1.3.2 Percentage of students undertaking project work/field work/ internships (Data for the latest completed academic year)

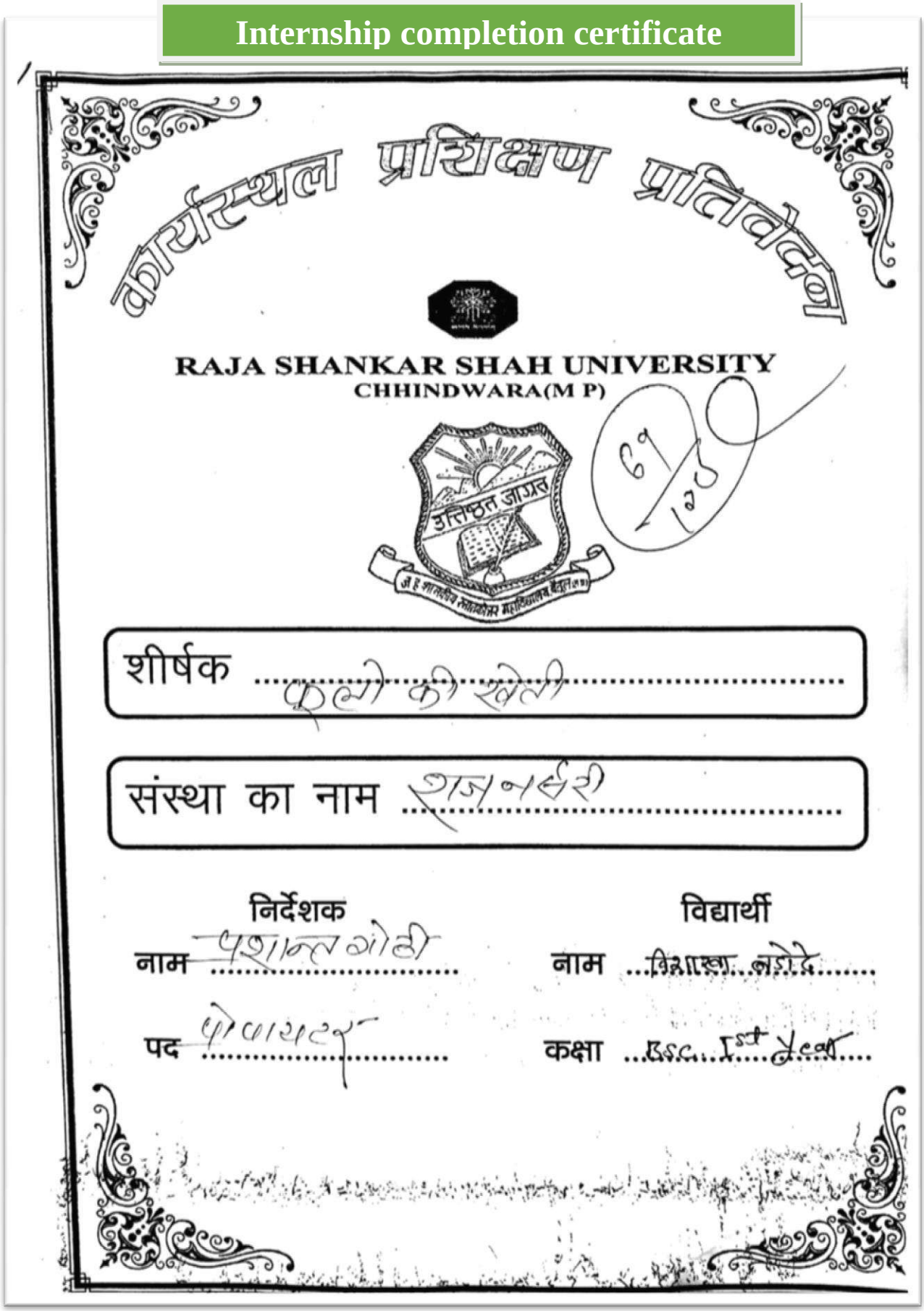
DVV Documents :

1. Internship completion certificate / project work completion certificate of any 10 students from the organization where internship / project was completed along with the duration.

2. Report of the field visit / sample photographs of the field visit / permission letter from the competent authority.

Index

Internship completion certificate



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RAKESH KUMAR TIWARI
e verified
Principal JH Govt PG College
Betul, MP
08.09.2023 13:41:30

संस्था द्वारा प्रमाण- पत्र

प्रमाणित किया जाता है कि श्री/कुमारी ....विशाखा नडोदे.....

(विद्यार्थी का नाम एवं कक्षा) नें ....विशाखा नडोदे (BSC: I st Year)...

(संस्था का नाम एवं स्थान) में दिनांक 23/04/2022 से दिनांक 29/04/2022 तक

उपस्थित रहकर कार्यस्थल प्रशिक्षण प्राप्त किया।

हस्ताक्षर

संस्था प्रमुख/संस्था प्रतिनिधि

नाम:- ....प्रशान्त गोदे.....

सील:-(संस्था प्रमुख के समक्ष अधिकारी प्रतिनिधि सील)

कार्यस्थल प्रशिक्षण प्रतिवेदन

शीर्षक ..प्रकिस..संस्था..निरीक्षण.....

संस्था का नाम ..जयंती..झॉस्कर..स्नातकोत्तर..महाविद्यालय..बैतूल

निर्देशक

नाम ..प्रो..नीरज..धाकड़

पद ..सहायक प्राध्यापक

विद्यार्थी

नाम..नेहा..कार्डेकर...

कक्षा...B.A..IInd..Year...

कार्य पूर्णता प्रमाणपत्र

प्रमाणित किया जाता है कि (नाम) नेहा काईकर कक्षा B.A 2st year (महाविद्यालय का नाम) J.H College Betul द्वारा परियोजना कार्य / प्रशिक्षुता / शिक्षुता / सामुदायिक जुड़ाव ने दिनांक 22/04/22 से दिनांक 26/04/2022 तक इस संस्था से सम्बद्ध / में उपस्थित रहकर police deapartment के क्षेत्र में कार्य किया / प्रशिक्षण प्राप्त किया ।

(नाम) नेहा काईकर अति परिश्रमी, समर्पित और परिणामोन्मुखी हैं, इन्होने संस्था में अपने कार्यकाल के दौरान अच्छा/ उत्कृष्ट कार्य किया । हम इनके स्वर्णिम भविष्य की कामना करते हैं ।

शुभकामनाओं सहित,

Principal
Govt. J.H. P.G. College Betul

.....

स्थान बैतूल

दिनांक 11/08/22

11/08/22

कुलसचिव

संस्था की सील

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Principal JH Govt PG College
Betul, MP
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कार्यस्थल प्रशिक्षण प्रतिवेदन

शीर्षक महिला पुलिस थाना बैतूल

संस्था का नाम महिला पुलिस थाना बैतूल

निर्देशक

नाम Dr. Saroj Jawalker

पद अतिथि विद्वान

विद्यार्थी

नाम कीर्ति यादव

कक्षा B.A. 1st year

कार्य पूर्णता प्रमाणपत्र

प्रमाणित किया जाता है कि (नाम) कीर्ती चाचव कक्षा B.A 1st Year (महाविद्यालय का नाम) जि.ह.स्ना.म.बैतूल द्वारा परियोजना कार्य / प्रशिक्षुता / शिक्षुता / सामुदायिक जुड़ाव ने दिनांक 23/4/2022 से दिनांक 29/04/22 तक इस संस्था से सम्बद्ध / में उपस्थित रहकर महिला पुलिस थाना के क्षेत्र में कार्य किया / प्रशिक्षण प्राप्त किया।

(नाम) कीर्ती चाचव अति परिश्रमी, समर्पित और परिणामोन्मुखी हैं, इन्होने संस्था में अपने कार्यकाल के दौरान अच्छा/ उत्कृष्ट कार्य किया। हम इनके स्वर्णिम भविष्य की कामना करते हैं।

शुभकामनाओं सहित,

स्थान बैतूल

दिनांक .....

Dr. Suraj Jawalkar

थाना प्रभारी

महिला थाना बैतूल

संस्था की सील

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Betul, MP
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कार्यशाला प्रशिक्षण प्रतिवेदन

शिर्षक : आदिम जाति कल्याण विभाग

संस्था का नाम JH ~~Govt.~~ शा० स्नातकोत्तर महा० विद्यालय

निर्देशक

प्रो० योगेश्वरी पाण्डे

अर्थ० वि० समाजशास्त्र

विद्यार्थी

नाम : .....

कक्षा : B.A. 4th Year

सेमेस्टर : .....

~~दीनदयाल~~ शासकीय स्नाकोत्तर महाविद्यालय, बैतूल (म.प्र.)

कार्य पूर्णता प्रमाणपत्र

1 देवांशी
2 शुभांगी
3 नीखलेश
4 सीमा

प्रमाणित किया जाता है कि (नाम) 5 रश्मि - कक्षा B.A. I Year (महाविद्यालय का नाम) J.H.P.G. College द्वारा परियोजना कार्य / प्रशिक्षुता / शिक्षुता / सामुदायिक जुड़ाव ने दिनांक 18/5/2022 से दिनांक 25/5/22 तक इस संस्था से सम्बद्ध / में उपस्थित रहकर आदिम जाति कल्याण विभाग बैतूल के क्षेत्र में कार्य किया / प्रशिक्षण प्राप्त किया।

(नाम) उपरोक्त 5 विद्यार्थी अति परिश्रमी, समर्पित और परिणामोन्मुखी हैं, इन्होने संस्था में अपने कार्यकाल के दौरान अच्छा/ उत्कृष्ट कार्य किया। हम इनके स्वर्णिम भविष्य की कामना करते हैं।

शुभकामनाओं सहित,

स्थान बैतूल

दिनांक .....

.....
वरिष्ठ [illegible]
आदिवासी [illegible] बैतूल
क. संस्था की सीलक.....

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RAKESH KUMAR TIWARI
e verified
Principal JH Govt PG College
Betul, MP
08.09.2023 13:41:30

संस्था द्वारा प्रमाण - पत्र

- देवांशी
- शुभांशु
- नीखलेश
- सोनू

प्रमाणित किया जाता है कि श्री/ कुमारी .....

..... (विद्यार्थी का नाम एवं कक्षा) ने आशिष मालवी

कार्यालय विभाग बैतूल (संस्था का नाम एवं स्थान) में दिनांक 18/5/2022

से 25/05/2022 तक उपस्थित रहकर कार्यस्थल प्रशिक्षण प्राप्त किया।

हस्ताक्षर
कार्यालय सहायक
आदिवासी विकास बैतूल
दिनांक.....

संस्था प्रमुख / संस्था प्रतिनिधि

नाम : .....

सील : (संस्था प्रमुख/संस्था के समक्ष
अधिकारी प्रतिनिधि सील)

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Betul, MP
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परियोजना का शीर्षक – प्रारंभिक विद्युत

स्नातक विज्ञान

कि डिग्री के लिए आंशिक प्रतिपूर्ति

सत्र- 2021-22

विद्यार्थीयो के नाम –	कक्षा	अनुक्रमांक	हस्ताक्षर
1) गोविन्द पटवारी P	बी. एस. सी.		Govind
2) दुशाली मगरदे P	बी. एस. सी.		Dushali
3) अंकिता सातनकर P	बी. एस. सी.		Ankita
4) देवेश पूडे —	बी. एस. सी.		देवेश पूडे
5) अरुणा पटेल — P	बी. एस. सी.		Aruna

संस्था का नाम (जहा प्रशिक्षण पूर्ण किया)- आदर्श प्रा. आईटीआई , बैतूल (म.प्र.)

परिवेक्षक का नाम – पूर्णा लोनारे

प्रशिक्षण अधिकारी इलेक्ट्रीशियन

Group - 2

जयवंती हास्कर स्नाकोत्तर महाविद्यालय बैतूल 460001

राजा शंकर शाह विश्वविद्यालय छिंदवाडा

AADARSH Pvt. ITI
Success through Excellence

Reg. No. DGT-6/12/86/2014-TC

No. 313 // परियोजना पूर्ण करने का प्रमाण पत्र // Date 29/05/2022

प्रमाणित किया जाता है कि निम्न सम्मिलित छात्र एवं छात्राओ ने इलेक्ट्रिकल क्षेत्र के अंतर्गत परियोजना कार्य के विषय- प्रारंभिक विद्युत पर संस्था में प्रशिक्षण अधिकारी- पूर्णा लोनारे के मार्गदर्शन में दिनांक -17/05/2022 से 25/05/2022 तक प्रशिक्षण प्राप्त किया ।

इस प्रशिक्षण अवधि में सभी का प्रदर्शन अच्छा था ।
संस्था इनके उज्जवल भविष्य कि कामना करती है ।

सम्मिलित छात्र / छात्राओ का नाम -

(1)गोविन्द पटवारी
(2)दुशाली मगरदे
(3)अंकिता सातन्कर
(4) देवश्री पुरु
(5) अंजली धांदाम

29/05/2022

प्रशि. अधिकारी
(पूर्णा लोनारे)

प्राचार्य
आदर्श प्रा. आद्योगिक प्रशिक्षण संस्थान 29/5/22
जिला-बैतूल, मध्यप्रदेश

प्रारूप – G2

परियोजना कार्य / प्रशिक्षुता / शिक्षुता / सामुदायिक जुड़ाव के प्रशिक्षण हेतु

संस्था की जानकारी एवं सहमति पत्र

1. संस्थान / प्रशिक्षक / व्यवसाय का नाम Electrician & Fitter

एवं पंजीकरण Purna Lonare DGET-6/12486/2016-TC

2. संस्था का स्वरूप (निजी / शासकीय / निजी (Private)

अर्द्धशासकीय / अन्य)

3. संस्थान के मार्गदर्शन क्षेत्र का नाम DGET, Govt of India

(जिसमें कार्य किया जाता है)

4. संस्थान के अंतर्गत विभिन्न पदों / 15

कार्य करने वाले व्यक्तियों की संख्या

5. अपेक्षित अधिकतम विद्यार्थी संख्या 420 + (360+60)

जिनको संस्थान प्रशिक्षण दे सकता है

6. संस्थान से प्रशिक्षण उपरांत संगठित/ उपलब्ध

असंगठित क्षेत्र में रोजगार की संभावना

7. अन्य विशेष जानकारी ---

संस्था/व्यक्तिगत मार्गदर्शन द्वारा, महाविद्यालय JH PG College के विद्यार्थियों को प्रशिक्षण प्रदान करने की सहमति प्रदान की जाती है।

हस्ताक्षर एवं दिनांक

प्राचार्य

आदर्श औ.औद्योगिक प्रशिक्षण संस्थान

संस्था जिसमें प्रशिक्षण प्रदान किया जाएगा का नाम

परियोजना कार्य

शीर्षक : – गुरूत्वाकर्षण एवं गुरूत्वीय त्वरण

Group-5

संकाय – विज्ञान संकाय

सत्र – 2021–22

संस्था का नाम शास. औद्योगिक प्रशिक्षण संस्था बैतुल (म. प्र.)

विद्यार्थी के नाम	कक्षा	अनुक्रमांक
1. गायत्री बोड़खे	बी.एस.सी. प्रथम वर्ष	1
2. हर्षिता राठौर	बी.एस.सी. प्रथम वर्ष	2
3. हर्षिता हजारे	बी.एस.सी. प्रथम वर्ष	3
4. अंबुलिका साहू	बी.एस.सी. प्रथम वर्ष	4
5. भगवानदास यदुवंशी	बी.एस.सी. प्रथम वर्ष	5
6. बादल धुर्वे	बी एस सी प्रथम वर्ष	6

पर्यवेक्षक का नाम : – श्रीमति सविता चौहान

जंयवती हॉक्सर शासकीय स्नाकोत्तर महाविद्यालय बैतूल (म.प.)

राजा शंकर शाह विश्वविद्यालय छिंदवाड़ा

प्रारूप – G2

परियोजना कार्य / प्रशिक्षुता / शिक्षुता / सामुदायिक जुड़ाव के प्रशिक्षण हेतु संस्था की जानकारी एवं सहमति पत्र

1. संस्थान / प्रशिक्षक / व्यवसाय का नाम शास. औद्यो. प्रशिक्षण संस्था बैतुल एवं पंजीकरण

2. संस्था का स्वरूप (निजी / शासकीय / अर्द्धशासकीय / अन्य) : शासकीय

3. संस्थान के मार्गदर्शन क्षेत्र का नाम (जिसमें कार्य किया जाता है) गुरुत्वाकर्षण एवं गुरुत्वीय त्वरण

4. संस्थान के अंतर्गत विभिन्न पदों / कार्य करने वाले व्यक्तियों की संख्या 35

5. अपेक्षित अधिकतम विद्यार्थी संख्या जिनको संस्थान प्रशिक्षण दे सकता है 450

6. संस्थान से प्रशिक्षण उपरांत संगठित/ असंगठित क्षेत्र में रोजगार की संभावना शास. अशास. एवं स्वयं के रोजगार की उपार संभावना

7. अन्य विशेष जानकारी .....

संस्था/व्यक्तिगत मार्गदर्शन द्वारा, महाविद्यालय G.J.H. PG. College Betul के विद्यार्थियों को प्रशिक्षण प्रदान करने की सहमति प्रदान की जाती है।

Principal
Industrial Training Institute
Betul (M.P.)

हस्ताक्षर एवं दिनांक

संस्था प्रमुख/अधिकृत व्यक्ति का नाम

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RAKESH KUMAR TIWARI
e verified
Principal JH Govt PG College
Betul, MP
08.09.2023 13:41:30

शासकीय औद्योगिक प्रशिक्षण संस्था,
बैतूल म0प्र0 पिन–460001
E-Mail ID : prnitibetul@gmail.com
INSTITUTE
Ph. No. 07141-238247

Industrial Training Institute

OFFICE OF THE PRINCIPAL
Govt. INDUSTRIAL TRAINING
BETUL (M.P.)

//प्रशिक्षण प्रमाण पत्र//

कमांक–शाऔप्रसं/बैतूल/प्रशिक्षण/2022// //बैतूल, दिनांक 27/04/2022

प्रमाणित किया जाता हैं कि इस संस्था में परियोजना कार्य के अन्तर्गत व्यवसाय Bse. Math-1st yr. के विषय Physics भाग Gauri-4 पर संस्था के प्राचार्य श्री डी0एम0 सिंह के अनुमोदन से प्रशिक्षण अधिकारी श्री सुशीलाल द्वारा दिनांक 21-04-2022 से दिनांक 27-04-2022 तक जयवंती हक्सर महाविद्यालय बैतूल के निम्नांकित छात्र/छात्राओं ने प्रशिक्षण एवं मार्गदर्शन प्राप्त किया ।

प्रशिक्षण में सम्मिलित छात्र/छात्रांए ।

1 Gayatri Bodhke
2 Harshita Rathore
3 Harshita Halare
4 Anshulika Sahu
5 Badal Harsule.
6 Bhagwan das

प्राचार्य,
शास0 औद्योगिक प्रशिक्षण संस्था,
बैतूल

Principal
Industrial Training Institute
Betul

कमांक–शाऔप्रसं/बैतूल/प्रशिक्षण/2022// //बैतूल, दिनांक 27/04/2022

प्रतिलिपिः–
1 श्री केशव सातपुते प्रभारी प्रशिक्षण अधिकारी शा0आईटीआई बैतूल की ओर सूचनार्थ ।

प्राचार्य,
शास0 औद्योगिक प्रशिक्षण संस्था,
बैतूल म0प्र0

Principal
Industrial Training Institute
Betul (M.P.)

Signature Not Verified
RAKESH KUMAR TIWARI
e verified
Principal JH Govt PG College
Betul, MP
08.09.2023 13:41:30

प्रारूप – G2

परियोजना कार्य / प्रशिक्षुता / शिक्षुता / सामुदायिक जुड़ाव के प्रशिक्षण हेतु संस्था की जानकारी एवं सहमति पत्र

1. संस्थान / प्रशिक्षक / व्यवसाय का नाम एवं पंजीकरण: जिला चिकित्सालय बैतूल
2. संस्था का स्वरूप (निजी / शासकीय / अर्द्धशासकीय / अन्य): शासकीय
3. संस्थान के मार्गदर्शन क्षेत्र का नाम (जिसमें कार्य किया जाता है): जिला चिकित्सालय बैतूल
4. संस्थान के अंतर्गत विभिन्न पदों / कार्य करने वाले व्यक्तियों की संख्या: C.S. B.V.D. 2 Peons (06)
5. अपेक्षित अधिकतम विद्यार्थी संख्या जिनको संस्थान प्रशिक्षण दे सकता है: 06
6. संस्थान से प्रशिक्षण उपरांत संगठित/असंगठित क्षेत्र में रोजगार की संभावना: संगठित
7. अन्य विशेष जानकारी: —

संस्था/व्यक्तिगत मार्गदर्शन द्वारा महाविद्यालय J.H. College, Betul के विद्यार्थियों को प्रशिक्षण प्रदान करने की सहमति प्रदान की जाती है।

Officer
Veterinary [illegible]
Block-Betul (M.P.)

संस्था प्रमुख/अधिकृत व्यक्ति का नाम

Signature Not Verified
RAKESH KUMAR TIWARI
e verified
Principal JH Govt. PG College
Betul, MP
08.09.2023 13:41:30

कार्य पूर्णता प्रमाणपत्र प्रारूप

(संस्था / व्यक्ति द्वारा कार्य पूर्णता प्रमाणपत्र)

(कार्य समाप्ति उपरांत बाह्य संस्था द्वारा संस्था के लेटर हैड पर प्रदत्त प्रमाणपत्र यहाँ संलग्न करें)

संस्था का नाम एवं लोगो

कार्य पूर्णता प्रमाणपत्र

प्रमाणित किया जाता है कि (नाम) योगिता गीदे कक्षा BSC. I year (महाविद्यालय का नाम) Govt. J.H.P.G.College द्वारा परियोजना कार्य / प्रशिक्षुता / शिक्षुता / सामुदायिक जुड़ाव ने दिनांक 4/5/22 से दिनांक 10/5/22 तक इस संस्था से सम्बद्ध / में उपस्थित रहकर देवी नत्लाकी गायो के पालन इत्यादि के क्षेत्र में कार्य किया / प्रशिक्षण प्राप्त किया ।

(नाम) योगिता गीदे अति परिश्रमी, समर्पित और परिणामोन्मुखी हैं, इन्होने संस्था में अपने कार्यकाल के दौरान अच्छा/ उत्कृष्ट कार्य किया । हम इनके स्वर्णिम भविष्य की कामना करते हैं ।

शुभकामनाओं सहित.

Officer
Veterinary Extention
Block Betul (M.P.)

स्थान Polyclinic Betul
दिनांक 10/5/2022

Signature Not Verified
RAKESH KUMAR TIWARI
e verified
Principal JH Govt PG College
Betul, MP
08.09.2023 13:41:30

कार्यस्थल प्रशिक्षण प्रतिवेदन

शीर्षक .....

संस्था का नाम .....

निर्देशक

नाम ~~डी.डी.नागलेकर~~ डॉ. डी-डी नागले

पद .....विभागाध्यक्ष
प्राणीशास्त्र विभाग
शा-कन्या-स्ना-महा-बैतूल

विद्यार्थी

नाम .....

