402	MAHALE SUBHASH KRUSHNA
3	3403	/ MOKASHI TRUPTI ASHOK
4	3404	WAGH AJIT RAMCHANDRA
5	3405	ZOLE RAHUL PARSHURAM

Head / विभागप्रमुख
Department of Botany / वनस्पतीशास्त्र विभाग

"Education through self-help is our motto."
Founder : Karmaveer Bhaurao Patil

Rayat Shikshan Sanstha's
Arts, Science and Commerce College, Mokhada
Dist. Palghar 401604
Department of Botany

Field visit report

Mokhada lake

We students of T.Y.B.Sc. Botany conducted visit on 9th January 2024 to Lake of Mokhada. Lake is located to half kilometer away from our college. This lake is primarily used by local people for washing water purpose. It is with an area of about 10 acres. It is shallow lake with well-built compound or fence. Our prime aim to visit this lake is study the pond ecosystem. This lake is with fresh water and consists of hydrophytic plants. The hydrophytic plants are with submerged, free floating and rooted type.

Some of the hydrophytic plants we have seen during the visit are as follows:

1. *Hydrilla*
2. *Vallisneria*
3. *Pistia*
4. *Lemna*
5. *Trapa*
6. *Jussiea*

Incharge Teacher

Arts, Science & Commerce, College Mokhada

Head / विभागप्रमुख
Department of Botany / वनस्पतीशास्त्र विभाग

Rayat Shikshan Sanstha's
Arts, Science and Commerce College, Mokhada Dist. Palghar 401604
Department of Botany

Field visit report (2023-24)

Dhodipada lake

The Department of Botany organized a field visit for the students of T.Y.B.Sc. Botany to the Dhodipada lake on 25th September 2023. Lake is located to 2 kilometers away from our college. This lake is primarily used Fishing and washing purpose. It is with an area of about 20 acres. Our prime aim to visit this lake is study the pond ecosystem. This lake is with fresh water and consists of hydrophytic plants and algae. The hydrophytic plants are with submerged, free floating and rooted type.

This visit was organized to study the biodiversity and to collect plant specimens such as angiosperms for herbarium, algae, bryophytes, etc. for submission in practical examination. Teaching staff members Dr. A. N. Chandore and Prof. S. E. Saindanshiv and 11 Students were present in this visit.

Dhodipada lake is situated at about 2 Km away from college and consists of a rich in flora and fauna. The students and staff gathered in college campus at 9:00 AM. The students carried with them polythene bags, papers, small bottles, forceps, scissors, etc. for carrying specimens. A luxury bus was arranged for the tour. Journey was started at 10:00 AM. Breakfast was served in the bus. We reached at Dhodipada lake at 10:30 AM.

During excursion, we found that forest is rich in biodiversity. The students collected the different specimens of algae, bryophytes, pteridophytes and angiosperms. Some wood rotting fungi were also seen. During the excursion, the diversity of plants with reference to their habitat, morphology, economic use, etc. was explained by the teachers.

Some of the hydrophytic plants we have seen during the visit are as follows:

1. *Hydrilla,*
2. *Vallisneria,*
3. *Pistia,*
4. *Lemna,*
5. *Trapa,*
6. *Jussiea*

Few algae were observed as follows

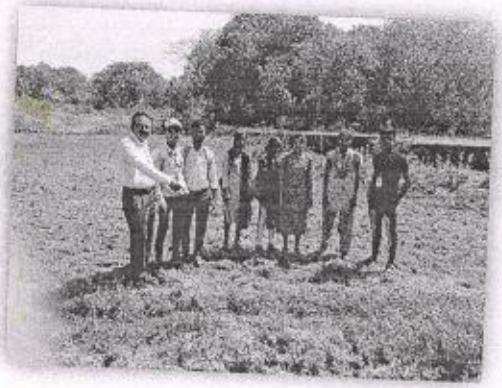
1. *Chara*

2. *Spirogyra*
3. *Hydrodictyon*

Outcomes of the tour:

1. Students get on hand observation of pond.
2. Students understand the hydrophytic ecosystem.
3. Students get knowledge about various hydrophytic plants from the lake.
4. The students learnt about biodiversity in plants.
5. They collected plant specimen for submission purpose.

Students observing the hydrophytic ecosystem



Incharge Teacher

Head
Head / विभागप्रमुख
Department of Botany/वनस्पतीशास्त्र विभाग

Rayat Shikshan Sanstha's
Arts, Science and Commerce College, Mokhada Dist. Palghar 401604
Department of Botany

The Following students were participated in the field visit.

Sr. No.	Roll No.	Students Name	Signature
1.	3401	Patil Sujit Devchand	
2.	3402	Mahale Subhash Krushna	
3.	3403	Mokashi Trupti Ashok	
4.	3403	Wagh Ajit Ramchandra	
5.	3405	Zole Rahul Parshuram	

Head / विभागप्रमुख
Department of Botany / वनस्पतीशास्त्र विभाग

Rayat Shikshan Sanstha's,

Loknete Ramsheth Thakur Arts, Science and Commerce College,

Mokhada Dist. Palghar

Department of Zoology

2023-2024

Field Visit Report

To observe the animals in their natural habitat department of zoology has organized Grassland Ecosystem field visit. The field report was done by random observation in the Eight students and different species of insects was recorded. As per the curriculum of University of Mumbai, Mumbai the department of Zoology has organized the field visit for the students as follow-

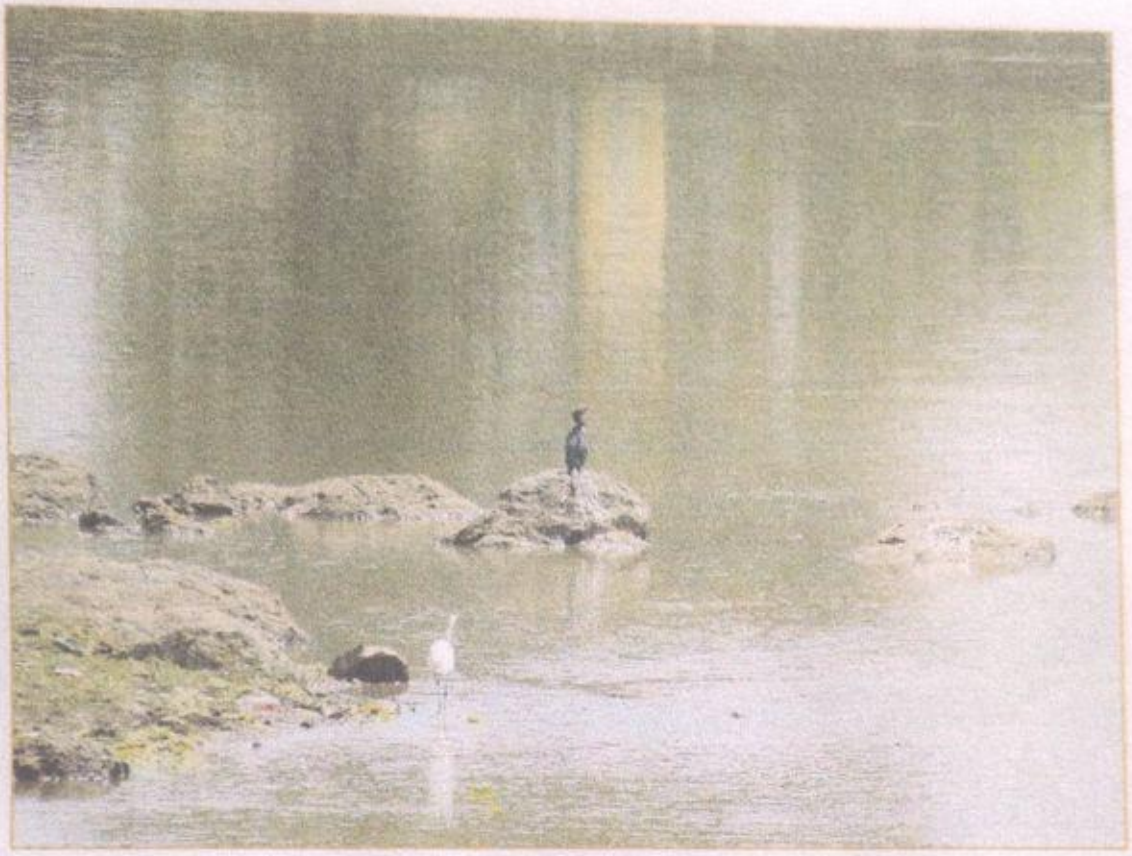
Sr.No.	Class	Place	Date	No. of Students
1.	S.Y.B.Sc	Jagdamba Lake, Mokhada	16/03/2024	07
2.	T.Y.B.Sc	Fish Market, Mokhada	16/03/2024	09
3.	T.Y.B.Sc	Jagadamba Lake	16/03/2024	09