कक्षा ...B.Sc. 1st year.....

New Star online Cafe Front Of JH Collage .9098503732

Signature Not Verified
RAKESH KUMAR TIWARI
e verified
Principal JH Govt PG College
Betul, MP
08.09.2023 13:41:30

संस्था द्वारा प्रमाण - पत्र

प्रमाणित किया जाता है कि श्री/कुमारी अंकिता अरविंद B.Sc. 1st year (विद्यार्थी का नाम एवं कक्षा) ने कार्यालय सहायक संचालक मत्स्योद्योग सोनाघाटी बैतूल (संस्था का नाम एवं स्थान) मे दिनांक 05/12/2022 से 20/12/2022 तक उपस्थित रहकर कार्यस्थल प्रशिक्षण प्राप्त किया ।

हस्ताक्षर

संस्था प्रमुख /संस्था प्रतिनिधि

नाम : ..... [illegible] .....

सील : (संस्था प्रमुख संस्था के समक्ष अधिकारी प्रतिनिधि सील)

सहायक मत्स्योद्योग अधिकारी
जिला - बैतूल (म.प्र.)

New Star online Cafe Front Of JH Colloge .9098503732

Signature Not Verified
RAKESH KUMAR TIWARI
e verified
Principal JH Govt. PG College
Betul, MP
08.09.2023 13:41:30

कार्यस्थल प्रशिक्षण प्रतिवेदन

शिर्षक : मछली पालन में मत्स्य आहार की भूमिका

संस्था का नाम डा. मत्स्य बीज प्रक्षेत्र सापना बैतुल

निर्देशक
नाम : डॉ. उमलेश अहिरवार
पद : सहायक प्राध्यापक, जंतुविज्ञान
ज-हि-श-(का)-महा-बैतुल(म.प्र.)

विद्यार्थी
नाम : नीलम सातपुते
कक्षा : B.Sc. I Year
सेमेस्टर :

जयंवती हावसर शासकीय स्नाकोत्तर महाविद्यालय, बैतूल (म.प्र.)

कालेज बुक डिपो, बैतूल 9981889610

कार्य पूर्णता प्रमाणपत्र

प्रमाणित किया जाता है कि (नाम) नीलम धातुर्ते कक्षा B.Sc 1st year (महाविद्यालय का नाम) J.H द्वारा परियोजना कार्य / प्रशिक्षुता / शिक्षुता / सामुदायिक जुड़ाव ने दिनांक 6/05/2022 से दिनांक 14/05/2022 तक इस संस्था से सम्बद्ध / में उपस्थित रहकर मत्स्योद्योग के क्षेत्र में कार्य किया / प्रशिक्षण प्राप्त किया। मत्स्यपालन में मत्स्य आहार की भूमिका

(नाम) नीलम अति परिश्रमी, समर्पित और परिणामोन्मुखी हैं, इन्होने संस्था में अपने कार्यकाल के दौरान अच्छा/ उत्कृष्ट कार्य किया। हम इनके स्वर्णिम भविष्य की कामना करते हैं।

शुभकामनाओं सहित,

स्थान Betul

दिनांक 27/05/2022

सहायक मत्स्योद्योग अधिकारी
जिला - बैतूल (म.प्र.)
संस्था की सील

Signature Not Verified
RAKESH KUMAR TIWARI
e verified
Principal JH Govt PG College
Betul, MP
08.09.2023 13:41:30

कार्यशाला प्रशिक्षण प्रतिवेदन

शिर्षक "खरीफ फसलों का महत्व"

संस्था का नाम Bharat Bharati Shiksha Samiti
Janadhi, Betul

निर्देशक
नाम : DR. NARENDRA DIGARSE
पद : COORDINATOR

विद्यार्थी
नाम : Saufna Solanki
कक्षा : B.Sc 1st yr
सेमेस्टर : .....

जयंती हक्सर शासकीय स्नाकोत्तर महाविद्यालय, बैतूल (म.प्र.)

कालेज बुक डिपो, बैतूल 9981889610

9981721143
B.S.C.

संस्था द्वारा प्रमाण - पत्र

प्रमाणित किया जाता है कि श्री / कुमारी Sangana Solanki (B.Sc. Ist Yr.) (विद्यार्थी का नाम एवं कक्षा) ने Bharat Bharat Shiksha Samiti Jamadhi, Betul (संस्था का नाम एवं स्थान) में दिनांक 9/5/2022 से 2/6/2022 तक उपस्थित रहकर कार्यस्थल प्रशिक्षण प्राप्त किया।

हस्ताक्षर

संस्था प्रमुख / संस्था प्रतिनिधि

नाम DR NARENDRA DIGARSE

सील : (संस्था प्रमुख / संस्था प्रतिनिधि समक्ष अधिकारी प्रतिनिधि सील)

Signature Not Verified
RAKESH KUMAR TIWARI
e verified
Principal JH Govt PG College
Betul, MP
08.09.2023 13:41:30

कार्यस्थल प्रशिक्षण प्रतिवेदन

शिर्षक : रेशम उत्पादन

संस्था का नाम शासकीय रेशम केन्द्र सगड़िया

निर्देशक

नाम : किरण श्यातरकर

पद : प्राध्यापक

जे-डि-अं-(बी)-महा-बैतूल (म-प्र)

विद्यार्थी

नाम : कु. वंदना धमरे

कक्षा : B.Sc. 1 year

सेमेस्टर :

जयंवती हाक्सर शासकीय स्नाकोत्तर महाविद्यालय, बैतूल (म.प्र.)

कालेज बुक डिपो, बैतूल 9981889610

प्रारूप – G2

परियोजना कार्य / प्रशिक्षुता / शिक्षुता / सामुदायिक जुड़ाव के प्रशिक्षण हेतु

संस्था की जानकारी एवं सहमति पत्र

1. संस्थान / प्रशिक्षक / व्यवसाय का नाम एवं पंजीकरण ..शासकीय रेशम केन्द्र.....

2. संस्था का स्वरूप (निजी / शासकीय / अर्द्धशासकीय / अन्य) ..रेशम केन्द्र झगड़िया बैतुल.....

3. संस्थान के मार्गदर्शन क्षेत्र का नाम (जिसमें कार्य किया जाता है) ..झगड़िया.....

4. संस्थान के अंतर्गत विभिन्न पदों / कार्य करने वाले व्यक्तियों की संख्या ..6.....

5. अपेक्षित अधिकतम विद्यार्थी संख्या जिनको संस्थान प्रशिक्षण दे सकता है ..6.....

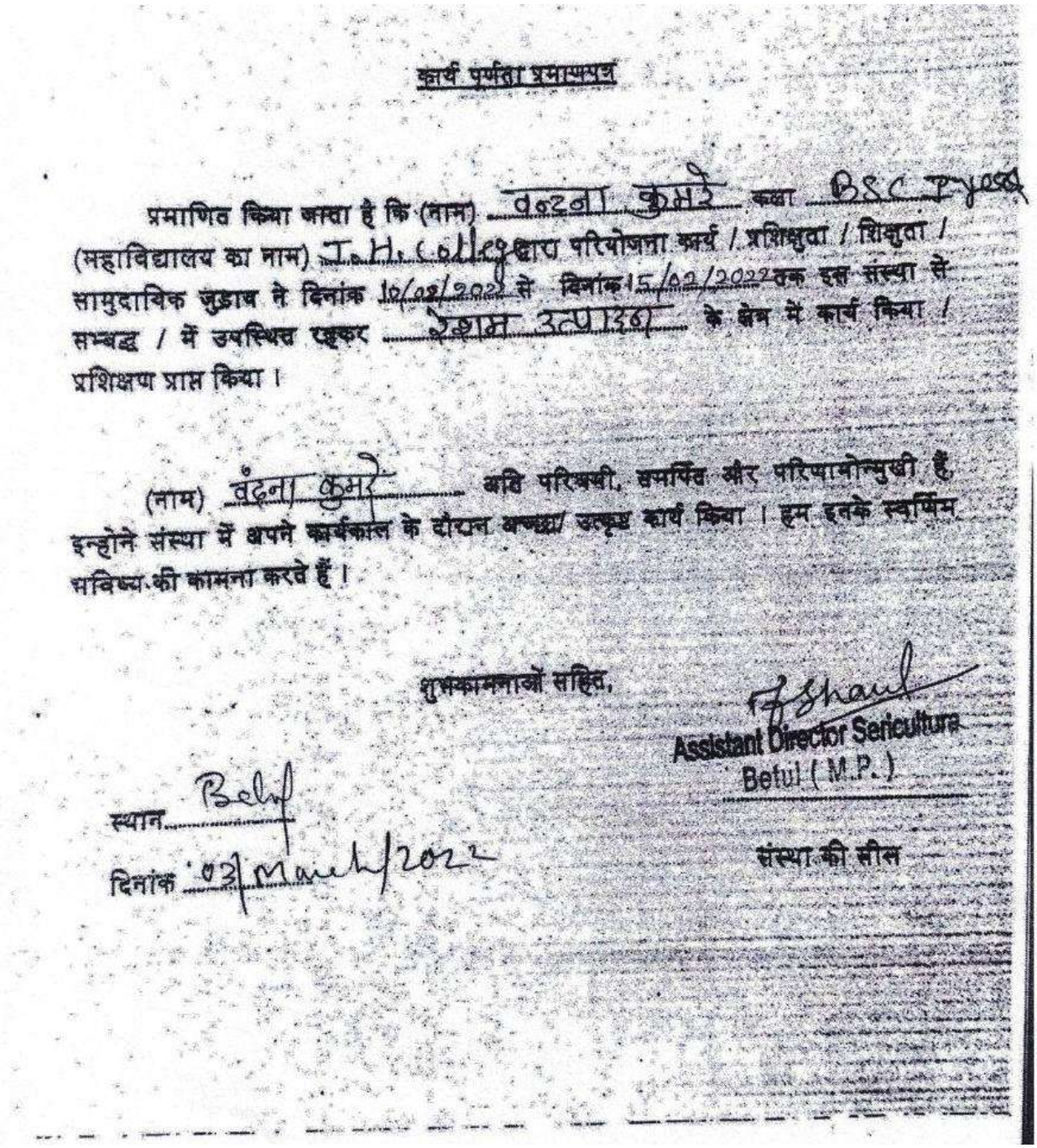
6. संस्थान से प्रशिक्षण उपरांत संगठित/ असंगठित क्षेत्र में रोजगार की संभावना ..संगठित.....

7. अन्य विशेष जानकारी .....

संस्था/व्यक्तिगत मार्गदर्शन द्वारा, महाविद्यालय J. H. College Betul के विद्यार्थियों को प्रशिक्षण प्रदान करने की सहमति प्रदान की जाती है।

हस्ताक्षर एवं दिनांक
Assistant Director Sericulture
संस्था प्रमुख (संस्था का नाम)

Signature Not Verified
RAKESH KUMAR TIWARI
e verified
Principal JH Govt PG College
Betul, MP
08.09.2023 13:41:30



कार्य पूर्णता प्रमाणपत्र

प्रमाणित किया जाता है कि (नाम) वंदना कुमरे कक्षा BSC I year
(महाविद्यालय का नाम) J.H. College द्वारा परियोजना कार्य / प्रशिक्षुता / शिक्षुता /
सामुदायिक जुड़ाव ने दिनांक 10/02/2022 से दिनांक 15/02/2022 तक इस संस्था से
सम्बद्ध / में उपस्थित रहकर रेशम उत्पादन के क्षेत्र में कार्य किया /
प्रशिक्षण प्राप्त किया ।

(नाम) वंदना कुमरे अति परिश्रमी, समर्पित और परिणामोन्मुखी हैं,
इन्होंने संस्था में अपने कार्यकाल के दौरान अच्छा/ उत्कृष्ट कार्य किया । हम इनके स्वर्णिम
भविष्य की कामना करते हैं ।

शुभकामनाओं सहित,

Assistant Director Sericulture
Betul (M.P.)

स्थान Betul

दिनांक 03/March/2022

संस्था की सील

Signature Not Verified
RAKESH KUMAR TIWARI
e verified
Principal JH Govt PG College
Betul, MP
08.09.2023 13:41:30

कार्यस्थल प्रशिक्षण प्रतिवेदन

शिर्षक : ---डेयरी फार्मिंग----------

संस्था का नाम पशु डेयरी चिकित्सा बैतुल---

निर्देशक

नाम : डॉ. एकनाथ विराळे

पद : सहायक प्राध्यापक

फ-ध-अ-ए-म-महा-बैतूल

विद्यार्थी

नाम : ....

कक्षा : B.Sc. 3 Year

सेमेस्टर : .....

जयंती हाक्सर शासकीय स्नाकोत्तर महाविद्यालय, बैतूल (म.प्र.)

कालेज बुक डिपो, बैतूल 9981889610

(संस्था / व्यक्ति द्वारा कार्य पूर्णता प्रमाणपत्र)

(कार्य समाप्ति उपरांत बाह्य संस्था द्वारा संस्था के लेटर हैड पर प्रदत्त प्रमाणपत्र यहाँ संलग्न करें)

संस्था का नाम एवं लोगो

कार्य पूर्णता प्रमाणपत्र

प्रमाणित किया जाता है कि (नाम) दुर्गेश कक्षा 2 year (महाविद्यालय का नाम) J.H. College द्वारा परियोजना कार्य / प्रशिक्षुता / शिक्षुता / सामुदायिक जुड़ाव ने दिनांक 7/7/2022 से दिनांक 15/7/2022 तक इस संस्था से सम्बद्ध / में उपस्थित रहकर पशुपालन एवं डेयरी फार्मिंग के क्षेत्र में कार्य किया / प्रशिक्षण प्राप्त किया।

(नाम) दुर्गेश उइके अति परिश्रमी, समर्पित और परिणामोन्मुखी हैं। इन्होने संस्था में अपने कार्यकाल के दौरान अच्छा/ उत्कृष्ट कार्य किया। हम इनके स्वर्णिम भविष्य की कामना करते हैं।

शुभकामनाओं सहित,

स्थान Betul polytechnic

दिनांक 15/7/22

डॉ. यशपाल चौहान
विकास खण्ड अधिकारी
विकास खण्ड - आमला

कार्यस्थल प्रशिक्षण प्रतिवेदन

शिर्षक : मध्यप्रदेश लोक सेवा आयोग

संस्था का नाम जयवन्ती हॉक्सर आ.स्ना. महा. बैतूल

निर्देशक
नाम : डॉ. विजेता चौधे मेम
पद : Librarian

विद्यार्थी
नाम : करुणा मालवीय
कक्षा : M.A. IV th Sem.
सेमेस्टर : इतिहास

जयंवती हाक्सर शासकीय स्त्राकोत्तर महाविद्यालय, बैतूल (म.प्र.)

कालेज बुक डिपो, बैतूल 9981889610

संस्था द्वारा प्रमाण – पत्र

प्रमाणित किया जाता है कि ~~श्री~~/ कुमारी कृष्णा भालनगर MA IVth sem इतिहास (विद्यार्थी का नाम एवं कक्षा) ने सार्थक पहल बदलाव हमसे है। (संस्था का नाम एवं स्थान) में दिनांक 01/04/ 2022 से 09/04 / 2022 तक उपस्थित रहकर कार्यस्थल प्रशिक्षण प्राप्त किया।

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संस्था प्रमुख / संस्था प्रतिनिधि

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"ANTIFUNGALS ACTIVITY OF SOME MEDICINAL PLANTS "

A

DISSERTATION

Submitted for the Partial Fulfillment of the Degree of

MASTER OF SCIENCE

IN

MICROBIOLOGY

Under the guidance of

DR. ALKA PANDEY

Department of Microbiology J.H. Govt. P.G. College Betul (M. P.)

Submitted by

RINKI ARYA

Department of Microbiology

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Raja Shankar Shah University, Chhindwara

RAJA SANKHER SHAH UNIVERSITY CHHINDWARA

2021-22

"The rapid identification of antibiotic resistant bacteria using PCR techniques in food samples"

(2022)

A Dissertation Thesis

Submitted for the partial fulfillment for the award of degree of

Master of Science in Microbiology

Under the guidance of : Dr. Deepak Bharti (PhD, PDF-IISER)

Director & Founder of CMBR Biotech Pvt. Ltd. Bhopal, MP

Under the guidance Co- guidance of : Dr. Alka Pandey

Study Centre of J.H. Govt. P.G. College, Betul

Submitted by:- Ms. Nidhi Sahu

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I further certify that above work is an original piece of work done by her.

Signature of the supervisor

Dr. Deepak Bharti (PhD, PDF-IISER)

Director and Founder, CMBR Pvt. Ltd., Bhopal.

"OCCURRENCE OF KERATINOPHILIC FUNGI FROM THE SOIL OF JABALPUR CITY"

A

DISSERTATION/INTERNSHIP

Submitted for the Partial Fulfillment of the Degree of

MASTER OF SCIENCE IN BIOTECHNOLOGY

Concern Institute

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Center for Medical Mycology,
Fungal Disease Diagnostic and Research Center, Jabalpur (M.P.)

Under the guidance of

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Co-guidance of

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"OCCURRENCE OF KERATINOPHILIC FUNGI FROM THE SOIL OF JABALPUR CITY."

A

DISSERTATION / INTERNSHIP

Submitted for the Partial Fulfillment of the Degree of

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IN

BIOTECHNOLOGY

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Intra-species Genetic Diversity Assessment in *Nyctanthes arbor-tristis* using RAPD Primer

Dissertation work

Submitted for Partial Fulfillment of the Requirement for the Degree of

Master of Science in Biotechnology

Submitted to

Head
Depot of Biotechnology
J.H.Govt.P.G. College Betul

Govt. Jaywanti Haksar P G College, Betul
Affiliated to
Raja Shankar Shah Chhindwara University

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No. 319/CST/CEBT/Trg./2022 Date: 14-06-2022

CERTIFICATE

This is to certify that **Miss Nitika Rathore** student of M.Sc. (Biotechnology) from Govt. Jaywanti Haksar PG College Betul, Madhya Pradesh, has worked on the dissertation thesis entitled "Intra-species Genetic Diversity Assessment in *Nyctanthes arbor-tristis* using RAPD Primer" and successfully completed for partial fulfilment of the degree of Master of Science in Biotechnology.

It is a record of the bonafide work carried out by her from January 2022 to June 2022 under my guidance and supervision. She has acknowledged all the assistance and help received during the course of the investigation.

Pramod Sairkar

Dr. Pramod Kumar Sairkar

(Supervisor)

Forwarded by

Dr. R. K. Garg

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वरि. प्रधान वैज्ञानिक एवं प्रमुख
जैवप्रौद्योगिकी उत्कृष्टता केन्द्र
म.प्र. विज्ञान एवं प्रौद्योगिकी परिषद, भोपाल

DECLARATION

I here by declare that the work done in project entitled **"Intra-species Genetic Diversity Assessment in *Nyctanthes arbor-tristis* using RAPD Primer"** is an original piece of work and has been carried out by me. No part of the project has been submitted for any other degree or diploma or has been published. I have acknowledged all the assistance and help received during the course of the investigation.

NRathore

(Nitika Rathore)

Place: Bhopal

Date: 14.06.2022

ACKNOWLEDGMENT

"success is not final, failure is not fatal: it is the courage to continue"

An academic project marks the beginning of the transition from an amateur to a professional. It is the part to fulfill the requirement of the syllabus of M.Sc (Biotechnology). I have selected to conduct my dissertation work on because "Intra-species Genetic Diversity Assessment in *Nyctanthes arbor-tristis* using RAPD Primer.

I express my sincere gratitude for the colossal knowledge imparted to me by my supervisor Dr. Pramod Kumar Sairkar CEBT, MP Council of Science and Technology Bhopal, has been the catalyst in the whole project. My earnest admiration is expressed here to him for showing innumerable avenues in the project.

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individuals in a single word of "THANKS," sincerely hoping it will convey the feelings.

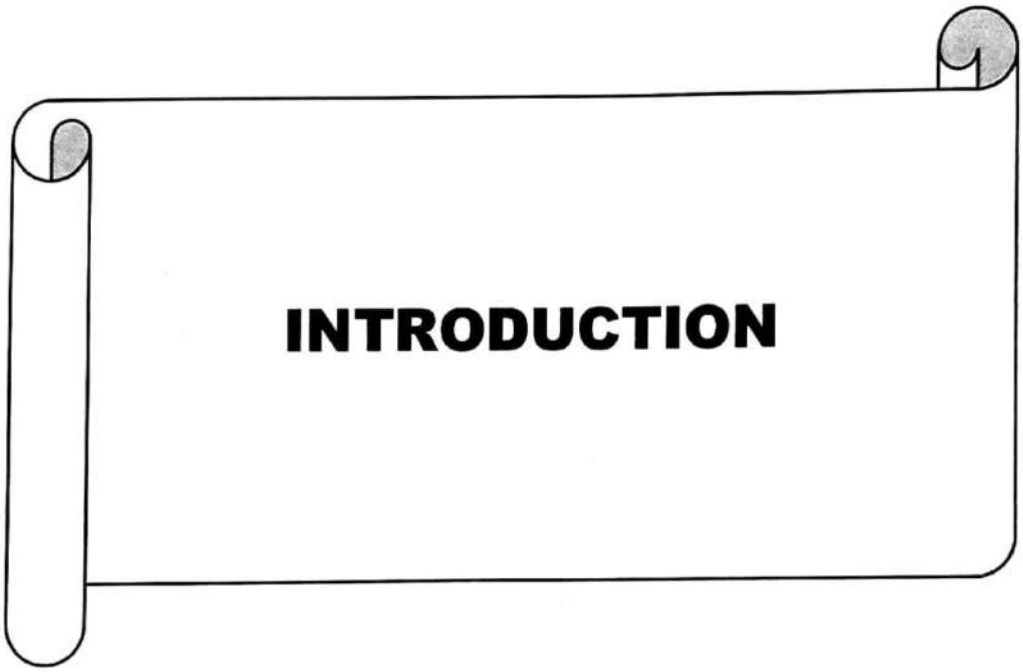
Closing with Regards,

NITIKA RATHORE

CONTENT

Abbreviations

➢ CTAB	cetyltrimethylammonium bromide
➢ DNA.	Deoxyribonucleic acid
➢ EDTA.	Ethylenediaminetetraacetic acid
➢ HCL.	Hydrochloric acid
➢ PCR.	Polymerase chain reaction
➢ PVP	polyvinylpyrrolidone
➢ TAE	Tris acetate EDTA
➢ TE	Tris-EDTA.
➢ bp.	Base pair
➢ DNTPs	Deoxynucleoside triphosphate
➢ Et-Br.	Ethidium bromide
➢ Rpm.	Revolutions per minute
➢ Mm.	Millimolar
➢ Ng.	Nanogram
➢ M	Molar
➢ Dw	Distilled water



The term of medicinal plants include a various types of plants used in herbalism and some of these plants have a medicinal activities. These medicinal plants consider as a rich resources of ingredients thatcan be used in drug development and synthesis. Besides that, these plants play a critical role in the development of human cultures around the whole world. Moreover, some plants. consider as important source of nutrition and as a result of that these plants recommended for their therapeutic values. These plants include ginger, green tea, walnuts and some others plants. Other plants their derivatives consider as important source for active ingredients, which are used in aspirin and toothpastes [1]. It has been estimated that about 13,000 species of plants have been employed for at least a century as traditional medicines by various cultures around the world. A list of over 20,000 medicinal plants has been published, and very likely a much larger number of plants.

Nyctanthesarbortristis : (*N. Arbortristis*) is a valuable medicinal plant which belongs to the Family Oleaceae. The plant generally grows in tropical and subtropical region. *N. Arbortristis* Commonly known as Night jasmine, Harsinghar & Parijat. The flowers start falling after-midnight and by the day break, the plant appears dull. The generic name '*Nyctanthes*' has been coined from two Greek words 'Nykhta' (Night) and 'anthos' (flower). It is usually a shrub or a small tree having brilliant, highly fragrant flowers, which bloom at night and fall off before sunrise, giving the ground underneath a pleasing blend of white and red. Thus, during the day the plant loses all its brightness and hence is called "Tree of sadness" (*arbor-tristis*). It is also known as Harsinghar, Coral Jasmine, Parijat, queen of the night and night flowering Jasmine]. It is a *Nyctanthesarbortristisive* of India, distributed in sub-Himalayan region and also found in Indian garden as ornamental plant the plant is tolerant to moderate shade and can grow on rocky ground in dry hill shades, dry deciduous forests or at sea-level up to 1500 m altitude with a wide range of

Fig.1: *N. arbortristis* plant

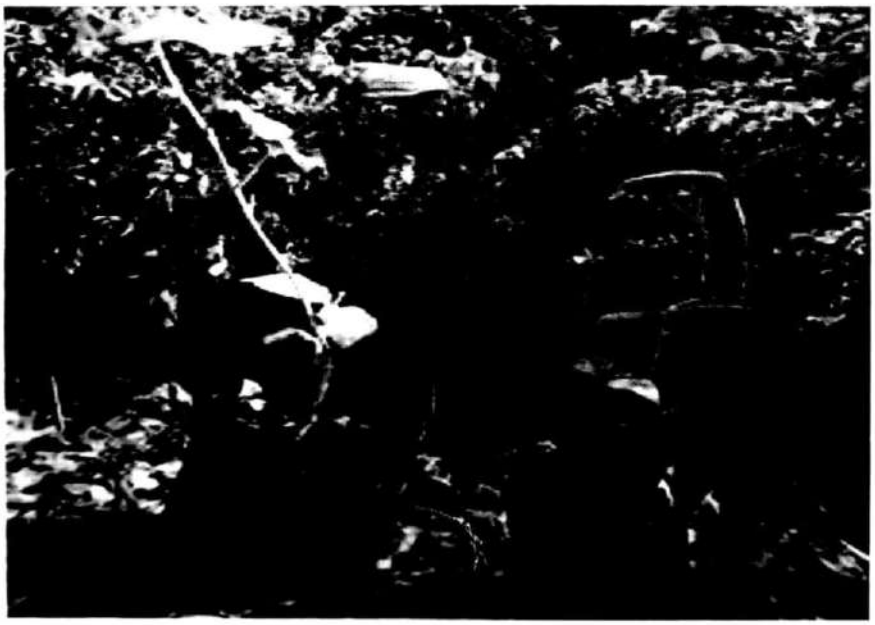


Fig.2: Location of sample collection

rainfall patterns, from seasonal to non-seasonal and is tolerant to moderate shade. It is often cultivated in gardens due to its most pleasant and peculiar fragrance. In India, it grows in the outer Himalayas and is found in tracts of Jammu and Kashmir, Nepal to East of Assam, Bengal, Tripura extended through the Central region up to Godavari in the South. Flowering usually Occurs from July to October. *N. Arbortristis* prefers a secluded and semi-shady place to grow *N. Arbortristis* is one of the well-known medicinal plants. It is a common wild hardy large shrub or small tree. Different parts of this plant are used in Indian systems of medicine for various pharmacological actions like as anti-leishmaniasis, anti-viral, anti-fungal, anti-pyretic, antihistaminic, anti-malarial, anti-oxidant, anti-inflammatory and many more activities.Herbs have been always the main principle form of medicine since traditions in India and now a day it becomes most popular throughout the world. Important large shrub of tropical and subtropical regions of the world that has been traditionally used to provoke menstruation, for treatment of scabies and other skin infections as hair tonic, chalogogue and Herbal medicines are not only providing traditional and ethnic medicine but also promising for highly efficient novel bioactive molecules. Since ages, man has been dependent on *N. Arbortristis* for curing various body diseases. From ancient civilization various parts of different plants were used to Pain, control suffering and counteract disease. Most of the drugs used in primitive medicine were obtained from plants, are the earliest and principle *N. Arbortristis* source of medicines.

Plant Description: This tree grows well in a wide variety of loamy soils and in soils found in average garden situations, with pH 5.6–7.5. The Plant requires conditions varying from full sunlight to partial shade and needs to be watered regularly, but does not require over watering. It is a terrestrial woody perennial having life Span of 5 – 20 years.

Classification of Plant

Kingdom :Plantae

Division :Angiosperm

Class:Eudicots

Order : Lamiales

Family: Oleaceae

Genus : *Nyctanthes*

Species: *Nyctanthesarbortristis*

Common (Indian) Names

Harsingar, Coral Jasmine, Tree of Sorrow, Queen of the night

- Bengali: Shefali, Shiuli, Parijat
- Hindi: Harsingar, Shefali, Parijat
- Manipuri: Singarei
- Tamil: Pavizhamalli
- Malayalam: Pavizhamalli, Paarijatam
- Sanskrit: Parijat
- Assamese: Sewali
- Telugu: Parijatam

Characteristic Features of *Nyctanthes arbortristis*

N. Arbortristis is a deciduous tree grows up to 10 m tall, with quadrangular branches and grey or greenish-white rough bark . The leaves are rough, hairy, decussately opposite, and simple. The flowers are arranged at the tips of branches. It grows well in loamy soils. The plant requires conditions varying

from full sunlight to partial shade and needs to be watered regularly Flowering usually occurs from July to October. The whole plant is of medicinally useful.

Morphology

Leaves: Leaves are opposite, 5 -10 by 2.5 – 6.3 cm, ovate, acute or acuminate, entire or with a few Large distant teeth, short bulbous hairs rounded or slightcuneate; main nerves few, conspicuous beneath; petiole 6cm long, hairy.It is use to treat fever which occure during chronic malaria leaves contain banificial healing properties .

Flowers: Flowers of NAT are small, delightfully fragrantCorolla glabrous rather more than 13 mm long; tube 6-8 mm long, orange colour, about equaling the limb; lobes white, unequally obcordate, cineaste .

Fruits: Fruits of NAT are a capsule of 1-2 cm diameter, long and broad, obcordate orbicular, compressed, 2-celled, separating into 2 flat 1-Seeded carpals, reticularly veined, glabrous Macroscopic character of fruit: The fruit is Flat, brown and heart cordite-shaped to rounded-capsule, around .

Seed: Night blooming jasmine (Cestrum nocturnum) fills the night air with an almost intoxicating floral fragrance. Grown in U. S. Department of Agriculture plant hardiness zones 8 through 11, night blooming jasmine features small, star-shaped flowers and vine-like stems. These plants grow in clumps up to 12 feet wide and 12 feet tall with support. The jasmine will die back in freezing temperatures, but return in spring in USDA zones 8 and 9. Night blooming jasmine is considered highly invasive in some areasso ,

Roots: Roots are traditionally used as anthelminthics.

Stem and Bark: The powder of stem bark is useful in treatment of rheumatic joint pain and malaria. In Orissa, stem bark of Parijata is boiled with dry ginger power and pippali or long pepper. This is taken orally for two days to cure malaria4.

Traditional Uses Harsingar is a plant of varied health benefits. The antioxidant, anti-inflammatory and antibacterial properties of the tree make it a blessing for human health and well being. The leaves are given for treating chronic fever, rheumatism, arthritis, joint pain, obstinate sciatica

Pharmacological Activities

1. Analgesic activity
2. Anti-inflammatory activity
3. Anti-Nociceptive:
4. Hepato-protective activity
5. Antimicrobial activity
6. Antifungal activity
7. Anti-Cancer activity
8. Antidiabetic activity
9. Anti-Allergy Activity
10. Antioxidant activity
11. Anticholinesterase activity
12. Immunopotentiator activity
13. Antifilarial activity
14. Anti-Leishmanial Activity
15. CNS depressant activity
16. Anti Anxiety
17. Anti-Trypanosomal Potential
18. Sedative Effects
19. Antibacterial Activity
20. Anti-Viral activity
21. Tranquilizing, Antistaminic And Purgative Activity
22. Antianemic Activity
23. Antipyretic and Ulcerogenic Activity
24. Anti-Histaminic and Anti-Tryptaminergic activity
25. Anti-Malarial activity

26. Immunostimulent activity

Random Amplified Polymorphic DNA (RAPD):

Random Amplified Polymorphic DNA (RAPD) RAPD stands for ' Random Amplification of Polymorphic DNA ' It IS a type of PCR reaction, but the segments of DNA that are amplified are random. The scientist performing RAPD creates several arbitrary, short primers (8-12 nucleotides). Then proceeds with the PCR using a large template of genomic DNA, hoping that fragments will amplify. By resolving the resulting patterns, a semi – unique profile can be gleaned from an RAPD reaction. No knowledge of the DNA sequence of the targeted genome is required, as the primers will bind somewhere in the sequence, but it is not certain exactly where. This makes the method popular for comparing the DNA of biological systems that have not had the attention of the scientific community, or in a system in which relatively, few DNA sequences are compared (it is not suitable for forming a DNA databank). Because it relies on a large, intact DNA template sequence, it has some limitations in the use of degraded DNA samples. Its resolving power is much lower than targeted, species – specific DNA comparison methods, such as short tandem repeats. In recent years, RAPD has been used to characterize, and trace, the phylogeny of diverse plant and animal species. RAPD markers are decamer (10 nucleotide length) DNA fragments from PCR amplification of random segments of genomic DNA with single primer of arbitrary nucleotide sequence and which are able to differentiate between genetically distinct individuals, although not necessarily in a reproducible way. It is used to analyse the genetic diversity of an individual by using random primers. Due to problems in experiment reproducibility, many scientific journals do not accept experiments merely based on RAPDs anymore. RAPD requires only one primer for amplification.

RAPD Primer Working Manner

Unlike traditional PCR analysis, RAPD (pronounced "rapid") does not require any specific knowledge of the DNA sequence of the target organism: the

identical 10-mer primers will or will not amplify a segment of DNA, depending on positions that are complementary to the primers' sequence. For example, no fragment is produced if primers annealed too far apart or 3′ ends of the primers are not facing each other. Therefore, if a mutation has occurred in the template DNA at the site that was previously complementary to the primer, a PCR product will not be produced, resulting in a different pattern of amplified DNA segments on the gel.

Limitations of RAPD

- Nearly all RAPD markers are dominant, i.e. it is not possible to distinguish whether a DNA segment is amplified from a locus that is heterozygous (1 copy) or homozygous (2 copies). Codominant RAPD markers, observed as different - sized DNA segments amplified from the same locus, are detected only rarely.
- PCR is an enzymatic reaction, therefore, the quality and concentration of template DNA.
- Concentrations of PCR components and the PCR cycling conditions may greatly influence the outcome. Thus, the RAPD technique is notoriously laboratory dependent and needs carefully developed laboratory protocols to be reproducible.
- Mismatches between the primer and the template may result in the total absence of PCR product as well as in a merely decreased amount of the product. Thus, the RAPD results can be difficult to interpret.

Genetic diversity: Different species can have different numbers of genes within the entire DNA or genome of the organism. However, a greater total number of genes might not correspond with a greater observable complexity in the anatomy and physiology of the organism. Besides having distinct combinations of genes, species may also have variation in the shape and composition of the chromosomes carrying the genes in the total number of chromosomes present. Examination of these features of the chromosomes (termed karyology) provides another way of describing genetic diversity.

Analysis of genetic diversity can be applied to studies of the evolutionary ecology of populations. Genetic studies can identify alleles that might erect the ability of the organism to survive in its existing habitat, or might enable it to survive in more diverse habitats.

The presence of unique genetic characteristics distinguishes members of a given population from those of any other population. Large populations will usually have a greater diversity of alleles compared to small populations. This diversity of alleles indicates a greater potential for the evolution of new combinations of genes and, subsequently, a greater capacity for evolutionary adaptation to different environmental conditions. Genetic diversity is, therefore, a key component for conservation efforts associated with population management. In small populations, the individuals are likely to be genetically, anatomically, and on the chromosomes are also referred to as its genotype. Hence, variation that exists within the genetic constitution of an organism is often referred to as genotypic variation. The end of the second millennium was marked by unprecedented reduction in specific diversity of life. Over the past century, 25,000 higher plant species had disappeared due to human activity. To stop the impending ecological disaster, measures are primarily needed to protect nature from pollution and harmful impacts on habitats of representatives of various species. However, to preserve certain plant species protective measures are no longer enough; today, measures are needed to restore those species. Knowledge accumulated by population genetics indicates that each species has its own inherent, evolutionally formed level of gene diversity. Programs designed to restore species should not ignore historically formed intraspecific genetic subdivision and its variability level. Hence, work designed to restore a given species should include the study of its genetic structure.

A direct study of representative DNA would be most suitable for elucidating the genetic variability of species and establishing the genetic associations between the representatives examined. At present, the DNA genetic structure is

investigated with the aid of various molecular markers. Proteins are used as a measure of genome variability, since they are products of gene expression and can provide information on the structure and state of corresponding DNA sites. Among the various protein markers used in taxonomy and nature-protection measures, allozyme analysis is most widely employed. In recent years, the method based on polymerase DNA chain reaction involving arbitrary primers (RAPD-analysis) has become widespread. It studies DNA loci with the aid of single primers that identify complementary sites on both DNA chains. Unlike the allozyme method, RAPD allows to analyze not only the unique, but also the non-coding DNA portion. Thanks to that, it has been used with success in several laboratories to identify the taxonomy of species and characterize the genetic structure of populations (including that of rare species).

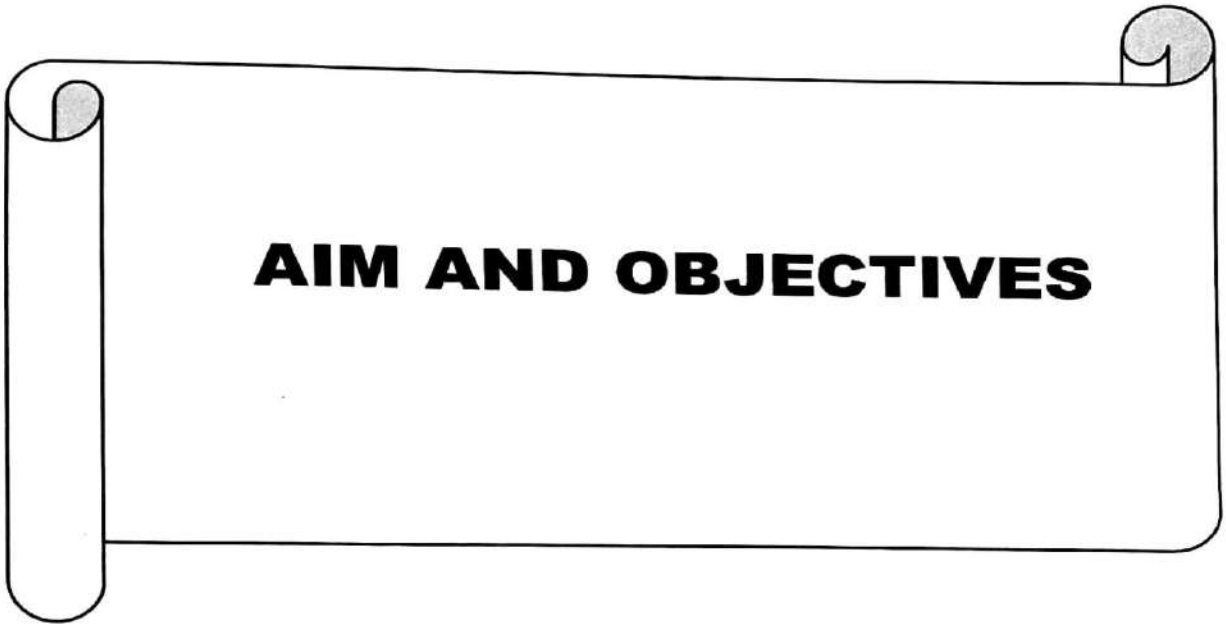
The RAPD technique is based on PCR equipment, which uses a DNA polymerase that is resistant to the high temperature, needed for DNA denaturation this primer the enzyme to be used repeatedly during the amplification process. The oligonuceotide used may represent the base sequence of this segment can now be detected by the RAPD approach. However, when this information is either unavailable or is not desirable for use, olegonucleotieds having any base sequence can be used. The first step of RAPD fingerprinting is the preparation of the target DNA template. Intuitively, minimal DNA template preparation should be necessary for RAPDs, theoretically, PCR may amplify a single DNA molecule. It seems one would simply homogenize tissue and allow the PCR to "find" and amplify the target DNA. DNA purity has been implicated as one of the most important factors in RAPD reproducibility. Agarose gel electrophoresis is a method used in biochemistry and molecular biology to separate DNA, or RNA molecules by size. This is achieved by moving negatively charged nucleic acid molecules through an agarose matrix with an electric field (electrophoresis). Shorter molecules move faster and migrate farther than longer ones.

The polymerase chain reaction (PCR) is a technique widely used in molecular biology. It derives its name from one of its key components, a DNA polymerase used to amplify a piece of DNA by in vitro enzymatic replication. As PCR progresses, the DNA thus generated is itself used as a template for replication. This sets in motion a chain reaction in which the DNA template is exponentially amplified. With PCR it is possible to amplify a single or few copies of a piece of DNA across several orders of magnitude, generating millions or more copies of the DNA piece. PCR can be extensively modified to perform a wide array of genetic manipulations.

Almost all PCR applications employ a heat-stable DNA polymerase, such as Taq polymerase, an enzyme originally isolated from the bacterium Thermus aquaticus. This DNA polymerase enzymatically assembles a new DNA strand from DNA building blocks, the nucleotides, using single-stranded DNA as template and DNA oligonucleotides (also called DNA primers) required for initiation of DNA synthesis. The vast majority of PCR methods use thermal cycling, i.e., alternately heating and cooling the PCR sample to a defined series of temperature steps. These thermal cycling steps are necessary to physically separate the strands (at high temperatures) in a DNA double helix (DNA melting) used as template during DNA synthesis (at lower temperatures) by the DNA polymerase to selectively amplify the target DNA. The selectivity of PCR results from the use of primers that are complementary to the DNA region targeted for amplification under specific thermal cycling conditions.

Increasing the agarose concentration of a gel reduces the migration speed and enables separation of smaller DNA molecules. The higher the voltage, the faster the DNA moves. But voltage is limited by the fact that it heats and ultimately causes the gel to melt. High voltages also decrease the resolution (above about 5 to 8 V/cm). Conformations of a DNA plasmid that has not been cut with a restriction enzyme will move with different speeds (slowest to fastest): nicked or open circular, linearised, or super coiled plasmid. The most common dye used to make DNA or RNA bands visible for agarose gel electrophoresis is

ethidium bromide, usually abbreviated as EtBr. It fluoresces under UV light when intercalated into DNA (or RNA). By running DNA through an EtBr-treated gel and visualizing it with UV light, any band containing more than ~20ng DNA becomes distinctly visible. EtBr is a known carcinogen, however, and safer alternatives are available.

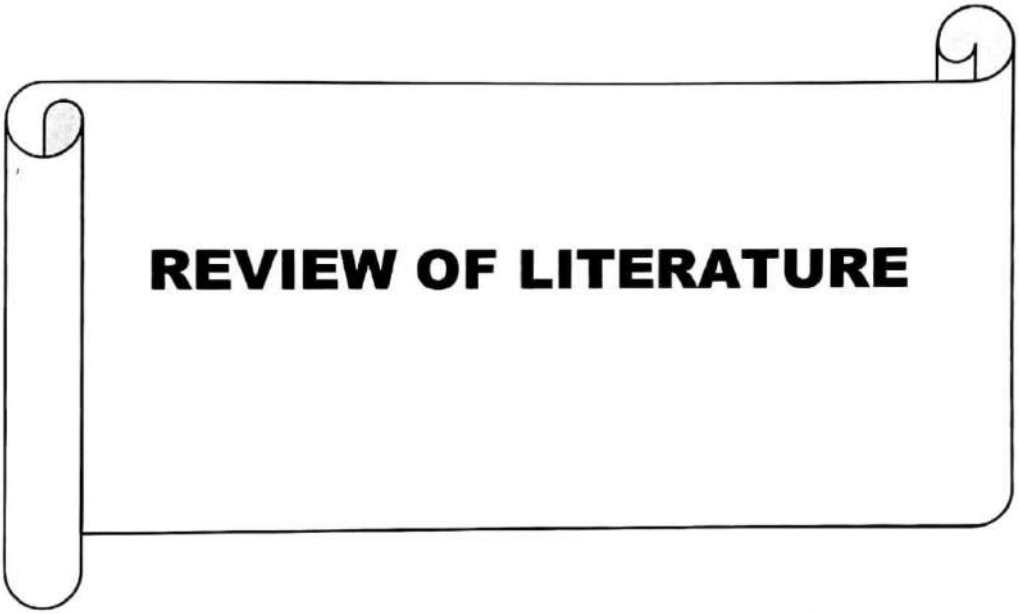


OBJECTIVE

A lacking of knowledge about the molecular biology of *Nyctanthes arbor-tristis,* due to the presence of polyphenolic and polysaccharide compounds, which acts as inhibitors during isolation of DNA. During the isolation of DNA from perennial plant tissue like leaves of *Nyctanthes arbor-tristis,* these inhibitory substances get precipitated along with the DNA, thus deteriorating the quality and yield of the DNA.

Keeping in mind the medicinal importance of this plant, the different variants of *Nyctanthes arbor-tristis* were analyzed with the following objectives:

- Standardization of DNA isolation from the leaf of the variants of *Nyctanthes arbor-tristis.*
- RAPD profiling to find out the extent of genetic diversity among all the variants *of Nyctanthes arbor-tristis.*



Pattanayak and Datt (1970) demonstrated the potential analgesic effect of *Nyctanthes arbort ristis* leaf, which supports the claim of traditional medicine practitioners.Saxena *et al,* (1984) addressed anti-inflammatory activity in the leaves of Harsingar and supported its use in various inflammatory conditions by the followers of the Ayurvedic system of medicine.

Singh *et al,* (1995) discussed the leaves of the plant *N. arbor-tristis* are used extensively in Ayurvedic medicine for the treatment of sciatica, chronic fever, rheumatism, and intestinal worms, and are also employed for laxative, cholagogue, diuretic, diaphoretic, expectorant, and antiamoebic purposes.