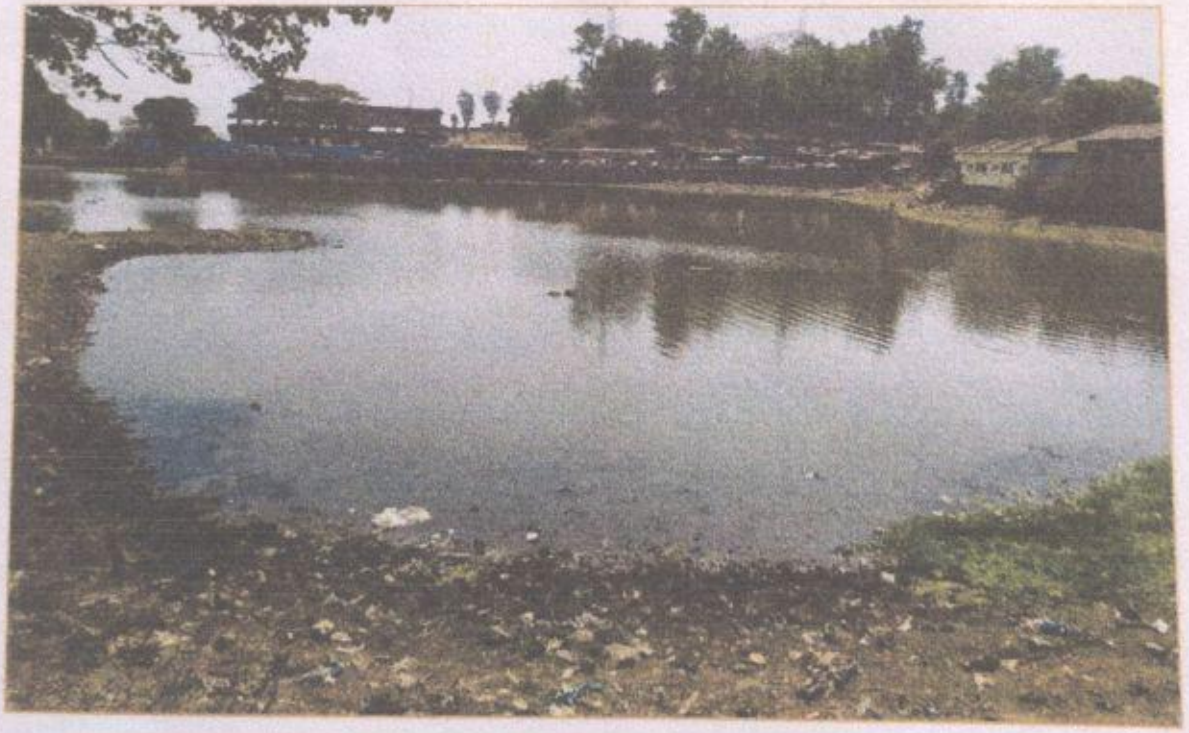
All the students have actively participated in the field visit and submitted the field visit report to the department. All faculty members were actively participated in field visit. Field visit was successfully organized under the guidance of Hon. Dr. L. D. Bhor.

Head,
Department of Zoology

Arts, Science & Com. College Mokhada

Principal,
A.S.C.College, Mokhada





Field Visit to Jagadamba Lake

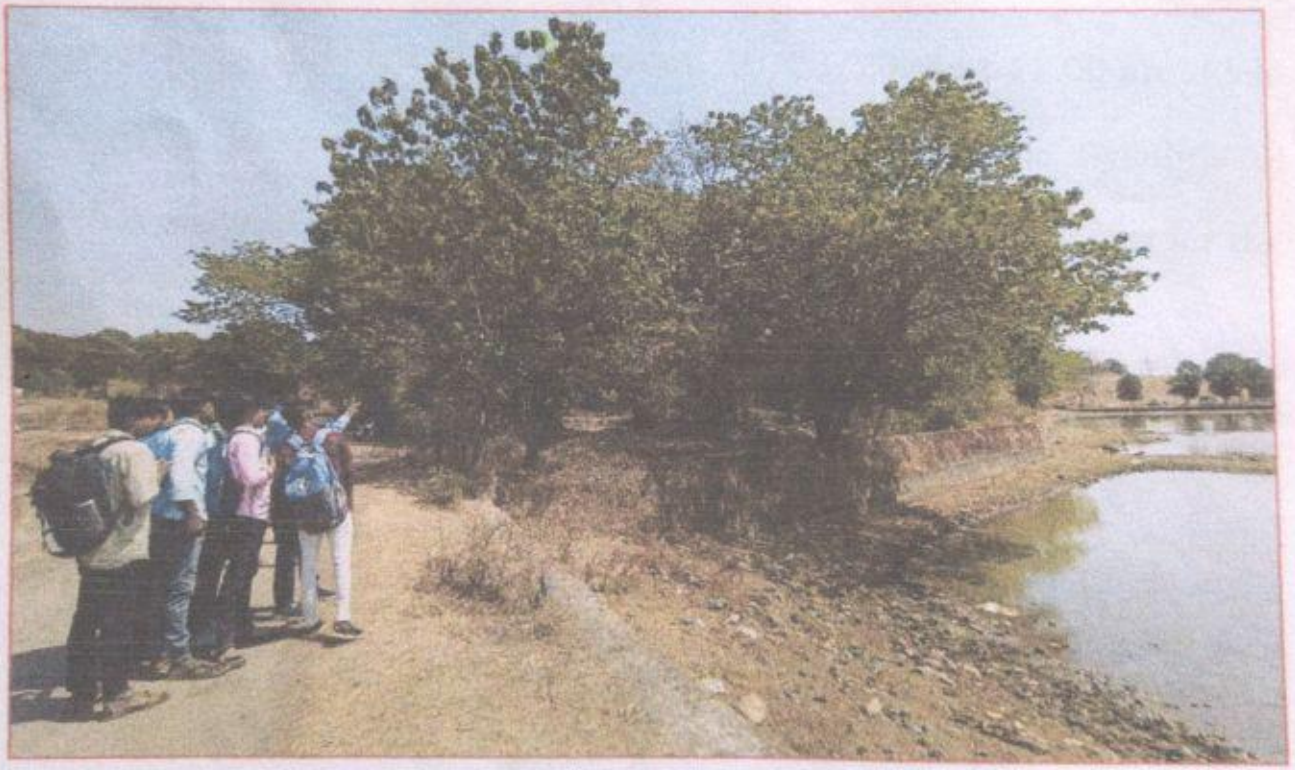



T.Y.B.Sc Field Visit

Head,
Department of Zoology

Arts, Science & Com. College Mokhada

Principal,
Arts, Science & Com. College
Mokhada



S.Y.B.Sc Field Visit

Arts, Science & Commerce, College
Mokhada

Rayat Shikshan Sanstha's

Loknete Ramsheth Thakur Arts, Science and Commerce College, Mokhada, Dist. Palghar

Department of Zoology

2023-2024

Notice

Date: 13/03/2024

All the students of S.Y.B.Sc and T.Y.B.Sc. are hereby informed that their field visit is organized on 16/03/2024 at 11.00 am. Field visit is compulsory for all the students as per the Syllabus of University of Mumbai, Mumbai, so all should remain present for the same.

Arts, Science & Com. College Mokhada

Head,
Department of Zoology

Rayat Shikshan Sanstha's,

Loknete Ramsheth Thakur Arts, Science and Commerce College,

Mokhada Dist. Palghar

Department of Zoology

2023-2024

Field Visit

Class: T.Y.B.Sc **Attendance** **Date: 16/03/2024**

Place: Jagadamba Lake

Sr.No	Seat No.	Name of Student	Signature
1	1013337	Nilesh Vasant Dhum	N. Dhum
2	1013338	Ketan Laxman Gadge	
3	1013359	Prasad Jayram Gare	
4	1013340	Moule Vasant Raman	Moule
5	1013341	Memon zeba mustak	
6	1013342	Rahul Bhagatsingh Padavi	Padvi
7	1013343	Padhee Sandip Narayan	Padhee
8	1013344	Amol Ramdas Thalekar	Thalekar
9	1013345	Sandip Jayram Wanghade	

Arts, Science & Commerce, College Mokhada

Rayat Shikshan Sanstha's,

Loknete Ramsheth Thakur Arts, Science and Commerce College,

Mokhada Dist. Palghar

Department of Zoology

2023-2024

Field Visit

Class: S.Y.B.Sc **Attendance** **Date: 16/03/2024**

Sr.No	Seat No.	Name of Student	Signature
1	3040	Garel videsh vijay	
2	3044	Kamdi Ravindra vinayak	
3	3047	Mali Akshay sawanji	
4	3048	Mali Atul Jagannath	
5	3039	Amit Santosh Gavel	
6	3037	Fupane Dinesh Suresh	
7	3035	Digho Yuvraj Jaitya	

Arts, Science & Commerce, College Mokhada

J. Chem. Sci. (2023) 135:50
https://doi.org/10.1007/s12039-023-02172-3

RAPID COMMUNICATION

Metal-free, an effective and one-pot protocol for the reductive amination of aldehydes using glycerol as a green solvent

SHRIPAD M PATIL[a,b,*], ASHWINI V BEDRE[b], VILAS B GADE[c] and MANOHAR K JOPALE[d]

[a]School of Chemical Engineering and Physical Science, Lovely Professional University, Phagwara, Punjab 144 411, India
[b]Savitribai Phule Pune University, Dada Patil Mahavidyalaya, Karjat, Maharashtra 414 401, India
[c]Department of Chemistry, Rayat Shikshan Sanstha's, Arts, Science and Commerce College, Mokhada, Palghar, Maharashtra 401 604, India
[d]Department of Chemistry, M. V. P. Samaj's, Arts, Commerce and Science College, Tryambakeshwar, Nashik, Maharashtra 422 212, India
E-mail: patilshripad55@gmail.com

MS received 21 February 2023; revised 7 April 2023; accepted 13 April 2023

Abstract. A novel, green, catalyst-free, and efficient method has been developed for the one-pot reductive amination of carbonyl compounds using sodium borohydride. This method has performed reductive amination on various functionalized amines and aldehydes, including aliphatic, aromatic, and heteroaromatic compounds. The reductive amination of the carbonyl compounds occurred in a single step without any side reaction. The key benefits of this technique included its easiness, greener protocol, quick transformation, variety of substrates, high yield, metal-free, and solvent recyclability. This helps to make the procedure practical, affordable, and biodegradable.

Keywords. Aldehydes; Amines; Sodium borohydrides; Glycerol; Green reaction condition.

1. Introduction

Different secondary amine substrates are essential intermediates for the preparation of biomolecules, medications, herbicides, and insecticides (Figure 1).[1] Due to the enormous significance of amines, biomedical and pharmaceutical applications are actively associated with various amines.[40] Approaches using reductive amination or imine reduction of aldehyde compounds continue to be the most straightforward route for preparing substituted amines.[2] For this conversion, mostly expensive metal catalysts have been used such as gold, palladium, platinum, rhodium, iridium, ruthenium, rhenium, etc.[3] Those metal oxides are poisonous, costly, and non-recyclable.

The reduction of imine or reductive amination of carbonyl compounds is the most straightforward method for creating amines. The metal-supported hydrogenation reaction and hydride attacks on imine are the two methods utilized in the reductive amination reaction.[4] In addition to imine derivatives, olefin or acetylene groups and other reductive functional groups like furyl, cyano, and nitro compounds are reduced by using catalytic hydrogenation.[5] Several catalysts including $^{n}Bu_2SnClH$,[6] Bu_3SnH/SiO_2,[7] Bu_2SnIH,[8] $NaBH_4$/Brønsted acidic ionic liquid,[9] diborane/MeOH,[10] $NaBH(OAc)_3$,[11] ammoniaborane/$Ti(OiPr)_4$,[12] hydrioiridium (III) complex,[13] PMHS/$ZnCl_2$,[14] PMHS/$Ti(OiPr)_4$,[15] PMHS/$AlCl_3$,[16] $ZnBH_4$/$ZnCl_2$,[17] $ZnBH_4$,[18] Zn/AcOH,[19] $ZnBH_4/SiO_2$,[20] $NaBH_4/ZnCl_2$,[21] $NaBH_4$/wet clay,[22] $NaBH_4/H_2SO_4$,[23] $Ti(OiPr)_4/NaBH_4$,[24] $NaBH_4/Fe(OTf)_3$,[4] solid acid activated $NaBH_4$,[25] $NaBH_4$/(GuHCl),[26] $NaBH_4/H_3PW_{12}O_{40}$,[27] $LiBH_4$,[28] $TiCl(OiPr)_3/NaBH(OAc)_3$,[29] picoline/borane,[30] $NiCl_2/NaBH_4$,[31] pyridine/borane,[32]

*For correspondence

Supplementary Information: The online version contains supplementary material available at https://doi.org/10.1007/s12039-023-02172-3.

Published online: 29 May 2023

Synthetic Communications

An International Journal for Rapid Communication of Synthetic Organic Chemistry

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/lsyc20

One-pot protocol for the reductive amination of aldehydes using thiamine hydrochloride as a green catalyst under solvent-free condition

Shripad Patil, Ashwini Bedre, Vilas Gade, Manohar Jopale, Ravindra Bhagat & Ashok Pise

To cite this article: Shripad Patil, Ashwini Bedre, Vilas Gade, Manohar Jopale, Ravindra Bhagat & Ashok Pise (2023): One-pot protocol for the reductive amination of aldehydes using thiamine hydrochloride as a green catalyst under solvent-free condition, Synthetic Communications, DOI: 10.1080/00397911.2023.2236258

To link to this article: https://doi.org/10.1080/00397911.2023.2236258

Send Orders for Reprints to reprints@benthamscience.net

Letters in Organic Chemistry, 2023, *20*, 967-975

RESEARCH ARTICLE

[EMIm][BH_3CN] Ionic Liquid as an Efficient Catalyst for the Microwave-Assisted One-Pot Synthesis of Triaryl Imidazole Derivatives

Rajesh K. Manjul[1], Suresh T. Gaikwad[1,*], Vilas B. Gade[2,*], Anjali S. Rajbhoj[1], Manohar K. Jopale[3], Shripad M. Patil[4], Dhananjay N. Gaikwad[1], Dayanand M. Suryavanshi[5], Santosh P. Goskulwad[6] and Suvarna D. Shinde[5]

[1]*Department of Chemistry, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, MH, 431004, India;* [2]*Department of Chemistry, Arts, Science & Commerce College, University of Mumbai, Mokhada, Palghar, MH, 401604, India;* [3]*Department of Chemistry, MVP's Arts, Commerce & Science College, Savitribai Phule Pune University, Tryambakeshwar, Nashik, MH, 422212, India;* [4]*Department of Chemistry, Dada Patil Mahavidyalaya, Karjat, Ahmednagar, MH, 414402, India;* [5]*P. G. and Research Center, Department of Chemistry, S. S. G. M. College, Kopargaon, Ahmednagar, MH, 423601, India;* [6]*Department of Chemistry, Sahakar Maharshi Bhausaheb Santuji Thorat College of Arts, Science & Commerce, Sangamner, Ahmednagar, MH, 422605, India*

ARTICLE HISTORY

Received: March 09, 2023
Revised: April 18, 2023
Accepted: April 19, 2023

DOI
10.2174/1570178620666230510122033

Abstract: In this present investigation, efficient and general protocols for the synthesis of a series of imidazoles **4(a-p)** derivatives have been developed by cyclocondensation of aromatic aldehydes, benzil and ammonium acetate in the existence of efficient [EMIm][BH_3CN] ionic liquid catalyst under microwave condition in good to excellent yields (91-97%). The structures of the synthesized compounds have been confirmed by IR and NMR spectra. The significant features of this protocol are an uncomplicated workup process, rate enhancement with high yields, and efficient catalysts. It was concluded that [EMIm][BH3CN] is the finest catalyst under MW heating conditions.

Keywords: Microwave assisted, ionic liquid, MW irradiation, imidazole skeleton, [EMIm][BH3CN], pyridinium.

1. INTRODUCTION

Modern science focuses on developing reactions and more skillful methods to be used in gradually practical and environmentally beneficial circumstances [1]. Significant concerns have been about reducing waste and sustainable development, as there are notable, important topics that include external factors. It is crucial to consider all the possible heads of chemical synthesis, giving particular consideration to processes that start moving towards a supportability chemical industry [2]. Currently, multicomponent reactions carried out in ionic liquids have exceptional advantages and are favorable from the standpoint of green technologies [3, 4]. It's been depicted as a reaction medium that is environment friendly, and nowadays, its utilization in the chemical industry has become extremely significant and normal [5, 6].

The use of ionic liquids in multicomponent processes is a topic that has recently received attention [7]. Molten salts with low vapor pressure are known as ionic liquids. Furthermore, many exhibit high thermal stability, solvating properties, low thermal decomposition, and electrical conductivity [8]. Due to the large variety of inorganic, polymer, and organic compounds soluble in alkaline solutions serve as a solvent or reaction medium for many isolation or catalytic activities. Their ability to dissolve depends on the smaller organic cations and larger anions. The Ionic liquids comprise benzoate, acetate, hexafluorophosphate formate, halides, hydrogensulphate, mixture-sulphonate, nitrate, tetrafluroborate, phosphate, thiocyanide, trifluoromethane sulfonated, tosylate anions, imidazolium, ammonium, pyridinium, phosphonium, and pyrrolidinium cations [9-11].

To provide rapid, easy, clean, and efficient procedures for synthesizing diverse organic compounds, microwave (MW) irradiation has been used as an amazing dielectric heating tool [12]. The mix of MW irradiation and ionic liquids gives a green methodology of incredible enthusiasm for synthesizing different heterocyclic compounds [13-15].

The imidazole skeleton is specifically noteworthy as they display important biological characteristics and are a component of some medical drugs. They have high power and wide relevance in pharmacology [16, 17]. Additionally, enormous classes of imidazole derivatives are utilized as ionic liquids [18]. Along these lines, these properties have found various synthetic ways to deal with these heterocycles. Various

*Address correspondence to these authors at the Department of Chemistry, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, MH, 431004, India; E-mail: anant.gade1985@gmail.com

1570-1786/23 $65.00+.00

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :25/02/2024

(21) Application No.202421013573 A
(43) Publication Date : 22/03/2024

(54) Title of the invention : SYNTHESIS OF PURE CRYSTALLISED COPPER OXIDE, A SUSTAINABLE PROCESS USING AN EXTRACT OF THE ASPHALTUM PUNJABIANUM AND ITS ANTI-MICROBIAL PROPERTY.