Paul and Saxena (1997) studied the effect of the water-soluble fraction of the ethanol extract of *N. arbor-tristis* (NAT) on tumor necrosis factor-α (TNF-α) level in plasma of arthritic and soluble protein A (SpA)-treated Balb/c mice has been studied.

Saxena *et al,* (2002) investigated that the water soluble portion of the alcoholic extract of the leaves *N. arbor-tristis* for some CNS activities (viz. hypnotic, tranquilizing, local anaesthetic, hypothermic, anticonvulsant), antihistaminic and purgative activities. Hukkeri *et al,* (2006) evaluated the alcoholic and aqueous extracts of the leaves of *N. arbor-tristis* for hepatoprotective effect against carbontetrachloride-induced liver damage in rats.

Rathee *et al,* (2007) carried out with acetone-soluble fraction of its ethyl acetate extract *N. arbor-tristis* showed impressive antioxidant activity as revealed by several in vitro experiments, e.g., DPPH, hydroxyl and superoxide radicals, as well as H_2O_2 scavenging assays. Sasmal *et al,* (2007) observed that the rural people of Orissa use *N. arbor-tristis.* to cure various ailments. It's claimed traditional uses have been proved on scientific basis using in-vitro and in-vivo experiments. The present study will give comprehensive information on the chemical constituents and mainly pharmacological activities of this plant.

Rathore *et al,* (2007) studied the mechanism of anti-inflammatory action of *N. arbor-tristis* in the light of pro-and anti-inflammatory cytokine balance view at academia.

Das *et al,* (2008) studied the effect of the water-soluble portion of the ethanol extracts of flowers, barks, seeds and leaves of *N. arbor-tristis* Linn on CNS depressant activity.

Deshmukh *et al,* (2007) studied the amelioration by *N. arbor-tristis Linn.* leaves extract against hepatosuppression induced by carbon tetrachloride (CCl_4), which was evaluated in terms of serum marker enzymes like viz. GOT, GPT, Alkaline phosphate, glucose, cholesterol, and total protein concentration in blood.

Priya and Ganjewala (2007) evaluated the antibacterial potential of *N. arbor-tristis* on gram-positive (*Staphylococcus aureus)* and gram-negative *(Escherichia coli, Klebsiella przeumoniae, Pseudomonas aeruginosa)* bacteria.

Mathew *et al,* (2009) performed the phytochemical analysis of the promising methanolic extract of the seed extract and was found positive for carbohydrates, saponins, terpenoids, tannins, and proteins. In conclusion, bioassay-guided fractionation of effective extracts may result in identification of a useful molecule for the control of mosquito vectors. Akki *et al,* (2009) studied for Pharmacognostic evaluations, including examination of morphological and microscopic characters, determination of leaf constants, ash values and extractive values.

Thangavelu (2010) examined the *in vitro* antioxidant activity of leaves and stem of the plant. The antioxidant activities of different concentrations of ethanol extracts of NAT-L and NAT-S were determined by DPPH radical scavenging assay, Reducing power ability, Hydrogen peroxide scavenging assay and Total antioxidant assay. Sundrarajan and Gowri (2011) synthesized titanium dioxide nanoparticles of nycthanthes because of its functional antiinflammatory, antioxidant, antifungal, antidiabetic, antimicrobial, antileishmanial, antipyretic and antinoceptive activities.

Sah *et al*, (2012) compiled and documented information on different aspect of *N. arbor-tristis* pharmacological properties and highlighted the need for research and their potential development. Kumari *et al*, (2012) validated scientifically the traditional use of leaves extract of Harshringar against malaria leading to the conclusion that this plant holds promise with respect to antimalarial phytotherapy. Meshram *et al*, (2012) discussed pharmacology of the herb, its pre-clinical and clinical studies, safety and herbal drug interaction which is a need of the hour.

Rani *et al*, (2012) presented information on the chemical constituents, biological activities of important compounds, pharmacological actions, medicinal applications and micro propagation of Night jasmine and emphasized the need for further exploring available information. Agrawal *et al*, (2013) designed a set of *in vitro* and *in vivo* experiments to evaluate the effect of *N. arbor-tristis* in *Plasmodium* berthed infected mice. Three extracts of *N. arbor-tristis* leaves from varying concentrations of alcohol and water were considered for their potential to suppress expression of pro-inflammatory mediators from macrophages primed with lipopolysaccharide. Vyas and Renu (2013) demonstrated the antimicrobial activity of *Nyctanthes arbor-tristis*.

Rahman *(2013)* investigated was carried out to determine the chemical composition of the fatty acids methyl esters (FAME) and leaf of *N. arbor-tristis* was analyzed by gas liquid chromatography (GLC). GLC analyses of methyl ester lead to identify twenty-two and fifteen fatty acids in the leaf of pet-ether and hexane extracts mixture (PH) and chloroform extract (CL), respectively. Agrawal and Pal (2013) presented encompasses an ethnopharmacological evaluation focusing on information on the chemical constituents, pharmacological actions and toxicology in order to reveal the therapeutic potential and gaps requiring research involvement.

Sopi *et al*, (2013), investigated bronchodilatory effect of ethanolic extract of the *N. arbortristis* under in vitro conditions. The concentration-response curve of the

tracheal smooth muscle (TSM) to histamine was recorded in presence or absence of ethanolic extract and N ω-nitro-l-arginine methyl ester (L-NAME).

Michael *et al,* (2013) evaluated the vitro antioxidant belongings and total phenolics of methanolic leaf extracts of *N. arbor-tristis L.* Investigate in vitro antioxidant activity and total phenolic content of the methanolic leaf extract of *N. arbor-tristis L.*Biswas *et al,* (2014) confirms the xerophytic feature of the plant having higher proportion of longer carbon chain n-alkanes greater than C31 (dominant peaks are of C33 and C35).

Ghosh *et al,* (2015) we reports purification of an antioxidative polysaccharide (F2) extracted from its leaves by water. The presence of a highly branched polysaccharide (75 kDa) containing esterified phenolic acids was revealed by chemical, chromatographic and spectroscopic analyses. Particularly, ESMS analysis of per acetylated oligomeric fragments .Mishra *et al,* (2016) studied revealed that *N. arbor-tristis L.* (NAT) extracts possess high anti-Malassezia potential, which is driven mainly by disruption of plasma membrane. Also in silico validation and molecular modeling studies establishes Mala s1 as a novel allergen that could be a potential target in disease treatment.

Jain and Pandey (2016) Purpose of the present investigation was that Phyto-chemicals like flavanoid, glycoside, oleanic acid, essential oils, tannic acid, carotene, friedeline, lupeol, glucose, benzoic acid have been reported for significant hair tonic, hepatoprotective, anti-leishmaniasis, anti-viral, antifungal, anti-pyretic, anti-histaminic, anti-malerial, anti-bacterial, anti-inflammatory and anti-oxidant activities of Night jasmine and emphasizes the need for further exploring available information. Ahmed *et al,* (2016) The tested extract, the Acetone extract was found to possess promising Anthelmintic activity in comparison with other extract and standard. The present study therefore justifies its use in folklore remedies as Anthelmintic drug of natural origin.

Jadhav and Ghawate (2017) Both the extracts show presence of phytochemicals responsible for wound healing activity. The herbal ointment formulation [illegible] found to be significantly reducing wound area, epithelization period and wound

contraction rate. Similarly, this formulation also shows significant increase in wound breaking strength. Their study shows capability of both the extracts to promote accelerated wound healing activity by dose dependant manner when compared with placebo control.

Gupta *et al, (2019)* Elaluated that the silver nanoparticles size can be fine-tuned by changing the separation mode during purification from plant extract. Due to uniformity, our obtained nanoparticles can be expected to show higher catalytic activity towards photochemical reactions, drug delivery and antibacterial activity due to the absence of inactive coating layer (capping agent).Karan *et al,* (2019) discussed the first report on isolation and identification of the unreported lupane-type triterpenoid, betulinic acid from leaves

Nyctanthes arbor-tristis, which showed potent anti-inflammatory, antiproliferative, and antioxidant activity in vitro assays. Satsangi and Preet (2021) demonstrated the biofabricated AgNPs possessed the promising larvicidal activity and could be used as a biocompatible and cost- effective alternative in the management of vector-borne diseases.

RAPD

Polymerized chain reaction is the technique used extensively now for non-hybridization based fingerprinting and with this discovery the whole technique of DNA fingerprinting was revolutionized. PCR allows generation of fragments in high copy number using a thermo stable DNA polymerase, specific or random primers and the nucleotides, therefore eradicating the need for DNA cloning. A number of modified procedures in the PCR technique have been developed to suite the needs of the researchers and the genotype to be fingerprinted.

The two techniques (RFLP and PCR) are now a days combined to give rise a newer approach called AFLP (Amplified fragment length polymorphism). AFLP arise from variation in number and length of amplicons selected from amplification. In this technique the variations in restriction site as well as primer binding sites can be detected. This method involves digestion of the total DNA

with restriction enzymes and using the labelled restriction site specific primers with variable bases at the end. The fragments thus amplified are run on polyacrylamide gel and detected by autoradiography. If the primers are labelled with dyes of different colours, different colours bands are detected.

In those cases where the methods like RFLP, RAPD, DAF, AFLP etc are unable to define the uniqueness of a particular species or genotype direct DNA sequencing of genomic segments of interest is the ultimate measure. The method of dideoxy sequencing originally discovered is faster, accurate and easy. Now days the techniques are available for automated sequencing based on the dye specific reaction there by reducing time further and making the technique much easier.

A technique that is becoming particularly popular uses the PCR to generate Random amplified polymorphic DNA fragments (RAPDs, Williams et.al, 1990). RAPD analysis can be performed on any organism with no prior DNA sequence information. It is effective with tiny amount of DNA. Indeed, in an extreme example, showed that RAPD amplification was possible with DNA isolated from a single tobacco protoplast. The technology is relatively simple and cheep, allowing the analysis of a large number of samples in a short time.

RAPD markers generated by the PCR using single arbitrary primers were developed by Williams et. al (1990) and Welsh and McClelland (1990) as a molecular markers for use in genetic analysis in crops such as wheat (Devos and Gale, 1992), rice (Fukuka *et al,* 1993), onion (Wilkie *et al,* 1993), peanut (Halward *et al,*1993), barley (Tinker *et al,* 1993) etc. It also been used to determine the genetic relationships and culture identification of some vegetatively propagated crops like apple (Koller *et al,* 1993), papaya (Stiles *et al,* 1993), and mango (Schnell *et al,* 1995).

A new technique was introduced in 1985 which revolutionized the methodological repertoire of molecular biology; Polymerase chain reaction (PCR). In 1990, several laboratories introduced a strategy that made use of one or two short, GC-rich primers of arbitrary sequence to generate PCR amplification products from genomic DNA. The techniques, which does not require any

sequence information, was called Random amplified polymorphic DNA (RAPD) analysis, Arbitrarily primed polymerase chain reaction (AP-PCR) or DNA amplification fingerprinting (DAF). Polymorphism detected by this method was called Random amplified polymorphic DNA (RAPD) or amplified fragment length polymorphism (AFLP). A common term multiple arbitrary amplicon profiling (MAAP) has been suggested to describe the common characteristics of all techniques (DNA fingerprinting in plants and fungi; Wolffand Meyer).

Geographically peripheral populations are expected to exhibit lower genetic diversity and higher differentiation than central populations because of their smaller size and greater spatial isolation. In plants, a shift from sexual to clonal ase. ual reproduction may further reduce diversity and increase differentiation. Here, these predictions were tested by assaying 36 inter-simple sequence repeat (ISSR) polymorphisms in 21 populations of the woody, clonal plant Vaccinium stamineum in eastern North America, from the range center to its northern limit where it has 'threatened' status. Populations decline in frequency, but not size or sexual reproductive output, across the range. Within-population diversity did not decline towards range margins. Modest genetic differentiation among populations increased slightly towards range margins and in small populations with high clonal propagation and low seed production, although none of these trends was significant. Low seed production and high clonal propagation were not associated with large-scale clonal spread. By combining demographic and genetic data, this study determined that increased population isolation, rather than reduced population size, can account for the weak increase in genetic differentiation at range margins.

To estimate genetic relationships among 46 local grape cultivars, RAPD analysis was performed with 25 decamer primers selected from a total of 60 primers. Genetic relationships among these cultivars were determined by calculating similarity indexes, from which a dendogram was derived. There was high genetic variation among the cultivars, with values of genetic diversity ranging from 0.553 to 0.952 using the Jaccard coefficient. UPGMA analysis of a distance m

produced a dendogram with six clusters. The relatively high genetic similarity ratios observed for the cultivars was also reflected in the dendogram. In general, no relationship was encountered between the genetic similarity ratios of the cultivars and the results of previous ampelographic analyses.

Genetic variations and relationships among 21 commercially important banana cultivars of South India were evaluated using 50 decamer RAPD primers and 12 ISSR primers. The primers were selected after a preliminary screening of several such primers for their ability to produce clear and reproducible patterns of multiple bands. The analyses resulted in the amplification of totally 641 bands of 200-3100bp, of which 382 bands were polymorphic, corresponding to nearly 60% genetic diversity. The RAPD and ISSR surveys between pairs of 21 cultivars revealed 60.15% and 56.73% of polymorphic bands, respectively. A strong linear relationship was observed between the Resolving power (Rp) of the primer and its ability to distinguish genotypes. Based on these data, a genetic similarity matrix was established and a dendrogram for each set of primers was developed by UPGMA. The genetic similarity coefficients in RAPD analysis ranged from 0.3177 to 0.7818 and in ISSR analysis from 0.1800 to 0.8462. A fingerprinting key was generated where the presence/absence of specific RAPD/ISSR bands were recorded for each cultivar. The presence of a specific RAPD (OPC-5(800)) band was observed for an endemic cultivar--Nanjanagudu Rasabale (NR). The study resulted in the identification and molecular classification of South Indian banana cultivars of which Robusta and Williams are global and others have either limited geographical distribution or purely endemic to South India. A group of eight cultivars was identified that are highly distinct from one another. The members of this group may be useful for generating 2X and 4X-breeding populations for further use in breeding secondary triploid hybrids.

An integrated genetic linkage map of the medicinal and ornamental plant Catharanthus roseus, based on different types of molecular and morphological markers was constructed, using a F(2) population of 144 plants. The map defines 14 linkage groups (LGs) and consists of 131 marker loci, including 125 mol-u-r

DNA markers (76 RAPD, 3 RAPD combinations; 7 ISSR; 2 EST-SSR from Medicago truncatula and 37 other PCR based DNA markers), selected from a total of 472 primers or primer pairs, and six morphological markers (stem pigmentation, leaf lamina pigmentation and shape, leaf petiole and pod size, and petal colour). The total map length is 1131.9 cM (centiMorgans), giving an average map length and distance between two markers equal to 80.9 cM and 8.6 cM, respectively. The morphological markers/genes were found linked with nearest molecular or morphological markers at distances varying from 0.7 to 11.4 cM. Linkage was observed between the morphological markers concerned with lamina shape and petiole size of leaf on LG1 and leaf, stem and petiole pigmentation and pod size on LG8. This is the first genetic linkage map of C. roseus.

Padmesh *et al* (1998) performed RAPD analysis to determine intra specific variability in Andrographis paniculata, a popular antipyretic and hepato protective drug used in traditional medicine in India. The accessions collected from parts of India and south-east Asia on molecular analysis revealed moderate variation within the species. Similarity measurement using UPGMA followed by cluster analysis resulted in 5 major groups based on geographical distribution that generally reflected expected trends between the genotypes. Liu D et al (2004). investigated the genetic variations within and between eleven natural populations and one cultured population of Magnolia amoena from different distribution regions at the DNA level by employing RAPD. Out of 40 random primers, fourteen random primers were screened which could generate highly reproducible and clear RAPD fragments for further population analysis. With these primers, a total of 94 discernible DNA fragments were obtained and 23 (24.4%) were polymorphic, which indicated that low levels of genetic variation existed in the investigated populations. Detection and analysis of genetic variation can help us to understand the molecular basis of various biological phenomena in plants. Since the entire plant kingdom cannot be covered under sequencing projects, molecular markers and their correlation to phenotypes provide us with requisite landmarks for elucidation of genetic variation. Genetic or DNA based

marker techniques such as RFLP (restriction fragment length polymorphism), RAPD (random amplified polymorphic DNA), SSR (simple sequence repeats) and AFLP (amplified fragment length polymorphism) are routinely being used in ecological, evolutionary, taxonomical, phylogenic and genetic studies of plant sciences. These techniques are well established and their advantages as well as limitations have been realized. In recent years, a new class of advanced techniques has emerged, primarily derived from combination of earlier basic techniques. Advanced marker techniques tend to amalgamate advantageous features of several basic techniques. The newer methods also incorporate modifications in the methodology of basic techniques to increase the sensitivity and resolution to detect genetic discontinuity and distinctiveness. The advanced marker techniques also utilize newer class of DNA elements such as retrotransposons, mitochondrial and chloroplast based microsatellites, thereby revealing genetic variation through increased genome coverage. Techniques such as RAPD and AFLP are also being applied to cDNA-based templates to study patterns of gene expression and uncover the genetic basis of biological responses. The review details account of techniques used in identification of markers and their applicability in plant sciences.

The discovery of the MADS-box genes and the study of model plants such as Arabidopsis thaliana and Antirrhinum majus have greatly improved our understanding of the molecular mechanisms driving the diversity in floral development. The class B genes, which belong to the MADS-box gene family, are important regulators of the development of petals and stamens in flowering plants. Many nongrass monocot flowers have two whorls of petaloid organs, which are called tepals. To explain this floral morphology, the modified ABC model was proposed. This model was exemplified by the tulip, in which expansion and restriction of class B gene expression is linked to the transition of floral morphologies in whorl 1. The expression patterns of class B genes from many monocot species nicely fit this model; however, those from some species, such as asparagus, do not. In this review, we summarize the relationship between class B gene expression and floral morphology in nongrass monocots, such as

Liliales (Liliaceae) and Asparagales species, and discuss the applicability of the modified ABC model to monocot flowers.

In this study, a PCR-denaturing gradient gel electrophoresis (DGGE) method was developed to assess Fusarium species diversity in asparagus plant samples. Fusarium-specific PCR primers targeting a partial region of the translation elongation factor-1 alpha (EF-1 alpha) gene were designed, and their specificity was tested against genomic DNA extracted from a large collection of closely and distantly related organisms isolated from multiple environments. Amplicons of 450 bp were obtained from all Fusarium isolates, while no PCR product was obtained from non-Fusarium organisms. The ability of DGGE to discriminate between Fusarium taxa was tested over 19 different Fusarium species represented by 39 isolates, including most species previously reported from asparagus fields worldwide. The technique was effective to visually discriminate between the majority of Fusarium species and/or isolates tested in pure culture, while a further sequencing step permitted to distinguish between the few species showing similar migration patterns. Total genomic DNA was extracted from field-grown asparagus plants naturally infested with different Fusarium species, submitted to PCR amplification, DGGE analysis and sequencing. The two to four bands observed for each plant sample were all affiliated with *F. oxysporum*, *F. proliferatum* or *F. solani*, clearly supporting the reliability, sensitivity and specificity of this approach for the study of Fusarium diversity from asparagus plants samples.

To estimate the heritability values of characters frequently used as selective criteria, 32 half-sib families obtained from selected plants of three populations of the asparagus variety Argenteüil were evaluated in a randomized complete block design. The following characters were measured: days to emergence of the first spear, number and diameter of spears, number of stalks, plant height and average weight. The values of realized heritability were estimated and were compared with those obtained by the parent-offspring regression method. Phenotypic correlation coefficients between the different variables were significant.

values of realized heritability for most of the variables were moderate to high (between 0.18 and 0.68), except for days to emergence; lower values were obtained by the regression method. As there was a high degree of heritability, additive genetic factors contributed significantly to the genetic variance, which would allow the selection of phenotypically superior plants for asparagus improvement projects.

The random amplified polymorphic DNA (RAPD) technique is a simple method to detect DNA polymorphism. It is sensitive to reaction conditions. Small changes in the reactants' concentration cause variations in amplification products. Using DNA from Asparagus officinalis, Dactylis glomerata, Mercurialis annua and Escherichia coli, we examined variability in the amplification pattern associated with reaction constituents. An increase in the ratio of Taq DNA polymerase to DNA in the reaction increased the number of amplified fragments. Increasing the concentration of primer resulted in the amplification of low molecular weight DNA fragments, while lowering the concentration resulted in high molecular weight fragments. Subsets of amplified fragments required different concentrations of magnesium for their highest intensity. Mechanical shearing of DNA obtained by sonication led to reduction in amplification of a subset of products. Enzymatic fragmentation of DNA by restriction enzymes led to loss or gain of specific fragments, depending on the DNA, primer, and restriction enzyme. RAPD markers of pooled DNA of anonymous pedigree should be critically evaluated for frequent 'false positive' markers.

MATERIAL AND METHODS

Sample collection

The samples (leaves) of Harsingarwere collected from Human Health care Garden MPCST, Raj Nursery,Betul, Vanita Nursery, Bhopal and creative farmer's (Narmadapuram).

Table No 1: Sites of sample collection

S.No	Location	Sample ID
1	Raj Nursery (Betul)	H1
2	Creative farmer's (Narmadapuram)	H2
3	Human Health care Garden MPCST (Bhopal)	H3
4	Human Health care Garden MPCST (Bhopal)	H4
5	Vanita Nursery (Bhopal)	H5
6	Vanita Nursery (Bhopal)	H6

Storage of leaves sample. The leaves were properly labelled according to their numbers and filled in proper sterile airtight 15ml capped tubes and stored at deep refrigerator in an cellophane bags.

Glasswares, Plastic wares and Materials

1) Beaker (Tarson)
2) Eppendorfs (2ml Tarson)
3) Tips
4) Tip box
5) Beaker
6) Conical flask
7) Glass pipette
8) Test tube
9) Measuring cylinder

Fig.3: Seeds of *N. arbortristis*(Harsingar)

Fig.4: Collection and storage of*N.arbortristis* (Harsingar)samples

10) Durum bottle
11) Funnel
12) Cryobox
13) Parafilm
14) Cotton
15) Forceps
16) Spatula
17) Tissue Paper
18) Aluminium foil, etc.

Chemical Preparation for DNA Extraction

Table No 2: Prepration of CTAB buffer

Name of chemical	Stock concentration	Working concentration	For 5ml
Tris HCL	1M(1000mM)	150mM	750 µl
EDTA	0.5M(500mM)	25mM	250 µl
NaCl	5M	1.5	1500 µl
CTAB		2.5%	1.25 g
PVP		2%.	0.1g
B-mercaptoethanol		0.2%	2 µl

Table No 3: Contents of ladder

Reagents	For 200µl
DNA ruler	20µl
6X Loading Dye	18µl
Water (nuclease and protease free)	162µl

Isolation of DNA from Kit Based method:

HiPurA Plant Genomic DNA Miniprep Purification Kit.