(51) International classification :B01J23/72, B82Y30/00, B82Y40/00, C01G3/02
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

(71)**Name of Applicant :**
1)Kartikey J. Chavan
Address of Applicant :A-3 New Gulmohar CHS,Sec 16 A ,Vashi Navi Mumbai:400703 ---------- ----------
2)Vineet Devendra Prasad Kala
3)Arjun Raghunath Potinde
4)Sarang R. Bhagwat
5)Manohar Kashiram Jopale
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Kartikey J. Chavan
Address of Applicant :A-3 New Gulmohar CHS,Sec 16 A ,Vashi Navi Mumbai:400703 ---------- ----------
2)Vineet Devendra Prasad Kala
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
3)Arjun Raghunath Potinde
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
4)Sarang R. Bhagwat
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
5)Manohar Kashiram Jopale
Address of Applicant :MVP's, Arts, Commerce and Science College, Tryambakeshwar Dist. Nashik Nashik ---------- ----------
6)Pratik Pramod Parihar
Address of Applicant :Dr. L H Hiranandani College of Pharmacy, Smt. College Campus, Opp. Railway Station, Ulhasnagar -03 District: Thane. Thane ---------- ----------
7)Ms. Purva Machindranath Jadhav
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
8)Paresh S. Gaikar
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
9)Gayatri M. Gaidhane
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
10)Vilas Bhausaheb Gade
Address of Applicant :Rayat Shikshan Sanstha's Arts, Science & Commerce College Mokhada, Dist : Palghar Mokhada ---------- ----------

(57) Abstract :
Copper oxide is a chemical compound consisting of copper and oxygen. It may be found in several forms, including copper(I) oxide (Cu_2O) and copper (II) oxide (CuO). Copper oxide is often used as a catalyst in several industrial processes, including the prod uction of rayon, synthetic fuels, and chemicals. Copper oxide is used in the electronics sector, particularly in the manufacturing of semiconductors and solar cells. The introduction of copper oxide into the environment. either during synthesis or via waste disposal, may have detrimental effects on aquatic ecosystems and soil quality. In this synthesis, we have produced copper oxide [CuO] by combine extract Asphaltum punjabianum from, which serves as a sustainable solvent, with solid copper nitrate $Cu(NO_3)_2$. In addition, it's far less risky, causing no harmful pollutant with low waste biproducts, making it entirely sustainable. The synthesised copper oxide was characterized by the usage of SEM, XRD, EDAX, and FTIR. Along with it, antimicrobial property of copper oxide was also checked.

No. of Pages : 7 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :25/02/2024

(21) Application No.202421013573 A

(43) Publication Date : 22/03/2024

(54) Title of the invention : SYNTHESIS OF PURE CRYSTALLISED COPPER OXIDE, A SUSTAINABLE PROCESS USING AN EXTRACT OF THE ASPHALTUM PUNJABIANUM AND ITS ANTI-MICROBIAL PROPERTY.

(51) International classification :B01J23/72, B82Y30/00, B82Y40/00, C01G3/02

(86) International Application No :NA
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA
Filing Date :NA

(62) Divisional to Application Number :NA
Filing Date :NA

(71)Name of Applicant :
1)Kartikey J. Chavan
Address of Applicant :A-3 New Gulmohar CHS,Sec 16 A ,Vashi Navi Mumbai:400703 ---------- ----------
2)Vineet Devendra Prasad Kala
3)Arjun Raghunath Potinde
4)Sarang R. Bhagwat
5)Manohar Kashiram Jopale
Name of Applicant : NA
Address of Applicant : NA
(72)Name of Inventor :
1)Kartikey J. Chavan
Address of Applicant :A-3 New Gulmohar CHS,Sec 16 A ,Vashi Navi Mumbai:400703 ---------- ----------
2)Vineet Devendra Prasad Kala
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
3)Arjun Raghunath Potinde
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
4)Sarang R. Bhagwat
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
5)Manohar Kashiram Jopale
Address of Applicant :MVP's, Arts, Commerce and Science College, Tryambakeshwar Dist. Nashik Nashik ---------- ----------
6)Pratik Pramod Parihar
Address of Applicant :Dr. L H Hiranandani College of Pharmacy, Smt. College Campus, Opp. Railway Station, Ulhasnagar-03 District: Thane, Thane ---------- ----------
7)Ms. Purva Machindranath Jadhav
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
8)Paresh S. Gaikar
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
9)Gayatri M. Gaidhane
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
10)Vilas Bhausaheb Gade
Address of Applicant :Rayat Shikshan Sanstha's Arts, Science & Commerce College Mokhada, Dist : Palghar Mokhada ---------- ----------

(57) Abstract :
Copper oxide is a chemical compound consisting of copper and oxygen. It may be found in several forms, including copper(I) oxide (Cu_2O) and copper (II) oxide (CuO). Copper oxide is often used as a catalyst in several industrial processes, including the production of rayon, synthetic fuels, and chemicals. Copper oxide is used in the electronics sector, particularly in the manufacturing of semiconductors and solar cells. The introduction of copper oxide into the environment, either during synthesis or via waste disposal, may have detrimental effects on aquatic ecosystems and soil quality. In this synthesis, we have produced copper oxide [CuO] by combine extract Asphaltum punjabianum from, which serves as a sustainable solvent, with solid copper nitrate $Cu(NO3)2$. In addition, it's far less risky, causing no harmful pollutant with low waste biproducts, making it entirely sustainable. The synthesised copper oxide was characterized by the usage of SEM, XRD, EDAX, and FTIR. Along with it, antimicrobial property of copper oxide was also checked.

No. of Pages : 7 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/02/2024

(21) Application No.202421012169 A

(43) Publication Date : 15/03/2024

(54) Title of the invention : SYNTHESIS OF NICKEL OXIDE, AN ECOFRIENDLY METHOD USING AN EXTRACT OF THE ASPHALTUM PUNJABIANUM AND ITS ANTI-BACTERIAL AND ANTI-FUNGAL PROPERTY.

(51) International classification :C01G0053040000, C25B0001040000, C01G0053010000, C01G0053090000, B01J0023755000

(86) International Application No :NA
Filing Date :NA

(87) International Publication No :NA

(61) Patent of Addition to Application Number :NA
Filing Date :NA

(62) Divisional to Application Number :NA
Filing Date :NA

(71)Name of Applicant :
1)Kartikey J. Chavan
Address of Applicant :A-3 New Gulmohar CHS,Sec 16 A ,Vashi Navi Mumbai:400703 ----------
2)Arjun Raghunath Potinde
3)Vineet Devendra Prasad Kala
4)Sarang R. Bhagwat
5)Jopale Manohar Kashiram
Name of Applicant : NA
Address of Applicant : NA
(72)Name of Inventor :
1)Kartikey J. Chavan
Address of Applicant :A-3 New Gulmohar CHS,Sec 16 A ,Vashi Navi Mumbai:400703 ----------
2)Arjun Raghunath Potinde
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai Vashi ----------
3)Vineet Devendra Prasad Kala
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai Vashi ----------
4)Sarang R. Bhagwat
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai Vashi ----------
5)Jopale Manohar Kashiram
Address of Applicant :MVP SAMAJ'S, ARTS COMMERCE AND SCIENCE COLLEGE, TRYAMBAKESHWAR, NASHIK, MAHARASHTRA 422212 Tryambakeshwar ----------
6)Paresh S. Gaikar
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai Vashi ----------
7)Pratik Pramod Parihar
Address of Applicant :Dr. L H Hiranandani College of Pharmacy, Smt. College Campus, Opp. Railway Station, Ulhasnagar-03 District: Thane Thane ----------
8)Rajesh R. Jaiswar
Address of Applicant :National Centre for Nanosciences and Nanotechnology, University of Mumbai, Vidya Nagari, Kalina, Santacruz East, Mumbai, Maharashtra 400098 Mumbai ----------
9)Gayatri M. Gaidhane
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai Vashi ----------
10)Smital Avinash Garud
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai Vashi ----------
11)Dr. VilasBhausahebGade
Address of Applicant :LokreteRamsheth ThakurArts Science &Commerce CollegeMokhada Mokhada ----------

(57) Abstract :
Nickel oxide is a binary chemical consisting of nickel and oxygen. It is present in several forms, such as nickel (II) oxide (NiO) and nickel (III) oxide (Ni_2O_3). Nickel (II) oxide is the predominant and potent variant, renowned for its distinct features that make it suitable for numerous applications. Nickel oxide is used in electronics for its role as a component in cathode materials for rechargeable batteries and fuel cells. Moreover, its semiconducting characteristics are essential in fuel sensors since they enable the detection of several gases, including carbon monoxide and methane. The automotive sector utilizes nickel oxide inside catalytic converters to reduce emissions and control air pollution caused by vehicle exhaust. Moreover, nickel oxide demonstrates its adaptability and importance in several technical fields, including photovoltaic cells, thermistors, and magnetic materials. Discharging nickel compounds into the environment, whether via production processes or disposal, may have detrimental effects on ecosystems and pose risks to aquatic organisms. Nickel is a long-lasting pollutant in the environment. In this synthesis, we have generated nickel oxide [NiO] by using Asphaltum punjabianum extract as an eco-friendly solvent, along with potent nickel chloride $NiCl2{\cdot}6H2O$. In this synthesis, we have generated nickel oxide [NiO] by using Asphaltum punjabianum extract as a sustainable solvent, along with robust nickel chloride $NiCl2{\cdot}6H2O$. Furthermore, it has a high level of stability and does not produce any detrimental pollutants or significant waste byproducts, making it completely sustainable. The synthesized nickel oxide was characterized using SEM, XRD, EDAX, and FTIR. In addition, the antibacterial properties of nickel oxide were also tested.

No. of Pages : 7 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/02/2024

(21) Application No.202421012169 A

(43) Publication Date : 15/03/2024

(54) Title of the invention : SYNTHESIS OF NICKEL OXIDE, AN ECOFRIENDLY METHOD USING AN EXTRACT OF THE ASPHALTUM PUNJABIANUM AND ITS ANTI-BACTERIAL AND ANTI-FUNGAL PROPERTY.

(51) International classification :C01G0053040000, C25B0001040000, C01G0053000000, C01G0053090000, B01J0023755000

(86) International Application No :NA
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA
Filing Date :NA

(62) Divisional to Application Number :NA
Filing Date :NA

(71)Name of Applicant :
1)Kartikey J. Chavan
Address of Applicant :A-3 New Gulmohar CHS,Sec 16 A ,Vashi Navi Mumbai:400703 ----------
2)Arjun Raghunath Potinde
3)Vineet Devendra Prasad Kala
4)Saraag R. Bhagwat
5)Jopale Manohar Kashiram
Name of Applicant : NA
Address of Applicant : NA
(72)Name of Inventor :
1)Kartikey J. Chavan
Address of Applicant :A-3 New Gulmohar CHS,Sec 16 A ,Vashi Navi Mumbai:400703 ----------
2)Arjun Raghunath Potinde
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai Vashi ---------- ----------
3)Vineet Devendra Prasad Kala
Address of Applicant :: Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai Vashi ---------- ----------
4)Sarang R. Bhagwat
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai Vashi ---------- ----------
5)Jopale Manohar Kashiram
Address of Applicant :MVP SAMAJ'S, ARTS COMMERCE AND SCIENCE COLLEGE, TRYAMBAKESHWAR, NASHIK, MAHARASHTRA 422212 Tryambakeshwar ---------- ----------
6)Paresh S. Gaikar
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
7)Pratik Pramod Parihar
Address of Applicant :Dr. L H Hiranandani College of Pharmacy, Smt. College Campus, Opp. Railway Station, Ulhasnagar -03 District: Thane. Thane ---------- ----------
8)Rajesh R. Jaiswar
Address of Applicant :National Centre for Nanosciences and Nanotechnology, University of Mumbai, Vidya Nagari, Kalina, Santacruz East, Mumbai, Maharashtra 400098 Mumbai ----------
9)Gayatri M. Gaidhane
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
10)Smital Avinash Garud
Address of Applicant :Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College Vashi Navi Mumbai. Vashi ---------- ----------
11)Dr. VilasBhausahebGade
Address of Applicant :LoknetеRamsheth ThakurArts Science &Commece CollegeMokhada Mokhada ---------- ----------

(57) Abstract :
Nickel oxide is a binary chemical consisting of nickel and oxygen. It is present in several forms, such as nickel (II) oxide (NiO) and nickel (III) oxide (Ni_2O_3). Nickel (II) oxide is the predominant and potent variant, renowned for its distinct features that make it suitable for numerous applications. Nickel oxide is used in electronics for its role as a component in cathode materials for rechargeable batteries and fuel cells. Moreover, its semiconducting characteristics are essential in fuel sensors since they enable the detection of several gases, including carbon monoxide and methane. The automotive sector utilizes nickel oxide inside catalytic converters to reduce emissions and control air pollution caused by vehicle exhaust. Moreover, nickel oxide demonstrates its adaptability and importance in several technical fields, including photovoltaic cells, thermistors, and magnetic materials. Discharging nickel compounds into the environment, whether via production processes or disposal, may have detrimental effects on ecosystems and pose risks to aquatic organisms. Nickel is a long-lasting pollutant in the environment. In this synthesis, we have generated nickel oxide [NiO] by using Asphaltum punjabianum extract as an eco-friendly solvent, along with potent nickel chloride $NiCl2\ 6H2O$. In this synthesis, we have generated nickel oxide [NiO] by using Asphaltum punjabianum extract as a sustainable solvent, along with robust nickel chloride $NiCl2\ 6H2O$. Furthermore, it has a high level of stability and does not produce any detrimental pollutants or significant waste byproducts, making it completely sustainable. The synthesized nickel oxide was characterized using SEM, XRD, EDAX, and FTIR. In addition, the antibacterial properties of nickel oxide were also tested.

No. of Pages : 7 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :07/07/2024
(21) Application No.202421051945 A
(43) Publication Date : 26/07/2024

(54) Title of the invention : A NEW ECO-FRIENDLY NUCLEAR STAIN FROM FRUITS OF SYZYGIUM STOCKSII (DUTHIE) GAMBLE.

(51) International classification :G01N0001300000, C12Q0001684100, G06N0003120000, G01N0015060000, C09D0015000000
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

(71)**Name of Applicant :**
1)Kumar Vinod Chhotupuri Gosavi
Address of Applicant :Plot no 2, Saptashringi colony, Ujjawal Nagar, Borgad ----------
2)Arun Nivrutti Chandore
3)PARESH PANDHARINATH BHALEKAR
4)Avinash Ramchandra Gholave
5)Sharad Suresh Kambale
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Kumar Vinod Chhotupuri Gosavi
Address of Applicant :Plot no. 2, Saptashringi colony, Ujjawal Nagar, Borgad ----------
2)Arun Nivrutti Chandore
Address of Applicant :Department of Botany, Arts, Science and Commerce College, Mokhada, Palghar, Maharashtra, India Mokhada ----------
3)PARESH PANDHARINATH BHALEKAR
Address of Applicant :Department of Botany, Arts, Science and Commerce College, Mokhada, Palghar, Maharashtra, India Mokhada ----------
4)Avinash Ramchandra Gholave
Address of Applicant :Department of Botany, K. V. N. Naik Arts Commerce and Science College, Nashik Nashik ----------
5)Sharad Suresh Kambale
Address of Applicant :Department of Botany, MVP Samaj's Arts Science and Commerce College, Nandgaon, Nashik Nandgaon ----------

(57) Abstract :
The nucleus is the brain of the cell. It controls the essential metabolic activities of the cell and stores hereditary information of the organism. The study of the morphology of the nucleus is a fundamental subject of cytogenetics. Based on the behaviour of the nucleus, chromosome counts, chromosome behaviour and morphology can be understood evolution and some important anomalies of the organism or species. Many stains (for example Carmine, Orcein) are available for staining the nucleus and chromosomes, which are slightly expensive. We have formulated very easy and eco-friendly nucleus and chromosome stains in the laboratory. The stain is prepared from the fruits of Syzygium stocksii (Duthie) Gamble. A fresh fruit pulp extracted in 45% to 50% Acetic acid. This freshly prepared extraction is filtered and used for staining the nucleus and chromosomes. The formulation of this stain has shown equivalent results as aforesaid expensive stains.

No. of Pages : 6 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :13/05/2023
(21) Application No.202321033816 A
(43) Publication Date : 16/06/2023

(54) Title of the invention : A NEW ORGANIC STAIN FOR VASCULAR BUNDLES FROM RIPEN FRUITS OF BROOM CREEPER (COCCULUS HIRSUTUS (L.) W.THEOB.).

(51) International classification :A61K 365900, A61K 367300, A61P 191000, B25H 050000, C07D 634800
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

(71)Name of Applicant :
1)Avinash Ramchandra Gholave
Address of Applicant :Department of Botany K. V. N. Naik Arts, Commerce and Science College Nashik. ---------- ----------
2)Dr. Sharad Suresh Kambale
3)Dr. Kumar Vinod Chhotupuri Gosavi
4)Dr. Arun Nivrutti Chandore
5)Dr. Avinash Asraji Adsul
Name of Applicant : NA
Address of Applicant : NA
(72)Name of Inventor :
1)Avinash Ramchandra Gholave
Address of Applicant :Department of Botany K. V. N. Naik Arts, Commerce and Science College Nashik. ---------- ----------
2)Dr. Sharad Suresh Kambale
Address of Applicant :MVP Samaj's Arts, Commerce and Science College Tryambakeshwar Nashik ---------- ----------
3)Dr. Kumar Vinod Chhotupuri Gosavi
Address of Applicant :HPT Arts RYK Science College Nashik. NASHIK ---------- ----------
4)Dr. Arun Nivrutti Chandore
Address of Applicant :Loknete Ramsheth Thakur Arts, Commerce and Science College Mokhada. Nashik ---------- ----------
5)Dr. Avinash Asraji Adsul
Address of Applicant :Gokhale education society's Arts, Commerce and Science College Jawhar.Gokhale education society's Arts, Commerce and Science College Jawhar. Nashik ---------- ----------

(57) Abstract :
A vascular bundle is a basic component of transport system in vascular plants. It is important to evaluate and understand the position of vascular bundle. The vascular bundles provide important diagnostic details which help to identification of plant families. In the present investigation we have formulated an easy and economical method of vascular bundle staining in laboratory. The stain is prepared from fruits of broom creeper (Cocculus hirsutus (L.) W.Theob.). A fresh fruit juice extracted in 50 % ethanol. This freshly prepared extraction filtered and used for staining the transverse section of Parthenium hysterophorus L. This freshly prepared stain is a low-cost formulation over an expensive stain which show equivalent results.