- The samples were crushed using chilled mortar pestle.
- 500 µl lysis buffer (PC) was added in the crushed sample .
- Transfer the mixture to a capped 2.0ml collection tube. Vortex vigorously.
- Add 20µl RNase and incubated at room temperature (15-25°C) for 10 min.
- The mixture was incubating at 65 °C for 10 minutes.
- Add 130µl of precipitating buffer (PS) to the lysate, mix and incubatefor5 min ice (-40 °C).
- Sample mixture was loaded on Hi Shredder column and this column wasplaced in a 2.0 ml collection tube (uncapped) and centrifuge for 5 min at 13000 rpm.
- The flow through fraction was transferred to a 2.0ml collection tubes. Without disturbing the cell debris pellets.
- 1.5volumes diluted Binding Buffer (BB) to the lysate obtained from the above steps and mix by pipetting.
- Load lysate in HiEluteminiprep spin column (capped) add 650 µl of thelysate, including any precipitate, which may have formed, to the column placed in a 2.0ml collection tube (uncapped) centrifuge at 8000rpm for 1 min. Discard the flow through.
- the above steps with the remaining sample. Discard the flow through and reuse the 2.0ml collection tube (uncapped).
- 500µl Wash solution (WSP) was added on Hi -Elute mini prep spin column and centrifuged for 2 min at 8000 rpm, Discard the flow through.
- Another 500µl Wash solution (WSP) was added on Hi- elute mini prep spin column and centrifuged for 2 min at 8000 rpm. Discard the flow through.
- The column was centrifuged for an additional 2 min at a maximum speed 13000 rpm to dry the membranes.

- The column was placed in to a new 2.0 ml collection tube and the elution buffer was added directly on the column without spilling to the sides.
- The column was incubated for 5 min at room temperature and Centrifuged at 10000rpm for 2 min.
- Than quantification of DNA done in Nano - Drop Spectrophotometer.

Isolation of DNA from left by CTAB method

- Take 2500µl of autoclaved distilled water , add 250µl of EDTA , add Tris HCI about 750µl , add NaCl about 1500µl , add CTAB 0.125g and PVP 0.1g and finally homogenize it for 45 minutes at 65°C (incubate).
- Take sterile leaves 100 mg (0.1g) in a chilled mortar pestle and crushed them with buffer 200µl (3 times).
- Collected the thin paste of leaf in Eppendorf tubes now make up the volume up to 1ml with buffer.
- Now add 2µl of β– mercaptoethanol in each tube.
- Now add RNAs 4µl in each tube.
- Dry bath it for 45 minutes, and keep it at room temperature for 10 Minutes.
- Add Chloroform and isoamyl alcohol and fill the tube up to 2ml.
- Now centrifuge the sample containing tubes at 10,000 rpm for 10 minutes.Supernatant should be removed carefully without disturbing layer.
- Take the supernatant in separate fresh tubes.
- Now 400 µl of Isopropanol is added to the supernatant containing tubes, it precipitates DNA.
- Tubes will turns turbid because of DNA.
- Keep the tubes at room temperature for 60 minutes or overnight.
- Now centrifuge the tubes 10,000 RPM for 10 minutes, remove the supernatant and air dried the tubes.
- Add 1ml 70 % ethanol in each tube.

- Then again centrifuge 10,000 RPM for 10 minutes, supernatant was discarded and pellet were air dried.
- After 1 hour or overnight pellets were dissolved in 50 µl of nanopure water.
- After half an hour take readings of DNA on Nano - Drop spectrophotometer.

Qualitative and quantitative analysis of isolated DNA

The yield of extracted DNA in ng/µl from plant sample was measured using a UV Spectrophotometer (ND-1000) at 260nm wavelength. The purity of. DNA was determined by calculating the ratio of absorbance at 260 nm to that of 280 nm. The ratio ofabsorption at 260nm vis 280nm is commonly used to assess the purity of DNA with respect to proteincontamination, since protein (in particular, the aromatic amino acid) tends to absorb at 280nm. TheDNA sample is considered as pure when the 260 to 280 ratio comes near 1.8. But the DNA samplehaving ratio 1.5 to 2.0 can be easily used for PCR.

Primers

Following commercially availableRAPD primers wasused for this analysis.

Table No. 04 Primar Discription

S.No	Name of Primer	Serial No.	Primer sequence (5′ to 3′)
01	RAPD	OPA-02	5′-TGCCGAGCTG-3′
02	RAPD	0PA-10	5′-GTGATCGCAG-3′

DNA amplification by PCR

In 1985, Kary Mullis developed polymerase chain reaction (PCR). It is a fully automated and very powerful process. By this, from only one copy of gene, several millions of copies can be obtained within few hours using thermal cycler. The Polymerase chain reaction (PCR) is a technique for in vitro amplification of

specific DNA sequences. This allows amplification of a target sequence quantities for further study using standard DNA analytical procedures. The method is simple, as the PCR can be performed in a single tube. It can be performed on relatively crude DNA- containing samples. PCR is achieved by simultaneous primer extension of complimentary strands of DNA. This is generally obtained by repeated cycles of heating, cooling and extension using a thermostable DNA polymerase, which results in exponential amplification of the target sequence.

There are three major steps in a PCR, which are repeated for 25 to 40 cycles. This is done on an automated thermal cycler, which can heat and cool the tubes with the reaction mixture in a very short time.

One cycle – three temperature shifts:

1. Denaturation at 94-96 °C
2. Primer annealing at 45-60 °C (depending on the primer)
3. Primer extension (usually) at 72 °C

Initialization step: consists of heating the reaction to a temperature of 94-96 °C

Denaturation at 94 °C: During the denaturation, the double strand melts open to single stranded DNA, all enzymatic reactions stop (for example: the extension from a previous cycle).

Annealing: PCR primers are moving around, caused by the Brownian motion in the specific complimentary association due to hydrogen bonding of singlestranded nucleic acids is referred to as "annealing". The primer anneals when appropriate annealing temperature is reached.

Extension at 72 °C. It is synthesis of the complimentary strand of template DNA to which primer is anneals by DNA polymerase enzyme. The DNA polymerase works ideally at 72°C The bases (complementary to template) are coupled to the

primer on the 3' side as the polymerase adds DNTP's from 5' to 3', reading the template from 3' to 5' side and bases are added complementary to the template.

Table No05: PCR for amplification of Genomic DNA using RAPD primer.

94°C	94°C	35°C	72°C	94°C	37°C	72°C	72°C
5.0 min	45 sec	1.0Min	1.5Min	45Sec	45Sec	1.0Min	10.0Min
Initial Denaturation	× 10 cycle			×40 Cycle			Final extension

Agarose gel electrophoresis

This method given by Janerthana and Vincent (2007) was applied for agarose gel electrophoresis. Electrophoresis involves the movements of charge molecules or in a stabilized matrix support medium under the influence of an electrical field. In a typical apparatus, an electrophoretic chamber holds the gel and the buffer. The direct current power supply must be capable of reaching a potential difference of 50 to 300 volts. This process separates the DNA strands according to their length and molecular weight.

The migration rate of charged macromolecules (such as DNA) in an applied electric field is proportional to the total negative charge of the macromolecule and inversely proportional to its mass. The electrophoretic mobility of DNA is mainly affected by the size and shape of the fragment: Small fragments of DNA migrate faster than larger ones. So, through electrophoresis, it is possible to sort DNA fragments based on size.

Requirements: 50x TAE buffer, 1x TAE buffer, EtBr, distilled water, 1%agarose gel, DNA marker, DNA samples.

Preparation of reagents:

Preparation of 50x TAE Buffer: For the preparation of TAE (50X), 24.2gm of Tris was weighed on a butter paper using a weighing balance. The powder was

transferred in a sterile beaker and 50ml of DNase. RNase free autoclaved water was added and the powder was dissolved by placing the beaker over magnetic stirrer using a magnetic bar, 10ml of 0.5M EDTA solution was added and5.7ml of Glacial Acetic Acid was added. The solution was transferred to a sterile measuring cylinder and the volume was made upto 100ml .The solution was than autoclaved and stored as stock.

Preparation of 1x TAE Buffer: Added 20 ml of above prepared 50x TAE and 980 ml nano pure water. Before use of autoclave both the solutions.

Preparation of agarose gel: 1 % Agarose was weighed and dissolved in 30mL 1XTAE buffer. The mixture was heated in 30 seconds increments in a microwave (1) Set - up the casting trays.First, clean the casting trays and combs. These are usually found in one of the drawers by the gel running area. Make sure to remove any bits of left - over agarose, especially in the comb. Place the casting tray in the chamber, making sure the seals are water - tight. Place the comb on the slots.

(2) Dissolve the agarose in TAE buffer.Weigh the appropriate amount of agarose and resuspend in TAE buffer. We use 1% gels for general applications. When resolving plasmids (> 5kb), use 0.7-0.8%. For small fragments (< 0.5 kb), you may need to go as high as 2.5%. Dissolve the agarose by boiling in the microwave. It is best to heat the solution in 30 - second increments, mixing well in between heating. Agarose will not melt unless the solution boils. For B2 gels (large rack), you will need around 50 ml of gel solution. For the B2A gels (small rack), you will need around 15 ml.

(3) Cool the agarose solution and add the dye. Allow the gel to cool to around 50 °C before adding the dye. We have Ethidium Bromide and SYBR - Safe dyes at 10,000x stock concentration. That means you add 1 µL for every 10 mL of gel. Thoroughly mix by swirling gently.

(4) Pour the gel. Pour the gel onto the casting tray, taking care not to introduce bubbles. If you do introduce bubbles, you can pop them with a pipette tip.

best to make the gels as thin as possible.Gels 0.75 cm thick or less are appropriate for general applications (25 µL sample volume per well). Thicker gels may be required if you have a large sample volume, e.g., when purifying DNA fragments. Allow the gel to solidify at room temp. Or at 4 ° C if you're in a hurry.

Protocol

The PCR products were resolved on 1% agarose gel prepared in 1x TAE buffer

- The gel was dissolved in 100ml 1x TAE buffer by heating it in Microwave oven with occasional shaking. When the temperature of gel reduces to 55-60°C, 10 µlEtBr was added.
- The gel was poured in the gel casting tray which was already fitted with a comb.
- Gel was left to solidify for about 30 minutes.
- Placed the tray containing gel in such orientation the well were towards negative electrode.
- The electrophoresis tank was filled by 1x TAE buffer till the gel completely
- About 15 ul sample (PCR product) was loaded in each well and 15 ul DNA marker (1 µl DNA ladder, 2 µl loading dye and 12µL distilled water) loaded got dipped in it and comb was removed. In separate well.
- After that, the electrodes were connected with power supply and applied the current (1-10 volts/cm of the gel) until the dye had migrated to appropriate distance in the gel.

Analysis of gels using Gel Documentation system

After running the gel it was placed on gel documention system (Alpha Innotech) and was visualized by 302 nm High Intensity UV light. Image was captured and analysed by using Alpha View Software. Molecular weight was calculated by using this software.

Preparation of Dendrogram

A comprehensive, but simple-to-use software package for executing a variety of standard numerical analysis and operations used in quantitative parameters.

has been developed. The program, called PAST (Paleontological Statistics), runs on standard Windows computers. PAST integrates spreadsheet- type data entry with univariate and multivariate statistics, curve fitting, timeseries analysis, data plotting, and simple phylogenetic analysis. Many of the functions are specific to paleontology and ecology, and these functions are not found in standard, more extensive, statistical packages. PAST also includes fourteen case studies (data files and exercises) illustrating use of the program for paleontological problems, making it a complete educational package for courses in quantitative methods (Hammer *et al,* 2001).

Analysis of Dendrogram

Tree is comprehensive Phylogenetic tree visualization and manipulation software for phylogenetics and research in evolution.

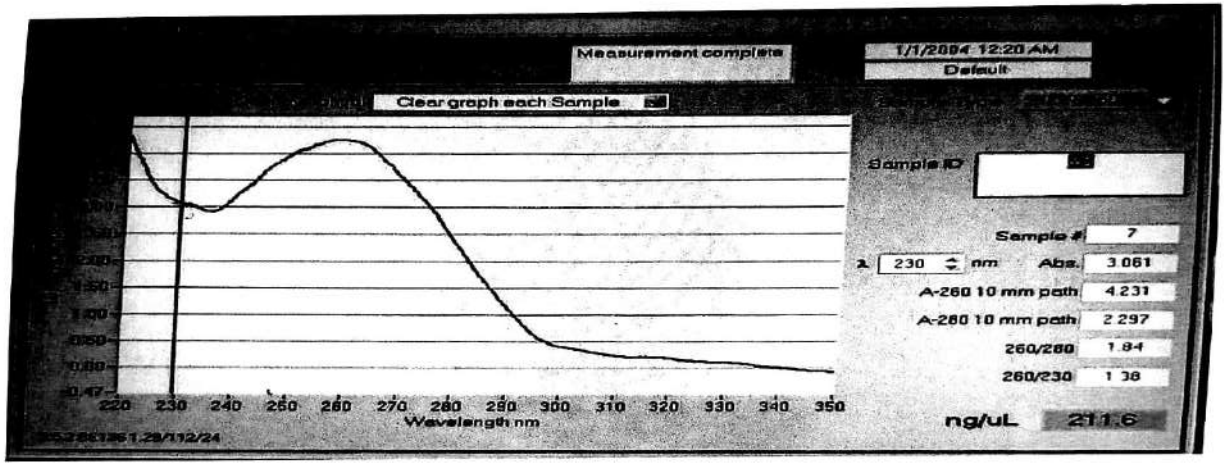
RESULTS AND DISCUSSION

Qualitative and quantitative analysis:

Qualitative and quantitative analysis of isolated DNA The yield of extracted DNA in ng/µl from plant sample was measured using a UV Spectrophotometer (ND-1000) at 260nm wavelength. The purity of DNA was determined by calculating the ratio of absorbance at 260 nm to that of 280 nm ($A_{260/280}$). The ratio of absorption at 260nm vis 280nm is commonly used to assess the purity of DNA with respect to protein contamination, since protein (in particular, the aromatic amino acid) tends to absorb at 280nm. The DNA sample is considered as pure when the $A_{260/280}$comes near 1.8. But the DNA sample having ratio 1.5 to 2.0 can be easily used for PCR.

Table No 4. – Qualitative and quantitative analysis of isolated DNA .

Sample ID	$A_{260/280}$	Concentration (ng/ µl)
H1	1.73	139.1 ng/µl
H2	1.74	138.6 ng/µl
H3	1.76	84.0 ng/µl
H4	1.71	72.8 ng/ µl
H5	1.78	129.2 ng/µl
H6	1.83	106.8 ng/µl



Qualitative and quantitative analysis of DNA using ND-1000 spectrophotomerer

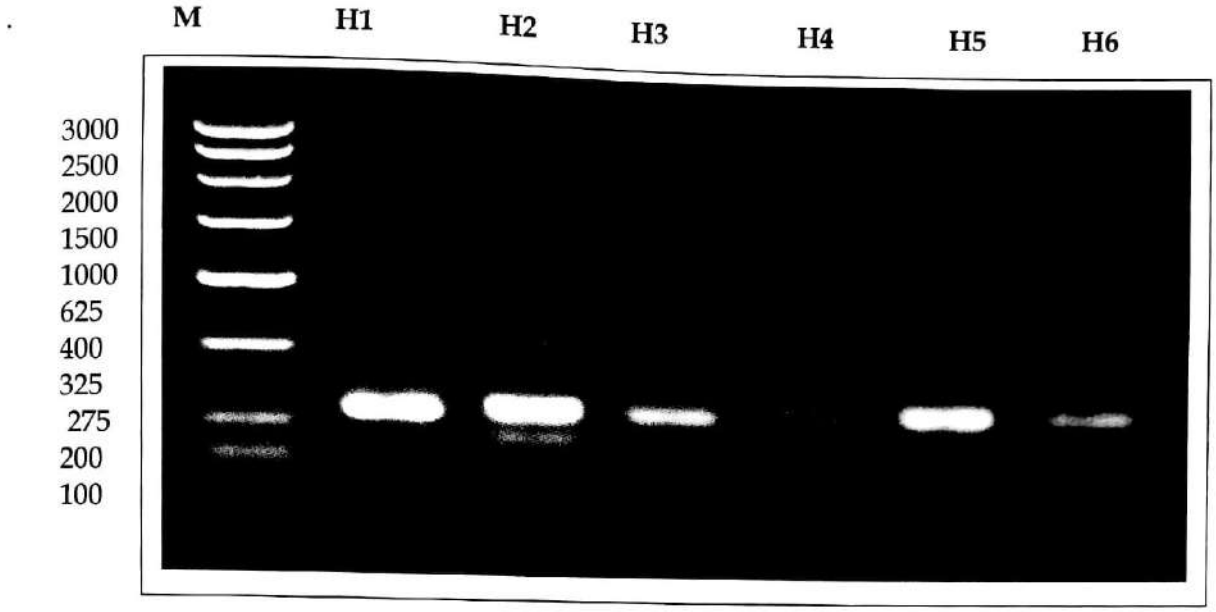


Figure9 – Random amplified polymorphic DNA fragment pattern generated using OPA 02 primers – M is for molecular marker low range DNA ladder .1 to 6 amplify by primers.

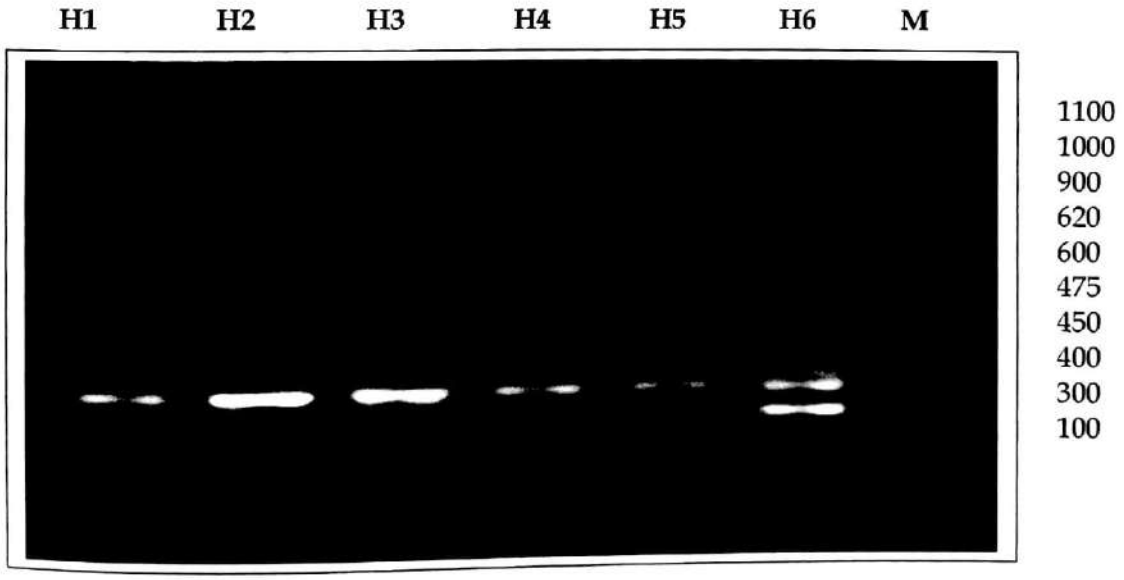


Figure 10: Random amplified polymorphic DNA fragment pattern generated using OPA 10 primers – 1 to 6 amplify by primer, M is for molecular marker low range DNA ladder.

When RAPD was performed using Primer OPA 02 (Plant RAPD Primer) of the isolated DNA from the samples collected from Raj Nursery Betul, encoded H1, total 3 bands were obtained and their sizes were 625, 400, 325 bp respectively. The second sample was collected from Creative farmer's (Narmadapuram) and encodedH2 total 4bands and their sizes were 625, 400, 325 and 275 bp respectively. The third sample was collected from Human Health Care Garden MPCST Bhopal and encoded H3, total 3 bands and their size was 600, 325 and 275.The fourth sample was H4 total3 bands and their sizes were 625, 325 and 275 bp respectively. The fifth Sample encoded H5gave total 4 bands and their size were 625, 400, 325 and 275 bp respectively. The sixth sample H6 gave total 3 bands and their size were 625, 325 and 275 respectively.

When RAPD was performed using Primer OPA 10 (Plant RAPD Primer) of the DNA isolated from the samples collected from Raj Nursery, Betul and encoded H1, total 7 bands were obtained and their sizes were 1100, 1000, 900, 620, 475, 450 and 400 bp respectively. The sample was from creative farmer's (Narmadapuram) and encoded H2 gave total 9 bands and their sizes were 1100, 700, 620, 600,475,450, 400, 300 and 100 bp respectively. The sample third was collected from Human Health care Garden MPCST Bhopal and encoded H3gave 7 band and sizes were 1100, 700, 620, 475, 450, 400, and 300. The sample fourth was also collected from Human Health care Garden MPCST Bhopal and encoded H4gave total 7 band and their sizes were 700, 620, 475, 450, 400,300 and 200 bp respectively. The sample fifth was collected from Vanita Nursery (Bhopal) encoded H5 gave total only 1 band its size was 450 bp respectively. The sample sixth was also collected from Vanita Nursery (Bhopal) and encoded H6gave total 2 bands and their sizes were 450 and 400 bp respectively.

Binary Matrix

For the preparation of dendrogram Binary Matrix was prepared from the data revealed from the bands obtained from the PCR products on the 1% agarose gel. 0 was written for the absence of a particular band of a particular molecular weight

while 1 was used to denote the presence of the band of a particular molecular weight.

Table No 5: Binary Matrix of six variants of *N. arbor-tristis* analyzed by Primer OPA 02

Sample ID	Band size bp			
	275	325	400	625
H1	0	1	1	1
H2	1	1	1	1
H3	1	1	0	1
H4	1	1	0	1
H5	1	1	1	1
H6	1	1	0	1

Table No06: Binary Matrix of six variants of *N. arbor-tristis* analyzed by Primer OPA 10

Sample ID	Band size bp											
	1100	1000	900	700	650	600	475	450	400	300	200	100
H1	1	1	1	0	1	0	1	1	1	0	0	0
H2	1	0	0	1	1	1	1	1	1	1	0	1
H3	1	0	0	1	1	0	1	1	1	1	0	0
H4	0	0	0	1	1	0	1	1	1	1	1	0
H5	0	0	0	0	0	0	0	0	1	0	0	0
H6	0	0	0	0	0	0	0	0	1	1	0	0

Two primers (OPA 02 and OPA 10) were used for amplification. All variants were identified by the presence of bands. Maximum bands were observed with primer followed by OPA 10. A sum 53 bands were amplified with respect to both primers. About 16 bands (18%)were polymorphic. Maximum polymorphic bands were produced in case of OPA 10 (12%). The numbers of monomorphic were 1. Maximum bands were identified from H1 (10), H2 (12), H3 (10), H4 (10),followed by H6 (5) & H5 (5). Least bands were identified from H6 (5). The bands obtained were ranged in size from 100 and 400 bp.

Similarity Index

Similarity index was calculated based on Rf values for individual primer. SI of bands, which were common between two variants, was estimated following Nei and Li (1979). Using Dice coefficient , a similarity matrix involving 7 variants was generated with NTSYS-pc(Numerical Taxonomy System, Applied Biostatistic , Inc., New York, USA).

$$S.I = \frac{2 \times \text{No. of common bands in two lane}}{\text{Total No. of bands}}$$

Table No07: Polymorphism pattern demonstrated by RAPD analysis in *N. arbor-tristis*.