No. of Pages : 4 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202321032274 A

(19) INDIA

(22) Date of filing of Application :07/05/2023

(43) Publication Date : 16/06/2023

(54) Title of the invention : A NEW ECO-FRIENDLY NUCLEAR STAIN FROM FRUITS OF COCCULUS HIRSUTOUS (L.) W.THEOB.

(51) International classification :A61K 365900, A61K 367300, C12N 090200, G01N 013000, G21C 170600

(86) International Application No :NA
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA
Filing Date :NA

(62) Divisional to Application Number :NA
Filing Date :NA

(71)**Name of Applicant :**
1)Kumar Vinod Chhotupuri Gosavi
Address of Applicant :Plot no. 2, Saptashringi colony, Ujjawal Nagar, Borgad ----------
2)Sharad Suresh Kambale
3)Avinash Ramchandra Gholave
4)Arun Nivrutii Chandore
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Kumar Vinod Chhotupuri Gosavi
Address of Applicant :Plot no. 2, Saptashringi colony, Ujjawal Nagar, Borgad ----------
2)Sharad Suresh Kambale
Address of Applicant :Department of Botany, MVP Samaj's Arts Science and Commerce College, Tryambakeshwar Nashik ----------
3)Avinash Ramchandra Gholave
Address of Applicant :Department of Botany, K. V. N. Naik Arts Commerce and Science College, Nashik Nashik ----------
4)Arun Nivrutii Chandore
Address of Applicant :Arts, Science and Commerce College, Mokhada, dist. Palghar Palghar ----------

(57) Abstract :
Genetic material is one of the essential components of the life as it stores hereditary information. The genetic material found in the form of nucleus in each cell. Nucleus meta morph in to the sets of chromosome numbers in the divisional stages of eukaryotic cells. The study of chromosome counts, chromosome behaviour and karyomorphology are the basic and essential part of Cytogenetics and Systematics. Presently, many stains have been used for staining the chromosomes and nucleus. Among them, Orcein and Carmine are well known stains for cytological studies. We have formulated very easy and eco-friendly nucleus and chromosome stain in laboratory. The stain is prepared from fruits of broom creeper (Cocculus hirsutus (L.) W.Theob.). A fresh fruit pulp extracted in 45% to 100% Acetic acid and Propionic acid. This freshly prepared extraction filtered and used for staining the chromosomes and nucleus. The formulation of this stain is very cheap over aforesaid expensive stains. The newly formulated stain showed superior and/or equivalent results.

No. of Pages : 4 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :07/05/2023

(21) Application No.202321032274 A

(43) Publication Date : 16/06/2023

(54) Title of the invention : A NEW ECO-FRIENDLY NUCLEAR STAIN FROM FRUITS OF COCCULUS HIRSUTOUS (L.) W. THEOB.

(51) International classification :A61K 365900, A61K 367300, C12N 090200, G01N 033000, G21C 170600

(86) International Application No :NA
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA
Filing Date :NA

(62) Divisional to Application Number :NA
Filing Date :NA

(71)Name of Applicant :
1)Kumar Vinod Chhotupuri Gosavi
Address of Applicant :Plot no. 2, Saptashringi colony, Ujjawal Nagar, Borgad ----------
2)Sharad Suresh Kambale
3)Avinash Ramchandra Cholave
4)Arun Nivrutti Chandore
Name of Applicant : NA
Address of Applicant : NA
(72)Name of Inventor :
1)Kumar Vinod Chhotupuri Gosavi
Address of Applicant :Plot no. 2, Saptashringi colony, Ujjawal Nagar, Borgad ----------
2)Sharad Suresh Kambale
Address of Applicant :Department of Botany, MVP Samaj's Arts Science and Commerce College, Tryambakeshwar Nashik ----------
3)Avinash Ramchandra Cholave
Address of Applicant :Department of Botany, K. V. N. Naik Arts Commerce and Science College, Nashik Nashik ----------
4)Arun Nivrutti Chandore
Address of Applicant :Arts, Science and Commerce College, Mokhada, dist. Palghar Palghar ----------

(57) Abstract
Genetic material is one of the essential components of the life as it stores hereditary information. The genetic material found in the form of nucleus in each cell. Nucleus meta morph in to the sets of chromosome numbers in the divisional stages of eukaryotic cells. The study of chromosome counts, chromosome behaviour and karyomorphology are the basic and essential part of Cytogenetics and Systematics. Presently, many stains have been used for staining the chromosomes and nucleus. Among them, Orcein and Carmine are well known stains for cytological studies. We have formulated very easy and eco-friendly nucleus and chromosome stain in laboratory. The stain is prepared from fruits of broom creeper (Cocculus hirsutus (L.) W.Theob.). A fresh fruit pulp extracted in 45%, to 100% Acetic acid and Propionic acid. This freshly prepared extraction filtered and used for staining the chromosomes and nucleus. The formulation of this stain is very cheap over aforesaid expensive stains. The newly formulated stain showed superior and/or equivalent results.

No. of Pages : 4 No. of Claims : 2

NORDIC JOURNAL OF BOTANY

Research article

Tripogon salunkhei (Poaceae), a new grass species from Maharashtra state, India

Kumar Vinod Chhotupuri Gosavi[1], **Nilesh Appaso Madhav**[1] **and Arun Nivrutti Chandore**[2]

[1]Department of Botany, HPT Arts and RYK Science College, Nashik, Maharashtra, India
[2]Department of Botany, Arts, Science and Commerce College, Mokhada, Palghar, Maharashtra, India

Correspondence: Kumar Vinod Chhotupuri Gosavi (kumarvinodgosavi@gmail.com)

Nordic Journal of Botany
2024: e04352
doi: 10.1111/njb.04352
Subject Editor: Ranee Prakash
Editor-in-Chief: Torbjörn Tyler
Accepted 15 April 2024
Published 24 May 2024

Tripogon salunkhei sp. nov., is described and illustrated from the Sinnar tehsil of Nashik district, Maharashtra state, India. The new species is very distinct among the species of *Tripogon* Roem. & Schult by all spikelets having two florets. Coloured photographs, distribution, and ecological notes of the new species are provided.

Keywords: Gramineae, India, new taxon, taxonomy, *Tripogon*

Introduction

Genus *Tripogon* is distributed in tropical, subtropical, and temperate regions of Africa, America, Asia and Australia. It is represented by 51 species worldwide (Thoiba and Pradeep 2020), with 24 species and two varieties so far recorded in India according to Clayton and Renvoize (1986) and Thoiba and Pradeep (2020). However, recently Jabeena et al. (2022) described a new species from India and presently *Tripogon* comprises 27 taxa in India of which 17 species are endemic. Most of these species are restricted to the peninsular India, while only a few species are distributed towards the northern part of India (Thoiba and Pradeep 2020, Jabeena et al. 2022). The genus is easily identified by having a single terminal raceme and laterally compressed spikelets with two to several florets, and 3-nerved lemmas (Clayton and Renvoize 1986).

During the exploration of the Nashik district in 2021, we came across an interesting population of the genus *Tripogon* growing in open hilly slope areas in Sinnar tehsil of Nashik district. At first sight, the plant looked very different due to its dwarf habit and spikelets with only two florets. After screening a number of individuals from the population, we found that the population possesses consistent characters. During subsequent seasons observations were made on the consistency of the aforesaid characters and it became evident that they remained constant. After critical analysis and consultation of the relevant literature (Bor 1960, Shukla 1996, Kabeer and Nair 2009, Potdar et al. 2012), and examination of the protologue (Hooker 1897) and type of *T. trifidus* Munro ex Hook.f. (K000245010 digital image!) we concluded that our plant is allied to *T. trifidus*. However, it is very distinct in the characters which are provided in Table 1 and is described here as *Tripogon salunkhei* Gosavi, Madhav and Chandore sp. nov.

NORDIC SOCIETY OIKOS
www.nordicjbotany.org

Table 1. Morphological comparison between *Tripogon salunkhei* Gosavi, Madhav & Chandore sp. nov. and *T. trifidus* Munro ex Hook.f.

Characters	*Tripogon salunkhei*	*Tripogon trifidus*
Height of plant (cm)	5–8	20–95
Leaf sheaths length (cm)	1.0–2.5	4–12
Leaf blade dimensions (cm × cm)	1.0–5.0 × 0.3–0.6	10–70 × 0.1–0.2
Florets in spikelets	strictly 2-florets	5–20 florets
Width of lower glumes (mm)	0.2–0.3	0.5–0.7
Upper glumes dimensions (mm × mm)	3.0–4.5 × 0.4–0.6	3–5 × 1.0–1.2
Apex of upper glumes	entire, acute to obtuse	2-toothed, mucronate or minutely awned at sinus
Lemmas	2.5–3.0 × 0.7–1.0 mm; median awns 1.5–2.5 mm long	3.0–4.5 × 1–1.3 mm; median awns 2.8–4.5 mm long
Palea	margin sparsely scaberulous, apex always bi-fid	margin densely ciliate, apex entire
Caryopse dimensions (mm × mm)	1.2–1.4 × 0.3–0.4	1.6–2.5 × 0.25–0.3

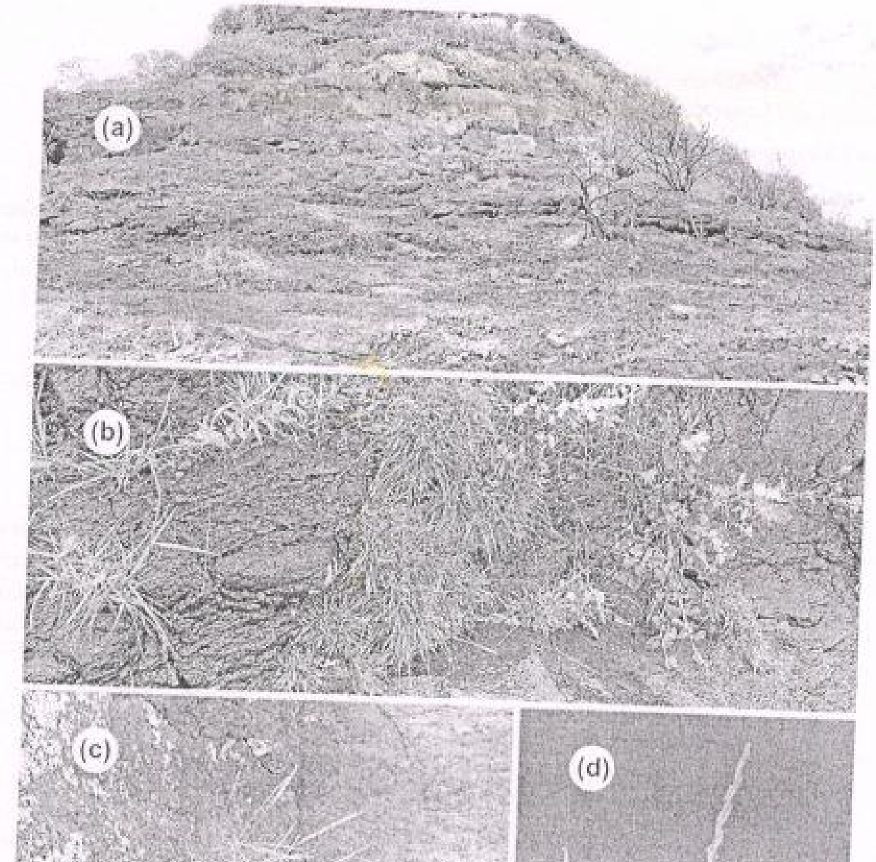


Figure 1. *Tripogon salunkhei* sp. nov.: (a) habitat, (b–c) plants growing on rock cleft, (d) single plant with spikes. Photographs by K.V.C. Gosavi and A.N. Chandore.

Phytotaxa 601 (1): 097–102
https://www.mapress.com/pt/

Article

ISSN 1179-3155 (print edition)
PHYTOTAXA
ISSN 1179-3163 (online edition)

https://doi.org/10.11646/phytotaxa.601.1.8

Rediscovery of little-known-monotypic genus *Karnataka* P.K.Mukh. & Constance (Apiaceae)

KUMAR VINOD CHHOTUPURI GOSAVI[1,4,*], NILESH APPASO MADHAV[1,5], VIKAS BHAT KHANDIGE[2] & ARUN NIVRUTTI CHANDORE[3,6,*]

[1] *Department of Botany, HPT Arts & RYK Science College, Nashik- 422005, Maharashtra, India.*
[2] *Kallamundkur, Mangaluru taluk, Dakshina Kannada District, Karnataka, India.*
[3] *Department of Botany Arts, Science and Commerce College, Mokhada, Palghar District- 401604, Maharashtra, India.*
[4] ✉ *kumarvinodgosavi@gmail.com;* https://orcid.org/0000-0001-6681-2253
[5] ✉ *nileshmadhav@gmail.com;* https://orcid.org/0000-0002-6581-4721
[6] ✉ *arunchandore@gmail.com;* https://orcid.org/0000-0003-0176-1840
**Authors for correspondence:* ✉ *kumarvinodgosavi@gmail.com,* ✉ *arunchandore@gmail.com*

Abstract

Karnataka (Apiaceae) is a monotypic genus rediscovered after it's type collection around 175 years from Mudbidri area of Dakshina Kannada (South Canara) district, Karnataka. Detailed morphological description, identity notes and photoplates have been provided based on fresh material collected by authors.

Keywords: Endemic genera, eudicots, identity, *Karnataka benthamii*, monotypic, Umbelliferae, Western Ghats.

Introduction

Family Apiaceae is represented by about 466 genera and 3820 species throughout globe and majority of Apiaceae are distributed and diversified at North America and temperate Eurasia (Plunkett *et al.*, 2018). According to present estimation, the family is represented by 70 genera and 246 species in India (Gosavi *et al.*, 2020, 2022) including six endemic genera to the country. All these six genera namely *Karnataka* P.K.Mukh. & Constance (1986a: 145), *Pinda* P.K.Mukh. & Constance (1986b: 226), *Polyzygus* Dalzell (1986b: 228), *Sivadasania* N.Mohanan & Pimenov (2007: 900), *Shrirangia* Gosavi, Madhav & Chandore (2022: 2) and *Vanasushava* P.K.Mukh. & Constance (1974: 595) are restricted to the Western Ghats. Genus *Karnataka* can be easily catches in the field by the major characters: tuberous habit, large ternate-compound leaf, white-brilliant flowers, dorsally sub-compressed to compressed fruit, three ribbed fruit and unwinged lateral ribs.

During survey of flowering plants from Western Ghats, authors were came across an unknown tuberous Apiaceae member from Mudbidri, Dakshina Kannada district. After examination of relevant literature (Clarke, 1879; Cooke, 1903; Mukherjee and Constance, 1986a,1986b, 1993) the collected unknown Apiaceae member was identified as monotypic genus *Karnataka*. The species identity *Karnataka benthamii* (C.B.Clarke) P.K.Mukh. & Constance has been confirmed after consultation of holotype (BM000630552) housed in BM.

Metz collected plant specimens from South Kanara (Canara) and labelled by Miquel through the intermediate R. F. Hohenaker in around 1847 (Burkill, 1965). Among the plants collection Metz had been collected Apiaceae member which was labelled as *Pimpinella? involucrata* Wight et Arn. (1834: 369). Clarke examined those sheets and realized that the plant material altogether different than *P. involucrata* especially by fruit morphology. Thus, he kept the species under the genus *Schultzia* Spreng. (1813: 30) with a new species, *Schultzia benthamii* C.B.Clarke (1879: 697). However, he had doubt on species as the fruit characters did not fit with the genus *Schultzia* (Clarke, 1879). After examination of same sheets, Mukherjee & Constance (1986a) were established new genus *i.e. Karnataka* based on carpological and floral characters as well as tuberous habit. Since 1847 nobody had collected this genus. Thus, the present collection of genus *Karnataka* is the rediscovery after 175 years.

Taxonomic Treatment

Karnataka P.K.Mukh. & Constance, Brittonia 38: 145. 1986.

Perennial tuberous herbs. Rootstock tuberous. Stem slender, ribbed. Leaves ternate to bi-pinnately ternate with dilated sheathing leaf base; basal-middle leaves long petiolate; upper leaves sessile with prominent lamina and sheath; leaflet lobe base attenuate, lateral leaf lobe base unequal. Inflorescence terminal and axillary compound umbel. Involucre bracts absent or present, if present then oval-ovate to oblong. Involucel usually ovate, apex acute to acuminate, rarely trifid, 1-nerved. Rays sub-equal to unequal, ribbed. Bracteoles unequal, linear-ovate to lanceolate, apex obtuse-acute or trifid. Flowers pedicellate; pedicel equal-subequal. Flowers perfect, heteromorphic, some central flowers staminate. Calyx teeth 5, subequal, subulate, persistent. Petals brilliant white, regular, inflexed, acute at apex. Style persistent. Stylopodium discoid, massive, persistent. Fruit dorsally sub-compressed to compressed; mericarp dorsally flattened; ribs primary, prominent, vascular bundles prominent. Lateral ribs prominent, inflexed, unwinged. Commissural vittae 6–7; vallecular vittae unequal, 2–3 between two vallecular ribs, 3–4 between lateral and vallecular ribs. Endosperm grooved under vittae.

FIGURE 1. Photographs of *Karnataka benthamii* (C.B.Clarke) P.K.Mukh. & Constance in field, A. Habitat, B. Inflorescence, C. Fruiting twig. Photos by: K.V.C. Gosavi (A), A.N. Chandore (B, C).

Cytologia 89(2): 153–156

Karyotype Report

Cytology of two varieties of *Coix lacryma-jobi* L. (Poaceae) in India

Nilesh Appaso Madhav[1], Arun Nivrutti Chandore[2], and Kumar Vinod Chhotupuri Gosavi[1]*

[1]Department of Botany, HPT Arts & RYK Science College, Nashik–422005, Maharashtra, India
[2]Department of Botany, Arts, Science and Commerce College, Mokhada–401604, District-Palghar, Maharashtra, India

Received December 13, 2023; accepted March 5, 2024

Summary The detailed karyomorphological studies were undertaken for two varieties of *Coix lacryma-jobi* L., namely *C. lacryma-jobi* var. *puellarum* (Balansa) E.G. Camus & A. Camus and *C. lacryma-jobi* var. *ma-yuen* (Rom.Caill.) Stapf. The present communication deals with meiotic and somatic chromosome numbers, total chromosome length, arm ratio, centromeric position, and Stebbins classification. Somatic chromosome number $2n=20$ and meiotic number $n=10$ were observed in both varieties. Karyotypes of both varieties of *C. lacryma-jobi* fell under the 4A asymmetric category of Stebbins classification. Chromosome number and karyomorphology of *C. lacryma-jobi* var. *puellarum* are reported for the first time.