S.No	Primer	Total no. of band	Total no. of polymorphic bands	Total no of monomorphic bands	Polymorphism %
1	OPA-02	4	2	2	50%
2	OPA-10	12	11	1	83%
Total		16	13	3	18%

Distance Matrix (Jaccard)

For the preparation of Dendrogram, Distance Matrix was required. Binary Matrix was prepared on windows note pad and Distance Matrix was generated by

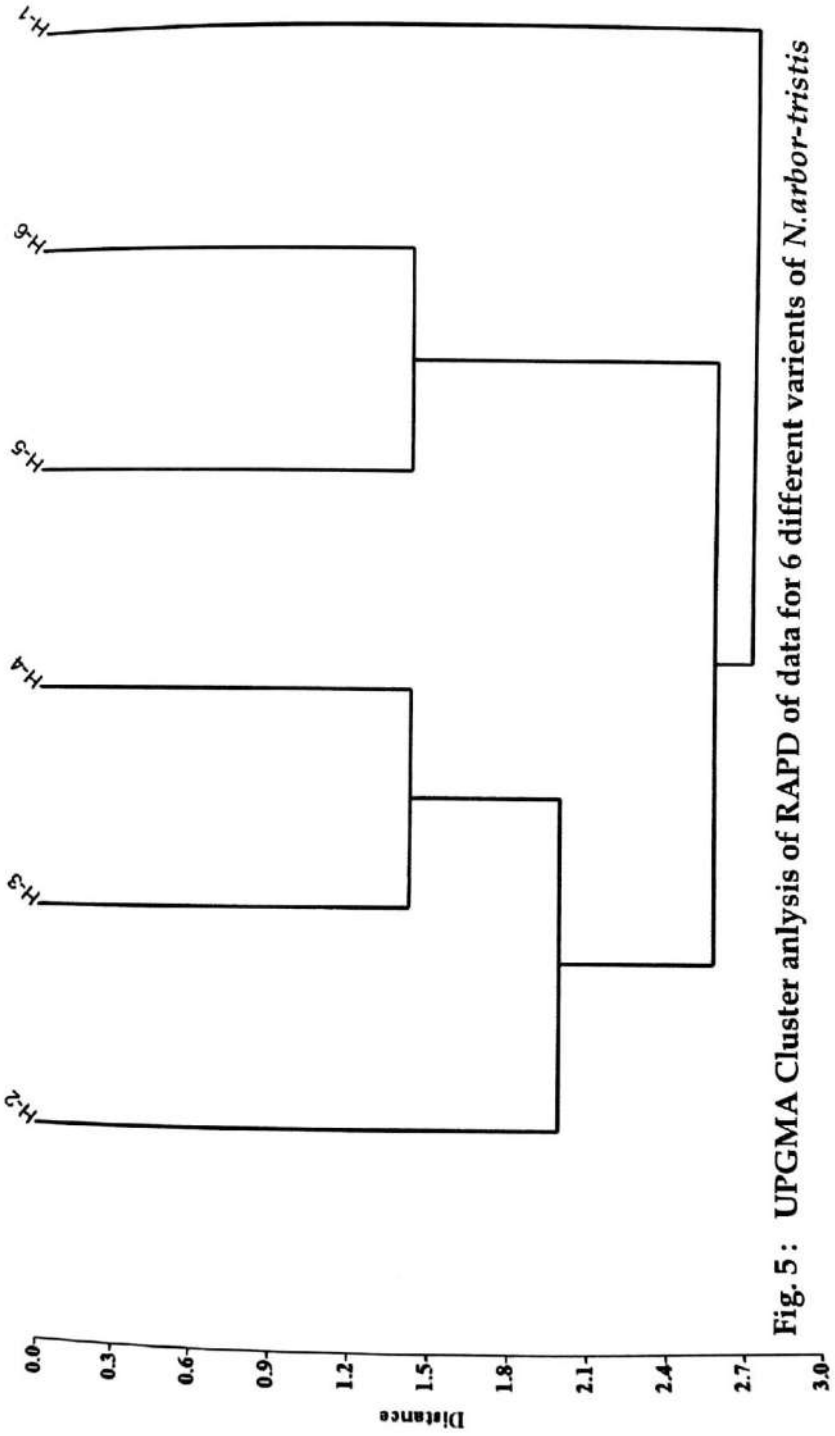


Fig. 5 : UPGMA Cluster anlysis of RAPD of data for 6 different varients of *N.arbor-tristis*

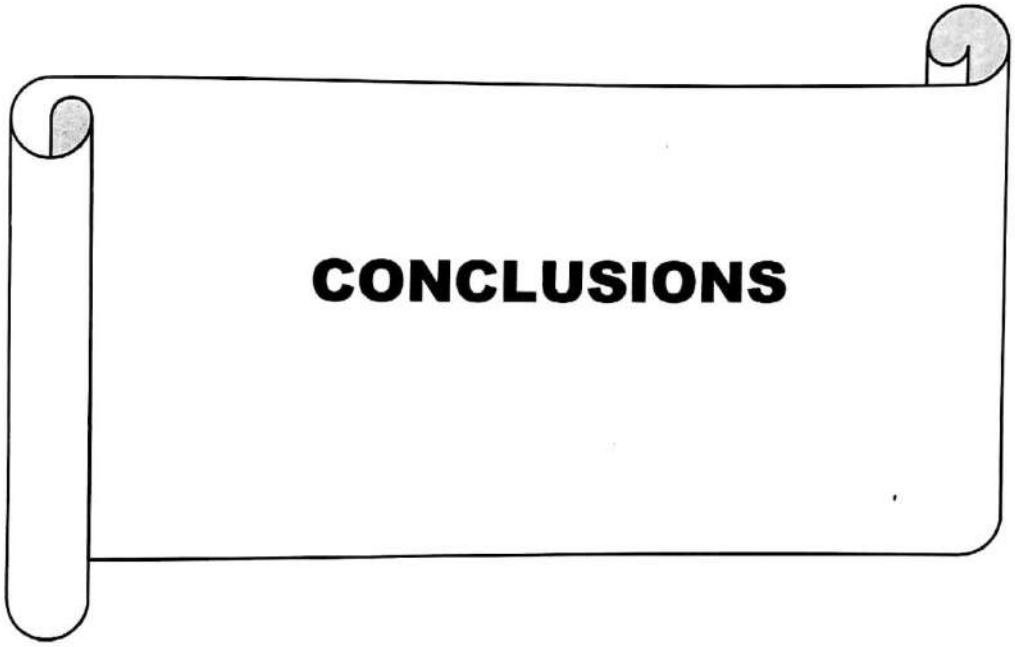
Cluster Vis (SequentiX - Digital DNA Processing Germany) Software, using Jaccards coefficient and Unweighted Pair Group Method with Arithmetical Averages (UPGMA).

The six *N. arbor-tristis* variants were analyzed through RAPD with 2 random primers to determine the extent of diversity that exists within the species showed different RAPD profiles.

The Dendrogram based on similarity index (S.I) showed distinct separation of collected variants, though morphologically they were similar and inseparable. Major two clusters are formed cluster-1 and cluster-2. Cluster-1 includes three accession H4, H3 and H2. Cluster-2 includes two accessions H5 and H6. Accession H1 not include in any cluster.

Table No08:Similarity Indices of Six variants of *N. arbor-tristis* through RAPD.

	H1	**H2**	**H3**	**H4**	**H5**	**H6**
H1	1					
H2	0.53333	1				
H3	0.53846	0.76923	1			
H4	0.42857	0.64286	0.81818	1		
H5	0.36364	0.38462	0.36364	0.36364	1	
H6	0.25	0.38462	0.5	0.5	0.66667	1



CONCLUSIONS

1. Based on above findings it can be concluded that the DNA samples extracted from fresh leaves of *N. arbor-tristis* using the above followed protocol showed the total polymorphic percentage 18% that is good. Lesser the polymorphic percentage it indicates the higher conservation of genes to that confined area.

2. Maximum similarity (0.81818) and Minimum Genetic diversity was observed among the accessions H3 and H4. Minimum similarity (0.25) and Maximum Genetic diversity was observed among the accessions collected H6 and H1.

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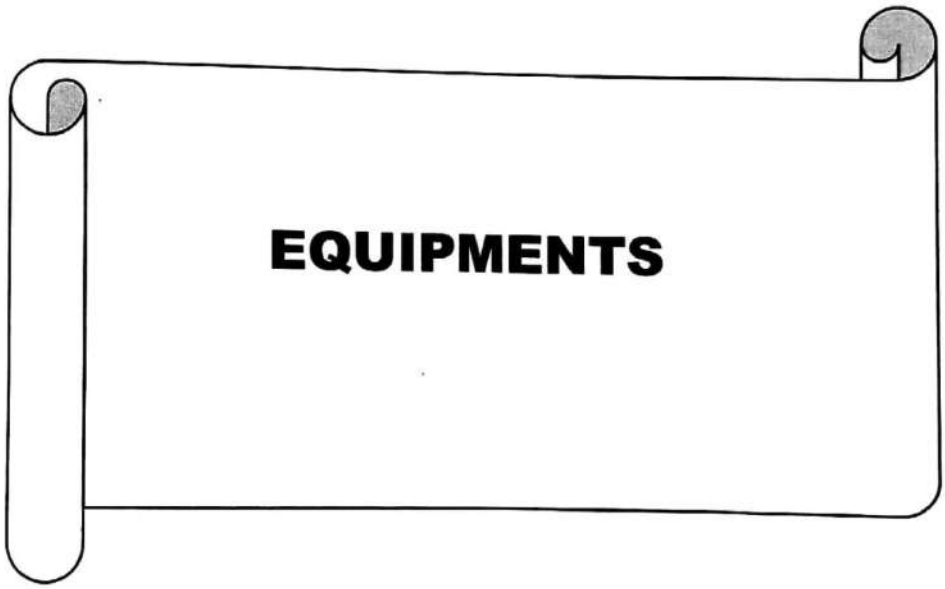

- ***Refrigerator-*** LG Chemical , Biochemical , and kits etc. to be stored at low temperature including nucleic The refrigerator is must in molecular biology lab used to keep different Solutions , is for short term preservation
- ***Deep Freezer-*** it is used to store certain bio – chemicals which need to be stored at very low temperature (20 to – 80 ° c) such as Teq Polymerase , Primers , RNase solution , Proteinase K solution etc. It is also used to preserve nucleic acids for a long period .
- ***Micropipettes & Tips (Eppendorf)-*** These are used for the measurement of little amount of liquids such as in micro liters of liquids which cannot be measured with other equipment with accuracy and also for the measurement of liquids which are harmful if mishandled such as Ethidium Bromide which is carcinogenic , Phenol etc.
- ***Centrifuge (MPW – 350R , MED Instruments)*** - Centrifuge are used to centrifuge different liquid for various purposes such for separating two or more immiscible liquid or for collecting pellets form any mixture such as during the process of DNA isolation for centrifuging the sample is loaded in small tubes of variable volumes which can be centrifuged at different rotations per minutes and at different temperature accordingly.
- ***Vortex Mixer (Yarco)*** - It is used to mix the contents of a mixture in different phases .
- ***Weighting machine-*** It is an electronic instrument , used to weight definite and accurate amount of required materials . It can weigh the material up to five places of decimal .
- ***Magnetic stirrer with Hot plate (scientech)-*** Digital pH meter was used to stir the components with providing heat (if required) of solutions or to dissolve any powder in any liquid it is also use as a heating plat.
- ***Digital pH meter (Ana lab scientific)*** –Digital pH meter was used to adjust the pH of the solutions as required. It is require standardizing by 2 different pH buffers 4 &7. A pH meter is a scientific instrument that the hydrogen – ion activity in water base solution, indicating its acidity or alkalinity expressed as pH . The pH. Meter measures the difference in electrical potential between a pH electrode and a reference electrode, and so the pH meter is sometimes referred to as a "potentiometric pH meter " . The difference in electrical potential related to the acidity or pH of the solution . The pH meter is used in many applications ranging from laboratory experimentation to quality control.
- ***Dry bath – Model -SLM-DB120 (Genei, Bangalore)*** - Dry bath is a type of laboratory equipment that is used to heat samples. Dry baths are often used in molecular biology, microbiology, biochemistry and genetic applications. The capacity of these baths is measured in blocks. Depending on the size of the

block, the user can place a certain amount of tubes into each block. The most common sizes for blocks are 1, 2 and 4 block models.

- ***Millipore water purifier*** – It is used for the purification of water. It provides de-ionized, DNAs and RNAs free water for molecular biology uses. Millipore Water Purifier is a trademark created by Millipore Corporation to describe 'ultrapure' water of "Type 1', as defined by various authorities (e.g. ISO 3696), as well as their devices for producing such water. The purification processes Involve successive steps of filtration and deionization to achieve a purity expediently characterized in terms of resistivity (typically 18.2 MΩ at 25 °C). The term is also commonly used as a genericised trademark to refer to other purified waters and purification equipment.
- ***Electrophoresis power pack (Consort Belgium)*** -Electrophoresis power pack was used for supplying required constant voltage and current for the separation of DNA fragments over the gel according to the Molecular weight .
- ***Gradient Automatic Thermal Cycler (PCR) , (Corbett Research , Australia)*** - Gradient Thermal Cycler was providing ng and cooling rate) very fast . This instrument has gradient facility to standardize new PCR protocol. The PCR process occurs or is performed in Thermal Cycler it contains 96 wells that is PCR can be performed on 96 samples simultaneously.
- ***Gel Documentation System (Alpha Innotech , USA)*** - Gel Documentation System has 1.4 MP cameras with auto focus , one Tran illuminator with 302 & 365nm wavelength UV light source with high and low intensity , one white light table and epi white facility . It have a software Alpha View which is used for the analysis of gel over which DNA has been run size of DNA fragment can be determined by comparing the bands with the bands of the DNA ladder . Alpha View provides the utmost ease of use while offering comprehensive and versatile tools for capturing , analyzing , and annotating images . With a simple to use graphical user interface coupled with new and improved features, Alpha Innotech has pioneered the most intuitive image capture and analysis software available. and improved features include multiple image viewing , the ability to save analyses , and enhanced movie mode. With our suite of analysis tools, you can perform molecular weight calculations, Rf determinants, 1-D lane densitometry, 2-D spot densitometry, microtiter plate reading, object distance measuring, gel scoring and automatic colony counting.
- ***Autoclave (Dahian Scientific , South Korea)*** - Autoclave was used for sterilization of different materials in the lab such as tips , Petri plates , water , solutions etc at 15 lbs pressure , 121 ° C temperature from 15 mints .
- ***Ultra Low Temperature Freezer (New Brunswick Scientific)*** - It was used to store the chemicals, fish tissues, DNA samples, etc. at very low temperature i.e. -20 ° C to -80 ° C .

- CTAB buffer Microfuge tubes Mortar and Pestle , Liquid Nitrogen , Microfuge , Absolute Ethanol (ice cold) , 70% Ethanol (ice cold) , 7.5 M Ammonium Acetate 550 C water bath Chloroform : Iso Amyl Alcohol : Phenol (24 : 1 : 25) Water (sterile) , Agarose (SRL 0144162) , 6x Loading Buffer 1x TBE solution , Agarose gel electrophoresis system , Ethidium Bromide solution , RNase , Acetic acid , low range DNA ladder , Gel loading dye , Primer , Teq buffer A.dnTP, Teq DNA Polymerase, Red Dye, DNA Polymerase Master Mix.
- ***Glassware & Plastic ware-*** Micropipette Tips , Beaker , Flask , Eppendorf tubes , Cry box , Eppendorf tubes stand , Para film . Aluminum foil , Spatula , Buffer paper , Cotton , Forceps , Tissue paper .
- ***CTAB buffer 5ml-*** .125g CTAB (Acetyl trimethyl- Ammonium bromide), 0.1g pvp (polyvinyl pyrrolidone) , 1M Tris Hydrogen chloride ,pH 8.0 , 250 µL EDTA pH 8.0 (Ethylenediaminetetraacetic acid) , 1500µL NaCl (sodium-chloride) ., Dissolve in 2500 µL distilled water.
- ***50x TAE buffer*** -242g Tris free base 18.61g EDTA , Glacial acetic acid 57.1 dissolve in 70ml DW & volume make up to 100ml Dw.
- ***0.25 M EDTA pH 8.0*** - for (100ml) For the preparation of 0.25M EDTA stock solution , 121.14 gm of EDTA powder was weighed using the weighing balance . The powder was then transferred into a sterile beaker and 70ml of DNase free autoclaved water was added and the powder was dissolved by the beaker over magnetic stirrer using a magnetic beads and 4-5 NaoH pallets was added . The pH of the solution was then adjusted adding HCL , using digital pH meter . The solution was then transferred to a sterile measuring cylinder and volume was made up to 100ml. The solution was then autoclaved and stored as the stock.
- *5 **M NaCl*** for (100ml) For the preparation of 5 M Nacl stock solution 29.22 gm of Nacl powder was weighed on a butter paper using weighing balance . The powder was then transferred in a sterile beaker and 50ml of DNase , RNase free autoclaved water was added and the powder was dissolved by placing the beaker over magnetic stirrer using a magnetic bar . The pH of the solution was then adjust 08 using digital pH meter . The solution was then transferred to a sterile measuring cylinder and volume was made up to 100ml. The solution was then autoclaved and stored as stock at room temperature.
- ***(25 : 24 : 1) Phenol : Chloroform : Isoamyl Alcohol (100 ml)*** For the preparation of 25 : 24 : 1 Phenol Chloroform Isoamyl Alcohol 50 ml of Phenol was measured in a 50 ml sterilized measuring cylinder and was then transferred to a bottle , 48 ml of chloroform was measured in a 50 ml sterilized measuring cylinder and was then transferred to the bottle containing 50 ml of phenol 2 ml of Isoamyl Alcohol was measured in a 10 ml sterilized measuring cylinders and was then transferred to the bottle containing 50 ml of Phenol and 48 ml of Chloroform . The was then mixed well by inversion and the bottle was

wrapped with aluminum foil to prevent direct contact of the solution with white light, which may lead to cross reaction.

- ***RNase Solution-*** For the preparation of RNase solution 5 µg of lyohhilizedRNase powder was weighed in an eppendrof tube using weighing balance 1 ml of DNase , RNase Free autoclaved pure water was added and the powder was dissolved by inversion. The solution was then stored as stock in a mini cooler at temperature -20 °C .
- ***Gel Loading Dye-*** The gel loading dye used was readymade of 6X concentration which was diluted with DNase , RNase free water to concentration 1X by taking water and dye in ratio of 5 : 1 .

Field Visit Report

फुटवियर डिजाइन एवं डेवलपमेंट इंस्टीट्यूट (FDDI) छिन्दवाड़ा म.प्र. एवं

श्री बादल भोई राज्य आदिवासी संग्रहालय छिन्दवाड़ा म.प्र.

म.प्र. उच्च शिक्षा उन्नयन परियोजना के अन्तर्गत स्वामी विवेकानन्द कॅरियर मार्गदर्शन प्रकोष्ठ द्वारा गणित विभाग के स्नातक एवं स्नातकोत्तर अंतिम वर्ष के विद्यार्थियों का फुटवियर डिजाइन एवं डेवलपमेंट इंस्टीट्यूट (FDDI) छिन्दवाड़ा म.प्र. एवं श्री बादल भोई राज्य आदिवासी संग्रहालय छिन्दवाड़ा म.प्र. का दिनॉक 04/11/2022 दिन शुक्रवार को औद्योगिक एवं शैक्षणिक भ्रमण किया गया। महाविद्यालय पत्र क्रमांक 1409/गणित/2022, दिनॉक 21/10/2022 के अनुसार FDDI, द्वारा सहमतिपत्र पत्र क्रमांक एफडीडीआई/सीएचएच /004/निगमित एवं जनसम्पर्क/2022-23/001 दिनांक 21/10/2022 को प्राप्त हुआ। FDDI, वाणिज्य एवं उद्योग मंत्रालय, भारत सरकार के तत्वाधान में, भारत का FDDI अधिनियम 2017 के तहत राष्ट्रीय महत्व का संस्थान (Institute of National importance IN) है। ज.हॉ.शासकीय स्नातकोत्तर महाविद्यालय के गणित विभाग के स्नातक एवं स्नातकोत्तर (संलग्न सूची में 60 विद्यार्थियों एवं 04 प्राध्यापकों द्वारा यह भ्रमण किया गया। भ्रमण हेतु महाविद्यालय से दिनांक 04/11/2022 को प्रात: 8:00 बजे बस क्रमांक MP48P0648 से विद्यार्थियों एवं प्राध्यापकों द्वारा प्रस्थान किया गया। बस प्रात: 11:20 बजे FDDI पर पहुँची। वहॉ पहुँचकर 11:30 बजे स्मार्ट क्लास में निगमित एवं जनसम्पर्क विभाग से श्री जागृत सदारंभ (सहायक प्रबंधक) एवं श्री मनोज कुमार शर्मा (सहायक प्रबंधक) द्वारा एक घंण्टे की कॅरियर गाइडेंस कार्यशाला का आयोजन किया गया। कार्यशाला को FDDI से सम्बधित सभी जानकारी रोजगार एवं स्वरोजगार के अवसर एवं संचालित पाठ्यक्रमों की जानकारी प्रदान की । विद्यार्थियों ने FDDI में समस्त लैब, आडिटोरियम, खेल परिसर, लाईब्रेरी, डिजाईनिंग लैब, कटिंग, क्लोजिंग, कम्पोनेंट एवं लास्टिंग लैब, फैशन स्टूडियों, गारमेंट कन्सट्रक्शन लैब एवं प्रशासनिक भवन आदि का भ्रमण किया। FDDI पत्र क्रमांक एफडीडीआई/सीएचएच/004/निगमित एवं जनसम्पर्क/पत्राचार/003/2022-23 दिनांक 04/11/2022 (संलग्न) में भ्रमण की जानकारी दी गई है।

FDDI से लचं के बाद 3:00 बजे बस से आदिवासी संग्रहालय भ्रमण हेतु प्रस्थान किया। वहॉ सभी विद्यार्थियों एवं प्राध्यापाकों ने 3:30 से 5:30 बजे तक भ्रमण किया। यह संग्रहालय 20 अप्रैल 1954 में खोला गया राज्य संग्रहालय है, 8 सितम्बर 1997 को आदिवासी संग्रहालय का नाम बदलकर 'श्री बादल भोई शासकीय आदिवासी संग्रहालय' कर दिया गया। इसमें 14

कक्ष, 3 गलियारें एवं 2 खुले गलिरे है। यह सारे जनजातीय संग्रहालयो में सबसे पुराना है। विद्यार्थियों ने मध्यप्रदेश की लगभग 46 जनजातियों की जीवन शैली, सांस्कृतिक धरोहर प्रतीक चिन्हों और कला शिल्प जिसमें मुखैटे, अग्नि प्रज्वलन के साधन, देवी देवताओं की मूर्तिया, मृतक स्तम्भ, कृषि उपकरण, पैंटिग्स, अस्त्र-शस्त्र, पोशाके, कंधियां, जुते, खडाऊ, घास के सुनहरे आभूषण, विभिन्न जनजातियों के नृत्यों के माण्डल, मिट्टी के बरतन, वस्त्र निर्माण, फांसिल, टोपी, ढोलक खुदाई से प्राप्त प्रस्तर मूर्तियॉ, पाषण युग के विभिन्न चित्र, नृत्य प्रसाधन, वैवाहिक मुकुट आदि का अवलोकलन किया एवं संबंधित जानकारी प्राप्त की। इनकी कुल संख्या 2200 है। संग्रहाल में विशेष जनजातियों को पृथक केसों में माडल, चार्ट, पैंटिग्स व मानचित्रों के माध्यम से प्रदर्शित किया गया है।

शैक्षणिक यात्रा पूरी कर लौटा दल

आदिवासी संग्राहलय में देखी आदिवासियों की जीवन शैली

बैतूल, तामी समन्वय। मप्र उच्च शिक्षा उन्न यन परियोजना के अन्तर्गत स्वामी विवेकानन्द कैरियर मार्गदर्शन प्रकोष्ठ द्वारा गणित विभाग के स्नातक और स्नातकोत्तर अंतिम वर्ष के विद्यार्थियों का फुटवियर डिजाइन एवं डेवलपमेंट इंस्टीट्यूट एफडीडीआई छिन्दवाड़ा मप्र एवं श्री बादल भोई राज्य आदिवासी संग्राहलय छिन्दवाड़ा का औद्योगिक एवं शैक्षणिक भ्रमण किया गया। एफडीडीआई, वाणिज्यक एवं उद्योग मंत्रालय, सरकार के तत्वावधान में भारत का एफडीडीआई अधिनियम 2017 के तहत राष्ट्रीय महत्व का संस्थान है। जेएन कॉलेज के गणित विभाग के स्नातक और स्नातकोत्तर के 60 विद्यार्थियों एवं 4 प्राध्यापकों द्वारा यह भ्रमण किया। निगमित एवं जनसम्पर्क विभाग से सहायक प्रबंधक जागृत सदारंभ एवं सहायक प्रबंधक मनोज कुमार शर्मा द्वारा कॉरियर गाइडेंस कार्यशाला का आयोजन भी किया। कार्यशाला में एफडीडीआई से सम्बंधित सभी जानकारी, रोजगार एवं स्वरोजगार के अवसर एवं संचालित पाठ्यक्रमों की जानकारी प्रदान की। विद्यार्थियों ने एफडीडीआई में समस्त लैब, ऑडिटोरियम, खेल परिसर, लाइब्रेरी, डिजाईनिंग लैब, कटिंग, क्लोजिंग, कॉम्पोनेन्ट व लास्टिंग लैब, फैशन स्टूडियो, गारमेंट कंस्ट्रक्शन लैब एवं प्रशासनिक भवन आदि का भ्रमण किया। इसके पश्चात् आदिवासी संग्रहालय का सभी विद्यार्थियों एवं प्राध्यापकों ने भ्रमण किया। यह संग्रहालय 20 अप्रैल 1954 में खोला गया। राज्य संग्रहालय है, 8 सितम्बर 1997 को आदिवासी संग्रहालय का नाम बदलकर 'श्री बादल भोई शासकीय आदिवासी संग्राहलय' कर दिया गया। यह सारे जनजातीय संग्राहलयो में सबसे पुराना है। विद्यार्थियों ने मप्र की लगभग 46 जनजातियों की जीवन शैली, सांस्कृतिक धरोहर प्रतीक चिन्हों और कला शिल्पी जिसमें मुर्त्तेयें, अग्नि प्रज्वलन के साधन, देवी देवताओं की मूर्तिया, कृषि उपकरण, पेंटिंग्स, अस्त्र-शस्त्र, आदि का अवलोकलन किया एवं संबंधित जानकारी प्राप्ति की। इनकी कुल संख्या 2200 है। विद्यार्थियों ने बताया कि यह यात्रा उनके लिए उपयोगी और ज्ञानवर्धक रही जिससे उन्हें बहुत सिखने को मिला।

शैक्षणिक यात्रा पूरी कर लौटा दल

बैतूल। मप्र उच्च शिक्षा उन्न यन परियोजना के अन्तर्गत स्वामी विवेकानन्द कैरियर मार्गदर्शन प्रकोष्ठ द्वारा गणित विभाग के स्नातक और स्नातकोत्तर अंतिम वर्ष के विद्यार्थियों का फुटवियर डिजाइन एवं डेवलपमेंट इंस्टीट्यूट एफडीडीआई छिन्दवाड़ा मप्र एवं श्री बादल भोई राज्य आदिवासी संग्राहलय छिन्दवाड़ा का औद्योगिक एवं शैक्षणिक भ्रमण किया गया। एफडीडीआई, वाणिज्यक एवं उद्योग मंत्रालय, सरकार के तत्वावधान में भारत का एफडीडीआई अधिनियम 2017 के तहत राष्ट्रीय महत्व का संस्थान है। जेएन कॉलेज के गणित विभाग के स्नातक और स्नातकोत्तर के 60 विद्यार्थियों एवं 4 प्राध्यापकों द्वारा यह भ्रमण किया। निगमित एवं जनसम्पर्क विभाग से सहायक प्रबंधक जागृत सदारंभ एवं सहायक प्रबंधक मनोज कुमार शर्मा द्वारा कॉरियर गाइडेंस कार्यशाला का आयोजन भी किया। कार्यशाला में एफडीडीआई से सम्बंधित सभी जानकारी, रोजगार एवं स्वरोजगार के अवसर एवं संचालित पाठ्यक्रमों की जानकारी प्रदान की। विद्यार्थियों ने एफडीडीआई में समस्त लैब, ऑडिटोरियम, खेल परिसर, लाइब्रेरी, डिजाईनिंग लैब, कटिंग, क्लोजिंग, कॉम्पोनेन्ट व लास्टिंग लैब, फैशन स्टूडियो, गारमेंट कंस्ट्रक्शन लैब एवं प्रशासनिक भवन आदि का भ्रमण किया। इसके पश्चात् आदिवासी संग्रहालय का सभी विद्यार्थियों एवं प्राध्यापकों ने भ्रमण किया। यह संग्रहालय 20 अप्रैल 1954 में खोला गया। राज्य संग्रहालय है, 8 सितम्बर 1997 को आदिवासी संग्रहालय का नाम बदलकर 'श्री बादल भोई शासकीय आदिवासी संग्राहलय' कर दिया गया। यह सारे जनजातीय संग्राहलयो में सबसे पुराना है। विद्यार्थियों ने मप्र की लगभग 46 जनजातियों की जीवन शैली, सांस्कृतिक धरोहर प्रतीक चिन्हों और कला शिल्पी जिसमें मुर्त्तेयें, अग्नि प्रज्वलन के साधन, देवी देवताओं की मूर्तिया, कृषि उपकरण, पेंटिंग्स, अस्त्र-शस्त्र, आदि का अवलोकलन किया एवं संबंधित जानकारी प्राप्ति की। इनकी कुल संख्या 2200 है। विद्यार्थियों ने बताया कि यह यात्रा उनके लिए उपयोगी और ज्ञानवर्धक रही जिससे उन्हें बहुत सिखने को मिला।

Signature Not Verified

RAKESH KUMAR TIWARI
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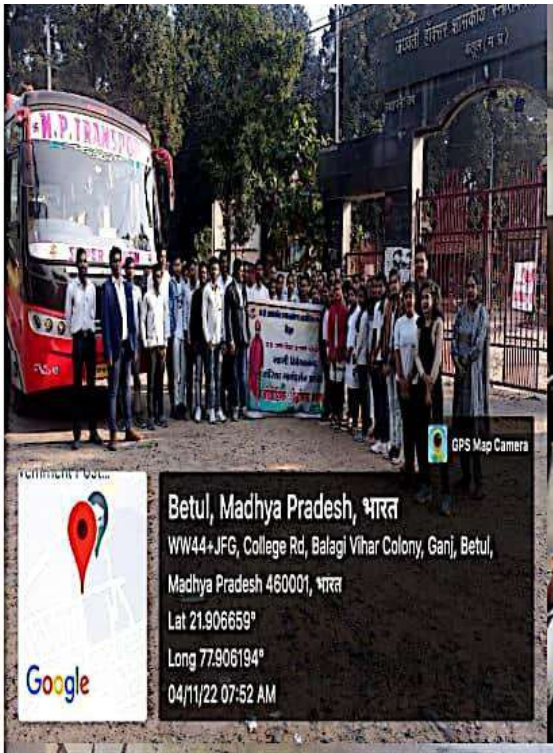
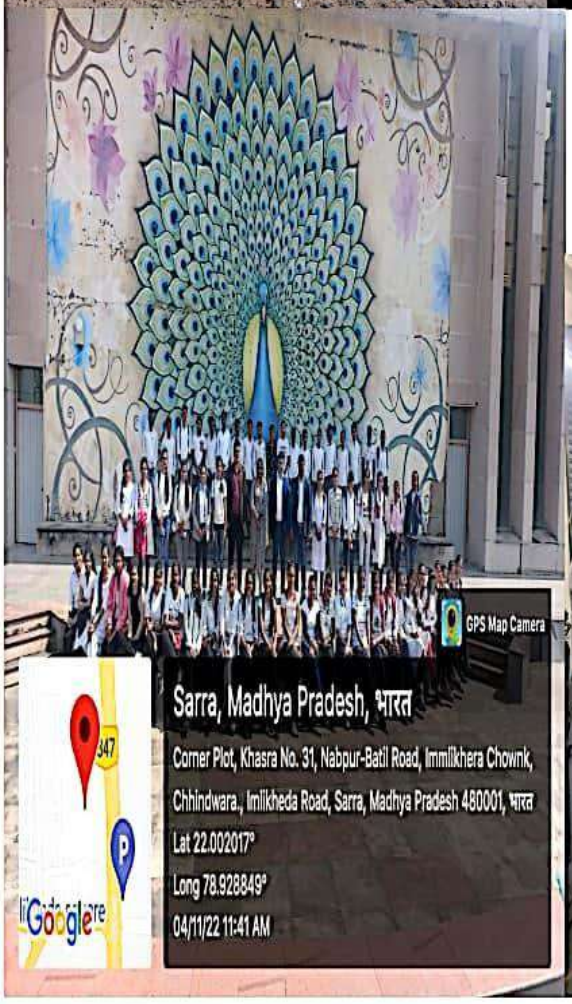
Principal JH Govt PG College
Betul, MP
08.09.2023 13:41:30





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Betul, MP
08.09.2023 13:41:30

यह भ्रमण विद्यार्थियों के लिय उपयोगी एवं ज्ञान वर्धक रहा जिससे उन्हें बहुत कुछ सीखने को मिला ।

टी.पी.ओ.
स्वामी विवेकानंद करियर मार्गदर्शन
ज.ह.शास.स्नातकोत्तर महाविद्यालय

Principal
J.H. Govt. P.G. College
Betul

दिनांक 03/11/2022

प्रति,

प्राचार्य

ज.हों. शासकीय स्नातकोत्तर महाविद्यालय बैतूल

विषय :- स्नातक एवं स्नातकोत्तर अंतिम वर्ष गणित विभाग के विद्यार्थियों के शैक्षणिक एवं औद्योगिक भ्रमण हेतू अनुमति बाबत्।

सन्दर्भ :- फुटवियर डिजाईन एंड डेवलपमेंट इंस्टिट्यूट का पत्र क्रमांक एफ.डी.डी. आई/सीएचएच/004 /निगमित एवं जनसंपर्क/2022-23/001 दिनांक 21/10/2022

महोदय,

उपरोक्त विषयान्तर्गत लेख है कि म.प्र. उच्च शिक्षा गुणवता उन्नयन परियोजना के अन्तर्गत अकादमिक उत्कृष्टता हेतु स्वामी विवेकानन्द कॅरियर मार्गदर्शन प्रकोष्ठ द्वारा गणित विभाग के स्नातक एवं स्नातकोत्तर अंतिम वर्ष के विद्यार्थियों को संदर्भित पत्र अनुसार दिनांक 04/11/2022 को एफ.डी.डी.आई एवं आदिवासी संग्रहालय छिन्दवाड़ा में औद्योगिक एवं शैक्षणिक भ्रमण के लिए ले जाने की अनुमति प्रदान करने का कष्ट करे। भ्रमण हेतु विद्यार्थियों एवं प्राध्यापकों की सूची संलग्न है। समस्त विद्यार्थियों से उनके पालकों द्वारा अनुमति घोषणा पत्र प्राप्त किया जा चुका है।

समय : 7AM – 7PM

संलग्न :-

1. विद्यार्थियों की सूची
2. प्राध्यापकों की सूची
3. संदर्भित पत्र

डॉ. खुशाल देवघरे
विभागाध्यक्ष गणित

डॉ.मनोज उघड़े 03/11/2022
स्वामी विवेकानन्द कॅरियर मार्गदर्शन प्रकोष्ठ

स्वामी विवेकानन्द कॅरियर मार्गदर्शन प्रकोष्ठ द्वारा म.प्र. उच्च शिक्षा उन्नयन परियोजना के अन्तर्गत
अकादमिक उत्कृष्टता हेतु गणित विभाग के विद्यार्थियों का औद्योगिक एवं शैक्षणिक भ्रमण

FDDI CHHINDWARA AND TRIBAL MUESEUM CHHINDWARA EDUCATION AND INDUSTRIAL TOUR

Date :- 04/11/2022

क्रमांक	विद्यार्थी का नाम	पिता का नाम	जेन्डर	संवर्ग	Mobile No.	कक्षा
1	दिव्यांशी लिल्होरे	कन्हैया लिल्होरे	Female	OBC	9753765427	B.Sc III Year
2	प्रियंका कंगाले	कोण्डया कंगाले	Female	ST	7067939745	B.Sc III Year
3	नीलम अहाके	शिवलाल अहाके	Female	ST	7000301922	B.Sc III Year
4	अक्षांश सूर्यवंशी	गणेश सूर्यवंशी	Male	OBC	7724873552	B.Sc III Year
5	कृतिका चौकीकर	दिनेश चौकीकर	Female	SC	7440283205	B.Sc III Year
6	राजश्री खातरकर	अशोक खातरकर	Female	SC	8871707847	B.Sc III Year
7	कुलदीप बिझाड़े	जगदीश बिझाड़े	Male	SC	9039608119	B.Sc III Year
8	मुकेश सुर्यवंशी	तेजीलाल सूर्यवंशी	Male	OBC	7415048823	B.Sc III Year
9	ईशिका सेम्बेकर	सुरेश सेम्बेकर	Female	OBC	7879571929	B.Sc III Year
10	मिताली राठौर	अशोक राठौर	Female	OBC	6262509276	B.Sc III Year
11	दिक्षा पवार	रमेश चन्दू पवार	Female	OBC	9770772342	B.Sc III Year
12	मंयक जैन	अनिल जैन	Male	GEN	7000548338	M.Sc IV Sem
13	राहुल	लक्ष्मण	Male	ST	9752522190	M.Sc IV Sem
14	अजित कास्दे	शिवदीन कास्दे	Male	ST	9165650715	M.Sc IV Sem
15	लोकेश पवार	दीनेश पवार	Male	OBC	7000290212	M.Sc IV Sem
16	दीपक गीद	विनायकराव गीद	Male	OBC	6260616370	M.Sc IV Sem
17	पंकज गीद	विनायकराव गीद	Male	OBC	8982504518	M.Sc IV Sem
18	विनिता मालवीया	जयंत मालवीया	Female	OBC	9770166225	M.Sc IV Sem
19	काजल पार्खे	अनिल पार्खे	Female	OBC	7909475492	M.Sc IV Sem
20	निकिता पवार	चैतराम पवार	Female	OBC	9516522064	M.Sc IV Sem
21	मेघा चढोकार	प्रभुराव चढोकार	Female	OBC	7089484134	M.Sc IV Sem
22	पूजा राठौर	प्रेमलाल राठौर	Female	OBC	9981098992	M.Sc IV Sem
23	लीना देशमुख	धनराज देशमुख	Female	OBC	9770461608	M.Sc IV Sem
24	हर्षिता भुमरकर	अनिल कुमार भुमरकर	Female	SC	9111569943	M.Sc IV Sem
25	दीप्ति नादुरकर	महादेव नादुरकर	Female	OBC	9669523724	M.Sc IV Sem
26	साक्षी मिश्रा	सुरेश मिश्रा	Female	GEN	6261552905	B.Sc III Year
27	मेघा साहू	मदनलाल साहू	Female	OBC	7773050910	B.Sc III Year
28	योगेश सातनकर	गँदराव सातनकर	Male	OBC	8349486063	M.Sc I Sem
29	मोहित भरतपुरे	कैलाश भरतपुरे	Male	OBC	8305112965	M.Sc I Sem
30	निखिल म्होरे	अरूण म्होरे	Male	GEN	9399260209	M.Sc I Sem
31	अंजली नायक	शिवगोपाल नायक	Female	OBC	8253040041	M.Sc I Sem
32	शीतल सातपुते	रमेश सातपुते	Female	OBC	7805868683	M.Sc I Sem
33	अरुणा धुर्वे	हिम्मत धुर्वे	Female	ST	7223953404	M.Sc I Sem
34	मोनिका धुर्वे	सीताराम धुर्वे	Female	ST	6260601190	M.Sc I Sem
35	हरिश कहार	देवराज कहार	Male	OBC	9981213794	M.Sc I Sem
36	दीक्षिता वारस्कर	राजु वारस्कर	Female	OBC	7692089386	M.Sc I Sem
37	गरिमा वारपेटे	जगपाल वारपेटे	Female	OBC	7470632022	M.Sc I Sem
38	खुशी पाण्डे	गंगाराम पाण्डे	Female	OBC	7649895207	B.Sc II Year
39	दिव्या वाड़बुदे	मनिष वाड़बुदे	Female	OBC	9329809082	M.Sc I Sem
40	ओमप्रकाश साँहू	देवराव साँहू	Male	OBC	6268464953	B.Sc II Year
41	मीनाक्षी साँहू	मनोहर साँहू	Female	OBC	9302505864	B.Sc I Year
42	दीपिका वागद्रे	दीवाकर वागद्रे	Female	OBC	6263295616	B.Sc II Year
43	साक्षी पुन्डे	दिनेश पुन्डे	Female	OBC	6266423664	B.Sc II Year
44	हेमलता पुन्डे	ख्यालीराम पुन्डे	Female	OBC	9424813005	B.Sc II Year
45	उज्जवल साँहू	हनुमंत साहू	Male	OBC	8085063980	M.Sc I Sem

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46	स्वाती देशमुख	प्रभु देशमुख	Female	OBC	6262306582	M.Sc I Sem
47	श्रेजल सिसोदिया	लखकुश सिंह सिसोदिया	Female	GEN	7898928616	B.Sc III Year
48	[illegible]	[illegible]	Male	Gen	7223873956	M.Sc I Sem
49	नेहा ठाकरे	गणेश ठाकरे	Female	OBC	7489686217	B.Sc II Year
50	दिक्षा डैगे	साहेबराव डैगे	Female	OBC	8305050915	B.Sc II Year
51	वैदिका पवार	सुनिल पवार	Female	OBC	7225093759	B.Sc II Year
52	चित्रांशी पवार	दीनदयाल पवार	Female	OBC	7240974979	B.Sc III Year
53	करिष्मा कुशवाह	धर्मेन्द्र कुशवाह	Female	GEN	9098152112	B.Sc III Year
54	ज्योति सालकर	बाबूराव सालकर	Female	OBC	7582812015	M.Sc I Sem
55	नेहा साहू	यशवंत साहू	Female	OBC	7974629574	M.Sc I Sem
56	मोहित श्रीवास्तव	मनोज श्रीवास्तव	Male	GEN	7566478297	M.Sc I Sem
57	निकिता साहू	प्रेमचन्द साहू	Female	OBC	8815642430	M.Sc I Sem
58	नेहा खाडे	तिलकण्ठ खाडे	Female	OBC	6260616681	M.Sc I Sem
59	महिमा देशमुख	दिनेश देशमुख	Female	OBC	7879311341	B.Sc III Year
60	निलेश उयके	रामभजन उयके	Male	ST	7067651165	B.Sc II Year

प्राध्यापकों की सूची

1 डॉ. खुशाल दवघरे
2 डॉ. मनोज उघडे
3 डॉ. चन्द्रशेखर मेश्राम
4 डॉ. रीतू साहू
5 डॉ. सोनाली सैनी साहू

प्राचार्य
शा.ज.ह.स्नातकोत्तर महाविद्यालय बैतूल

04/11/2022
टी.पी.ओ.
स्वामी विवेकानंद करियर मार्गदर्शन प्रकोष्ठ
शा.ह.शास.स्नातकोत्तर महाविद्यालय, बैतूल

पुरोवाक्कानुसार संग्रहालय में विद्यार्थियों एवं प्राध्यापकों द्वारा भ्रमण किया गया।

04/11/22
अनुसंधान अधिकारी
डी.बादलभोई राज्य आदिवासी संग्रहालय, छिन्दवाडा (म.प्र.)