Keywords *Coix lacryma-jobi* var. *puellarum*, *Coix lacryma-jobi* var. *ma-yuen*, Karyotype analysis, Chromosome number.

Genus *Coix* L. is well-known for its fodder and rich nutritious food. The utricles are also used for ornamentation of cloths and jewelry by tribal people. The genus is taxonomically very difficult because it shows a high range of variation among its taxa. Earlier the genus comprised several species but now has only three species and three varieties namely, *Coix aquatica* Roxb., *C. gasteenii* B.K.Simon, *C. lacryma-jobi* L., *C. lacryma-jobi* var. *ma-yuen* (Rom.Caill.) Stapf, *C. lacryma-jobi* var. *puellarum* (Balansa) E.G.Camus & A.Camus, and *C. lacryma-jobi* var. *stenocarpa* Oliv. (Madhav and Gosavi 2022a). Because of high variations in morphology and habitat in the genus *Coix*, many workers have done cytological works in different taxa (Koul and Paliwal 1964; Rao 1977; Clayton 1981; Sapre *et al.* 1985; Christopher and Mini 1988; Christopher and Jacob 1990, 1991; Han *et al.* 2004; Barve and Sangeetha 2008; Gosavi and Yadav 2011; Rao and Nirmala 2011; Cai *et al.* 2014), but now most of the taxa subsumed and few kept under variety rank. Thus, to understand the species, variety, and variations of the *Coix* need to thoroughly work on cytology. The present communication is the first step in carrying out the basic karyomorphology of *C. lacryma-jobi* var. *ma-yuen* and *C. lacryma-jobi* var. *puellarum*.

Materials and methods

The utricles and plant specimens of *C. lacryma-jobi* var. *puellarum* (Balansa) E.G. Camus & A.Camus and *C. lacryma-jobi* var. *ma-yuen* (Rom.Caill.) Stapf (Fig. 1A, D) for the present investigation were collected from the Upper Sichey in Sikkim and Mawblang in Meghalaya, respectively. The voucher specimens have been deposited in the Herbarium, Department of Botany, Shivaji University Kolhapur (SUK).

Root tips were obtained from germinated seeds (utricle) for mitotic study. Seeds germinated between the moist blotting papers in the glass Petri plates. Mitosis was studied from healthy root tips (5 to 12 mm) pretreated with a saturated aqueous solution of *p*-dichlorobenzene for 3–4 h at 9±3°C. The root tips were squashed in 2% propionic orcein for staining. A Leica DM750 microscope with an attached ICC50 W camera was used for taking pictures of chromosomes from freshly prepared slides. The method of Levan *et al.* (1964) was used for karyotype analysis. Ten plates with well-separated somatic chromosomes were studied for analysis. The degree of karyotype asymmetry has been determined by using Intrachromosomal asymmetry index (A1), Interchromosomal asymmetry index (A2), Asymmetry index (Ai), Coefficient of variation of the centromeric index (CV_{CI}), Coefficient of variation of chromosome lengths (CV_{CL}), Gradient Index (GI), Symmetric Index (SI), Total haploid chromosome length percent (TCL%), Total chromosome length of haploid complement

*Corresponding author, e-mail: kumarvinodgosavi@gmail.com
DOI: 10.1508/cytologia.89.153

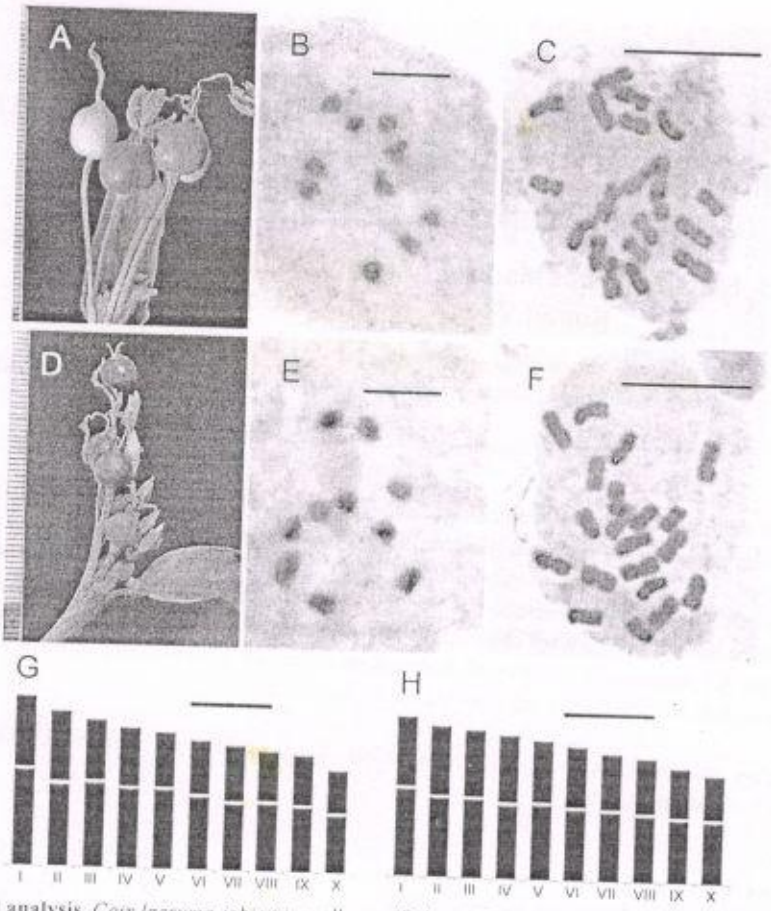


Fig. 1. Cytological analysis. *Coix lacryma-jobi* var. *puellarum* (Balansa) E.G. Camus & A.Camus (**A–C, G**) and *C. lacryma-jobi* var. *ma-yuen* (Rom.Caill.) Stapf. (**D–F, H**). (A, D) inflorescences and utricles; (B, E) meiotic chromosome plates; (C, F) somatic chromosome plates; (G, H) idiograms. Scale bars=10 μm (B, C, E, F) and 2 μm (G, H).

(TCLH), Total form percent (TF%), indices (Zarco 1986, Paszko 2006), and the categories of Stebbins (1971).

For meiotic studies early budding male spikelets were fixed in a Carnoy's fluid in the morning time (7:00 a.m to 7:15 a.m.); anthers were separated from fixed spikelets and squashed in 2% propionic-orcein. Results were obtained from mounted slides.

Results and discussion

C. lacryma-jobi var. *ma-yuen* and *C. lacryma-jobi* var. *puellarum* shares common meiotic chromosome number n=10 (Fig. 1B, E), somatic chromosome number $2n$=20 (Fig. 1C, F), karyotypic formula $2n$=20=20m and 4A category of Stebbin's classification (Table 3). Karyotype analysis of the *C. lacryma-jobi* var. *ma-yuen* is given in Table 1 and *C. lacryma-jobi* var. *puellarum* is given in Table 2. The basic parameters of the karyotype of both varieties are given in Table 3. Idiograms of both taxa have been drawn in Fig. 1G and 1H, respectively.

C. lacryma-jobi var. *lacryma-jobi* is widely distributed throughout the tropics in different habitats thus, the taxon shows high variation in its morphology especially in its size, shape, and colors of utricle as compared to other varieties. While, *C. lacryma-jobi* var. *ma-yuen* is cultivated in China, Myanmar, and northeast India for its medicinal and rich potential food value, and *C. lacryma-jobi* var. *puellarum* is distributed in Southeast Asia (Xi *et al.* 2016; Madhav and Gosavi 2022a, b). In the *C. lacryma-jobi* different cytotypes were reported such as n=5 and 10; $2n$=10, 16, 20, 21, 22, 27, 29, 30, 31, 39, 40, and 41 (Koul and Paliwal 1964; Koul 1965; Rao 1973, 1977; Venkateshwaralu *et al.* 1976; Christopher and Mini 1988; Christopher and Jacob 1990; Christopher *et al.* 1989; Rao and Nirmala 1993; 1994a, b, 2001, 2011; Christopher *et al.* 1995a, b, 1996, 1997; Nirmala 2003; Han *et al.* 2004; Barve and Sangeetha 2008; Gosavi and Yadav 2011; Cai *et al.* 2014). Among them $2n$=20 is dominated number in the *C. lacryma-jobi* (Liu *et al.* 2020) and the same result we have got in the present investigation of *C. lacryma-jobi* var. *ma-yuen* and *C. lacryma-jobi* var. *puellarum*. The chromosome number in *C. lacryma-jobi* var. *ma-yuen* has been reconfirmed as reported by Mehra (1882) and Venkateswarlu *et al.* (1976), but we did not get $2n$=30 as reported by Christopher and Jacob (1989, 1990). Chromosome number of *lacryma-jobi* var. *puellarum* report here for the first time.

Christopher and Jacob (1989) reported that ACL= 3.25 μm, the range of chromosome size=2.66 to 3.91 μm,