Permission Letter from Footwear Design and Development Institute, Chhindwara

FDDI

फुटवियर डिजाईन एंड डेवलपमेंट इंस्टिट्यूट

(एफ. डी. डी. आई. अधिनियम 2017 के अंतर्गत , राष्ट्रिय महत्व का संस्थान)

वाणिज्य एवं उद्योग मंत्रालय, भारत सरकार

इमलीखेडा चौक , नागपुर रोड , छिंदवाडा (म.प्र.) 480001

दिनांक : 21/10/2022

क्रमांक एफ.डी.डी.आई/सी.एच.एच/004/निगमित एवं जनसंपर्क/2022-23/००2

प्रति,

श्रीमान प्राचार्य
ज.हा.शा.पी.जी. महाविध्यालय
बैतूल

विषय : स्नातक एवं स्नातकोत्तर अंतिम वर्ष गणित विभाग के विध्यार्थियों के शैक्षणिक एवं औद्योगिक भ्रमण के लिए स्वीकृति पत्र बाबत् ।

सन्दर्भ : पत्र क्र 1409/गणित/2022

उपरोक्त विषयान्तर्गत एवं आपके पत्र क्र 1409/गणित/2022 लेख है की आपके यहाँ के विध्यार्थियों के शैक्षणिक एवं औद्योगिक भ्रमण कार्यक्रम को स्वीकृति प्रदान कि गई है , हमारे संस्थान में आपका भ्रमण कार्यक्रम निम्नुसार है ।

क्र	कार्यक्रम विवरण	समय अवधि
i)	करियर गाइडेंस कार्यशाला	1 घंटा
ii)	रिटेल मैनेजमेंट परिसर भ्रमण	½ घंटा
iii)	फुटवियर वर्कशॉप परिसर भ्रमण	½ घंटा
iv)	फैशन डिजाईन वर्कशॉप परिसर भ्रमण	½ घंटा

प्रदीप मंडल

केंद्र प्रभारी एवं विभाग प्रमुख--फैशन डिजाईन
एफ.डी.डी.आई - छिन्दवाड़ा

फुटवियर डिजाईन एंड डेवलपमेंट इंस्टिट्यूट

(एफ. डी. डी. आई. अधिनियम 2017 के अंतर्गत , राष्ट्रिय महत्व का संस्थान)
वाणिज्य एवं उद्योग मंत्रालय, भारत सरकार
इमलीखेडा चौक , नागपुर रोड , छिंदवाडा (म.प्र.) 480001

दिनांक : 4/11/2022

क्रमांक एफ.डी.डी.आई/सी.एच.एच/004/निगमित एवं जनसंपर्क/पत्राचार/003/2022-23

प्रति,

श्रीमान प्राचार्य
ज.हा.शा.पी.जी. महाविध्यालय
बैतूल

विषय : एफ डी डी आई छिंदवाडा परिसर में ज.हा.शा.पी.जी. महाविध्यालय स्नातक एवं स्नातकोत्तर अंतिम वर्ष गणित विभाग के विध्यार्थियों के शैक्षणिक एवं औद्योगिक भ्रमण किया गया बाबत् ।

सन्दर्भ : पत्र क्र 1409/गणित/2022 ,
हमारे एफ.डी.डी.आई/सी.एच.एच/004/निगमित एवं जनसंपर्क/पत्राचार/002/2022-23

उपरोक्त विषयान्तर्गत लेख है की आज दि 4/11/22 आपके यहाँ के विध्यार्थियों के शैक्षणिक एवं औद्योगिक भ्रमण कार्यक्रम एफ डी डी आई छिंदवाडा परिसर में संपन्न हुआ , जिसके अंतर्गत हमारे संस्थान में निगमित एवं जनसंपर्क विभाग से श्री जागृत सदारंग (सहायक प्रबंधक) एवं श्री मनोज कु शर्मा (सहायक प्रबंधक) द्वारा करियर गाइडेंस कार्यशाला एवं शैक्षणिक एवं औद्योगिक भ्रमण संपन्न किया गया। विद्यार्थियों की सूची सलग्न है

क्र	कार्यक्रम विवरण	शैक्षणिक भ्रमण
i)	करियर गाइडेंस कार्यशाला	व्याख्यान कक्ष, लैब, ऑडिटोरियम, विभिन्न खेलपरिसर
ii)	रिटेल मैनेजमेंट परिसर भ्रमण	विसुअल मर्चेंडाइजिंग,लाइब्रेरी,कंप्यूटर लैब, प्रशासनिक भवन
iii)	फुटवियर वर्कशॉप परिसर भ्रमण	डिजाइनिंग लैब, कत्तिंग,क्लोजिंग,कॉम्पोनेन्ट व लास्टिंग लैब
iv)	फैशन डिजाईन वर्कशॉप परिसर भ्रमण	फैशन स्टूडियो,गारमेंटकंस्ट्रक्शन लैब

प्रदीप महत
केंद्र प्रभारी एवं विभाग प्रमुख -फैशन डिजाईन
एफ.डी.डी.आई - छिन्दवाड़ा

List of Students Visited

FDDI Attendance Sheet

Venue: FDDI - CAMPUS

4/11/22 Date (1)

S.No.	Name Of Student	Education	Parent occupation	Category	Address	Contact No.	Sign
1	Khushi Pande	BSc II	Agriculture	OBC	Ranipur, Betul (M.P.)	7649895207	Khushi
2.	Vedika Pawar	BSc II	Agriculture	OBC	Rondha, Betul (M.P.)	7225093759	Vedika
3.	Harshita Dhumarkar	MSC II	Govt. Servant	SC	Sadar, Betul (M.P.)	9111569943	[illegible]
4.	Vinita Malviya	MSC II	Business	OBC	Ganj, Betul (M.P.)	9770166225	Vinita
5.	Shakshi Pande	B.Sc II	farmer	OBC	Badora Betul (M.P.)	6266423664	[illegible]
6.	Hemlata Pande	B.Sc II	farmer	OBC	Badora Betul (M.P.)	9424813005	Hemlata
7.	Nikita Pawar	MSc. IV sem.	Businessman	OBC	Sadar, Betul (M.P.)	9516522064	[illegible]
8.	Neha khade	M.Sc. I st sem	Agriculture	OBC	Paradsingh Multai (M.P.)	6260616681	Neha
9.	Garima Barpete	M.Sc. 1st sem	farmer	OBC	Kalgaon Betul (M.P.)	7470632022	Barpete
10.	Nikita Sahu	M.Sc. I st sem	farmer	OBC	At. Post Paradsinga Multai	8815642430	Nikita
11	Minakshi Sahu	BSc 2nd year	farmer	OBC	At Badgaon Po. Bisnoor Betul	9302505864	minakshi
12	Divya Wadbude	BSc 2nd year	farmer	OBC	At Bisnoor bazar Teh. Multai	9329809088	Divya
13	Kajal Parkhe	MSc 2nd sem	Contractor	OBC	At. In front of OilMill	7909475492	Kajal
14	Anjali Nayak	MSc I st sem	farmer	OBC	Arjun ward Kalapatha Betul	8253040041	Nayak
15	Sheetal Satpute	MSc I st sem	farmer	OBC.	Gram Mikanpur Betul	7805868683	Sheetal
16	Neha Sahu	MSc I st sem	Govt. Job	OBC	Shastri ward sadar Betul	7974629574	Sahu
17	Karishma Kushwah	BSc III rd year	Farming	Gen	Badora, Betul (MP.)	9098152112	Karishma
18	Aruna Dhurve	MSc I st sem	~~[illegible]~~ Farmer	ST	Junawani Betul (MP)	7223953404	Aruna
19	Deepti Nandurkar	MSc. 4 sem	Business	OBC	Civil line Betul (MP)	9669523724	Deepti
20	Chitranshi Pawar	B.Sc. 3rd year	Farmer	OBC	Kalapatha, Betul	7240974979	Chi
21	Kratika Chouhikar	BSc 3rd year	Farmer	SC	Yenus (Betul)	7440287205	Kratika
22	Mahima Deshmukh	BSc (CS) III year	Farmer	OBC	Kalapatha (Betul)	7879311341	Mahima
23	Swati Deshmukh	MSc I sem	Farmer	OBC	Taholi (Betul)	6262306580	Swati
24	SAKSHI MISHRA	BSc (CS) III	Govt. Teacher	GNR	Mishra colony Bhourai	6261552905	Sakshi
25	MEGHA SAHU	BSc (CS) III y	Govt servent	OBC	Diwan colony Betul	7773050910	M.Sahu
26	Rajshree Khatarkar	BSc III Y	Farmer	SC	Sasundra (Betul)	8871707847	Rajshree
27.	Diksha Pawar	BSC III y	Govt. servent	OBC	Betul Bazar, Betul (MP)	9770772342	Diksha
28	Divyanshi Lilhore	BSC III Y	Farmer	OBC	Betul	9753765427	Divyanshi
29	Priyanka Kargale	BSC III year	Farmer	ST	Baghoda multai (Betul)	7879339745	Priyanka

Signature Not Verified

RAKESH KUMAR TIWARI
e verified
Principal JH Govt. PG College
Betul, MP
08.09.2023 13:41:30

FDDI Attendance Sheet

Venue: FDDI · Chhindwara — 4/11/22 Date (8)

S.No.	Name Of Student	Education	Parent occupation	Category	Address	Contact No.	Sign
01	HARISH KAHAR	M.Sc 1sem	TEACHER	OBC	AT-Khajri, Teh-Amla Betul	9981213794	
02	AJEET KASDE	M.Sc I sem	FARMAR	ST	AT+POST-CHICHLI RAKKA	9165650715	
03	OMPRAKASHSAHU	BSc II year	FARMAR	OBC	AT+ POST BIHARGOAN	8268769953	
04	NIKIL MAHORE	MSc I sem	TEACHER	GEN	AT+POST-Borgaon (seen)	9399260209	
05	MOHIT BHARATPURE	M.Sc I sem	Businessmen	OBC	AT+ ATHNER	8305112965	
06	Kuldeep Binjhade	BSC III rd	Building word	SC	Khanjanpur Betul	9039608119	
07	Rahul	M.Sc IV sem	Farmer	ST	AT- Jatanpur Betul	9752522190	
08	Ujjwal Sahu	M.Sc I sem	teacher	OBC	Betul	8085063980	
09	Akshansh Suryawanshi	Bsc-III rd	Farmer	OBC	Betul - Saikhandara	7724873552	
10	MOHIT SHRIVASTAVA	M.Sc. I st	Teacher	GEN	Multai	7566478897	
11	Pankaj Geed.	M.Sc I sem	Farmer	OBC	At Hamlapur Betul	9993250458	
12	MUKESH Suryavanshi	BSc III	Business man	OBC	Green City. Betul	7415048823	
13	Yogesh Satankar	MSc I sem	Farmer	OBC	TAPTI JHERA ROAD ATHNER	8349486063	
14	Karan Singh Tomar	M.Sc. 1st sem	Ex-servicemen	Gen	Ambedkar ward Multai	7223878956	
15	Megha chadokar	M.Sc IV sem	farmer	OBC	Desh Bandhu ward Betul	7089484134	
16	Leena Deshmukh	M.Sc III sem	Farmer	OBC	AT- Danora post - Jeen	9770461608	Leena
17	Pooja Rathore	M.Sc. IV sem	Farmer	OBC	AT- Post - Masod	9981098992	
18	Jaishri Sahu	BSc III rd	Farmer	OBC	Chilkapur Gudgaon Bhimpur	7723871518	
19	Neha Thakre	Bsc II	farmer	OBC	At - Tirmahoo	7489686217	Neha
20	Sajjan chouhan	BSc II	Private Job (M.Hold)	GEN	Betul.	7089828540	
21	Monika Dhurve	MSc I sem	farmer	ST	AT-Ratanpur Post Ranipur Betul	6260604490	
22	Jyoti Mankar	MSc. I sem	Farmer	OBC	AT-LIHADA Post Pouni	7582612015	
23	Dikshita Banoskar	MSc 1 sem	Farmer	OBC	Multai	7692089386	
24	Deepak Geed	MSc IV sem	Farmer	OBC	Betul, [M.P]	6260626310	
25	Lokesh Pawar	MSc IV sem	marketing	OBC	Betul [M.P.]	7000290212	
26	mayank Jain	MSc IV sem	marketing	GEN	Betul [M.P.]	7000548338	Mayank
27	Nilesh uikey	B.Sc. II year	farmer	ST	Betul (m.P)	7067651165	
28	Sumit marskole	MSc I sem	farmer	ST	AT- Kachlora Dist. Betul	9399817308	

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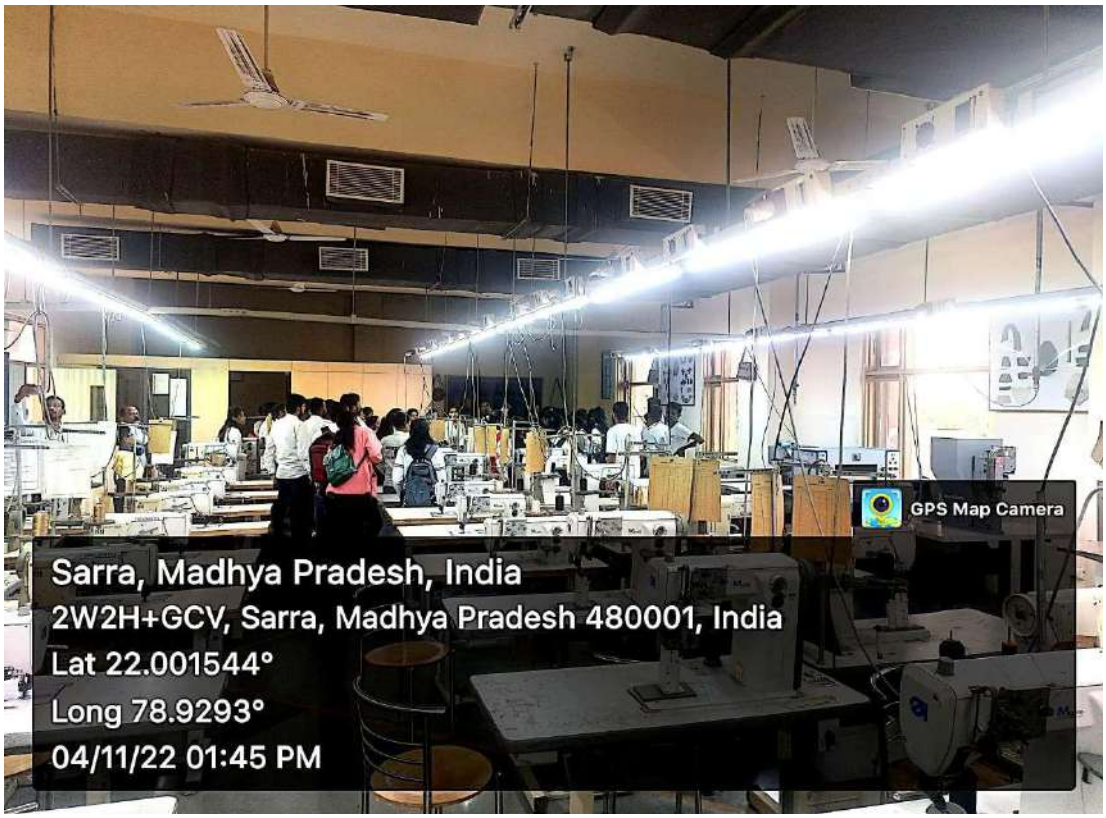

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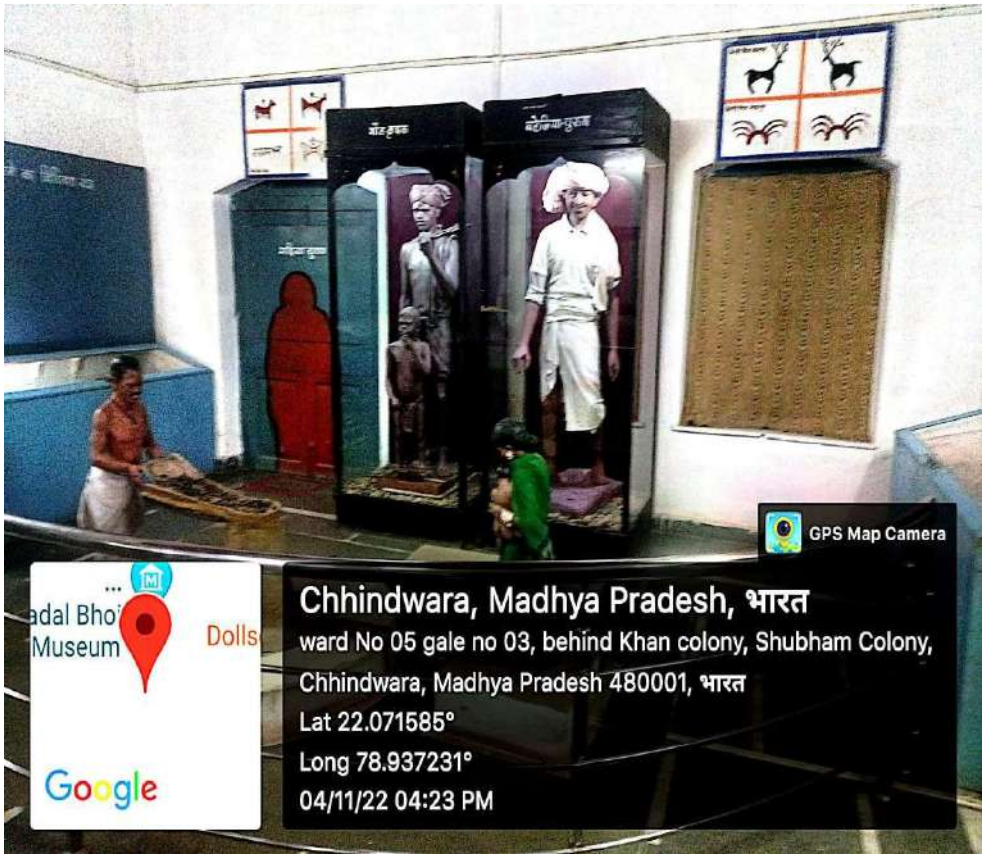

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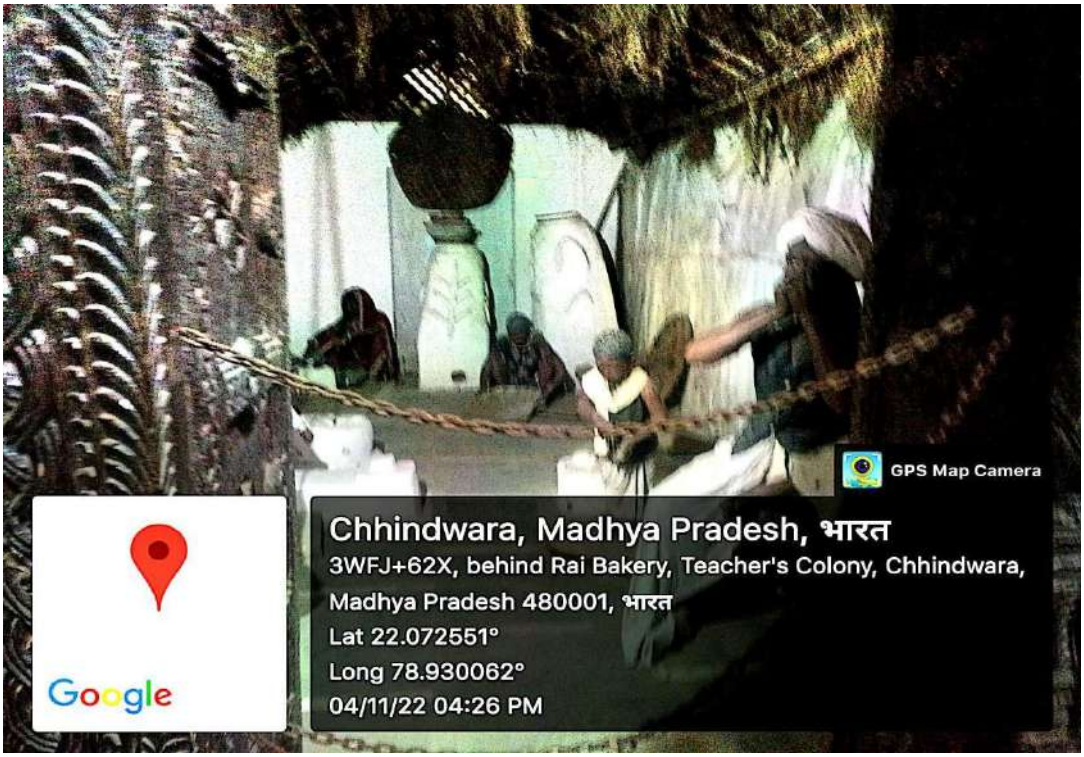

कार्यालय प्राचार्य, जयवन्ती हॉक्सर शासकीय स्नातकोत्तर महाविद्यालय बैतूल (म.प्र.) 460001

दुरभाष क्र. - 07141-234244 फैक्स नम्बर 07141-234566 E-mail : hegihpgcbet@mp.gov.in

आज़ादी का अमृत महोत्सव

दिनॉक 01/11/2022

गणित विभाग द्वारा

FDDI CHHINDWARA EDUCATION AND INDUSTRIAL TOUR

Date: - 04/11/2022

विद्यार्थी का नाम :- प्रियंका कुंगाले

पिता का नाम :- श्री कोण्डया कुंगाले

मोबाईल नम्बर :- 7067939745

कक्षा :- BSC III year (Maths)

नामांकन नम्बर R201033101000l0

जेन्डर : Male Female ✓

संवर्ग : GEN OBC ST ✓ SC

पालक का घोषणा पत्र

मैं कोण्डया कुंगाले मेरे पुत्र / मेरी पुत्री प्रियंका कुंगाले को एफडीडीआई छिन्दवाड़ा में औद्योगिक एवं शैक्षणिक भ्रमण की सहमति प्रदान करता हूँ।

कोण्डया

पालक के हस्ताक्षर

मोबाईल नम्बर

9977738750

प्रा. नि.अधि.

स्वामी विवेकानंद करियर मार्गदर्शन प्रकोष्ठ

ज.ह.शास.स्नातकोत्तर महाविद्यालय, बैतूल

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दुरभाष क्र. - 07141-234244 फैक्स नम्बर 07141-234566 E-mail : hegihpgcbet@mp.gov.in

आज़ादी का अमृत महोत्सव

दिनाँक 02/11/2022

गणित विभाग द्वारा

FDDI CHHINDWARA EDUCATION AND INDUSTRIAL TOUR

Date: - 04/11/2022

विद्यार्थी का नाम :- करण सिंह तोमर

पिता का नाम :- अमर सिंह राजपूत

मोबाईल नम्बर :- 7223878956

कक्षा :- M.Sc. First semester Maths

नामांकन नम्बर

जेन्डर : ✓Male Female

संवर्ग : ✓GEN OBC ST SC

पालक का घोषणा पत्र

मैं श्री अमर सिंह राजपूत मेरे पुत्र / मेरी पुत्री करण सिंह तोमर को एफडीडीआई छिन्दवाडा में औद्योगिक एवं शैक्षणिक भ्रमण की सहमति प्रदान करता हूँ।

Rajput

पालक के हस्ताक्षर

मोबाईल नम्बर

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टी.पी.ओ.
स्वामी विवेकानंद करियर मार्गदर्शन प्रकोष्ठ
ज.ह.शास.स्नातकोत्तर महाविद्यालय,बैतूल

कार्यालय प्राचार्य, जयवन्ती हॉक्सर शासकीय स्नातकोत्तर महाविद्यालय बैतूल (म.प्र.) 460001

दुरभाष क. - 07141-234244 फैक्स नम्बर 07141-234566 E-mail : hegihsgcbet@mp.gov.in

आज़ादी का अमृत महोत्सव

दिनांक 01/11/2022

गणित विभाग द्वारा

FDDI CHHINDWARA EDUCATION AND INDUSTRIAL TOUR

Date: - 04/11/2022

विद्यार्थी का नाम :- .....नीलम अहिरे.....

पिता का नाम :- .....शिवलाल अहिरे.....

मोबाईल नम्बर :- .....7000301922.....

कक्षा :- ....B.Sc. 3rd year (Maths).....

नामांकन नम्बर R201033101000008

जेन्डर : Male Female

संवर्ग : GEN OBC ST SC

पालक का घोषणा पत्र

मैं.....शिवलाल अहिरे..... मेरे पुत्र / मेरी पुत्री .....नीलम अहिरे..... को एफडीडीआई छिन्दवाडा में औद्योगिक एवं शैक्षणिक भ्रमण की सहमति प्रदान करता हूँ।

शिवलाल

पालक के हस्ताक्षर

मोबाईल नम्बर 9109023971

डी.पी.ओ.
स्वामी विवेकानंद करियर मार्गदर्शन प्रकोष्ठ
ज.ह.शास.स्नातकोत्तर महाविद्यालय, बैतूल

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