

Key Indicator 3.5- Collaboration

METRIC NO.:-3.5.1.

Number of functional MoUs with institutions/ industries in India and abroad for internship, on-the-job training, project work, student / faculty exchange and collaborative research during the last five years

ACADEMIC YEAR 2022-2017

S. N	Name of MOU	Name of the institution / industry with whom the MoU / with contact details	Purpose of the MoU(internship, on-the-job training, project work, student / faculty exchange and collaborative research)	Duration of MoU	List the actual activities under each MOU	Page No.
AY 2021-22						
1	Industry MOU	Pharmaregtech Pvt Ltd (Educare Globus), Butibori, Nagpur	Internship	4 years	Industrial Training given to B. Pharm students	MOU 1-5 Activity 6-13
2	Industry MOU	Kusum Life Sciences, Hingoli	Project work	5 years	Preclinical studies	MOU 14-18 Activity 19-22
AY 2019-20						
3	Academic MOU	Gurunanak College of Pharmacy, Nagpur	Collaborative research	5 years	i) Collaborative research and publication of research papers in journal with high impact factor ii) Participation of PJLCP faculty (S.K Shah) as resource person in GNCP for Hands on training program on "Application of Computational Techniques in Drug Design and Development"	MOU 23-27 Activity 28-32

4	Academic MOU	Swargiya Dadasaheb Kalmegh Smruti Dental College & Hospital, Nagpur	Collaborative research	5 years	i) Collaborative research and paper publication ii) Collaborative research in formulation development	MOU 33-35
						Activity 36-37
5	Academic MOU	Bhausahab Mulak Ayurved Mahavidyalaya and Medical Science and Research Hospital, Nagpur	Project work	5 years	Project Preclinical studies	MOU 38-39
						Activity 40-41
AY 2018-19						
6	Organizational MOU	Paryavaran Pratham	Collaborative Awareness programs	3 years and renewed	Awareness programs	MOU 42-44
						Activity 45-46
7	Industry MOU	Mayon's Pharmaceuticals Nagpur	Project work	5 years	PG project training and field visit	MOU 47-53
						Activity 54
8	Industry MOU	Deepti Pharmaceuticals	Collaborative research and training	5 years	PG project training, Internship and field visit	MOU 55-57
						Activity 58
AY 2017-18						
9	Industry MOU	ZIM Laboratories Kalmeshwar	Internship, Project work	3 years	UG in-plant training from 1/6/18 - 25/8/18, 3/6/18 - 2/7/18, 17/5/19 -16/6/19. 20/5/19 - 20/6/19, PG project training in 2019	MOU 59-68
						Activity 69-73
10	Academic MOU	Datta Meghe Institute of Medical Sciences, Wardha	Collaborative research	3 years and renewed in 2020-21	Collaborative research for HPTLC, Collaborative research and paper publication	MOU 74-77
						Activity 78-81

Sign of Principal

PROOFS OF 2022-2017

*Priyadarshini J. I. College of Pharmacy, Nagpur, Maharashtra, India
Certified Document from page No.1 to 81*

MEMORANDUM OF UNDERSTANDING

BETWEEN



PHARMAREGTECH PRIVATE LIMITED

AND



PRIYADARSHINI J. L. COLLEGE OF PHARMACY, NAGPUR

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (hereinafter referred to as the "MOU") executed this 09 day of August 2021 between the Pharmaregtech Private Limited (Business Name EducareGlobus) and the Priyadarshini J. L. College of Pharmacy, Nagpur.

Both institutions desire to establish relations in Advanced learning of Pharmaceutical core subjects, Industrial training, and placement assistance.

NOW, therefore, the two parties have agreed to cooperate as follows: -

AREAS OF COLLABORATION

To conduct Industry-focused job-oriented workshops (Introductory level and Advanced level) and Industrial training

- i) Joint teaching arrangements for undergraduate and postgraduate programmes
- ii) Joint supervision of undergraduate and postgraduate projects
- iii) Assistance in Industrial placement
- iv) Mentoring, counselling and 1-2-1 session with experts on career-related topics
- v) Help and advice on overseas placement and education
- vi) Conducting mock interviews
- vii) Personality development, Expert CV writing and Interview skills

MUTUAL OBLIGATIONS

1. The overall Memorandum does not entail any obligation for the two parties to fund any travels. Both parties will facilitate practical arrangements related to training/study visits from the collaborating institution, including office accommodation and necessary administrative functions to carry out programme objectives.
2. As a general rule, the title and custody of any training material acquired in the course of the collaboration shall remain with EducareGlobus upon the expiry of that particular project as specified in individual 'agreements of collaboration'.
3. Both institutions shall abide by current country guidelines on business practice and ethics concerning all activities.
4. Both institutions will decide the cost of the training programme and such terms as shall be mutually agreed upon from time to time.

MANAGEMENT OF THE COLLABORATION

Each institution shall designate a coordinator to develop and coordinate the program activities.

The initial coordinator is Swati Patil for the EducareGlobus and Dr. Vijay D. Gulkari for Priyadarshini J. L. College of Pharmacy. Notification of change or successor shall be in writing to the other party.

INTELLECTUAL PROPERTY RIGHTS

EducareGlobus will hold all training material IP rights.

DURATION OF THE MEMORANDUM

This Memorandum of Understanding shall come into effect from the date of execution and shall remain in probably for four years.

IMPLEMENTATION

All laws, rules and regulations issued by all parties shall be strictly observed at all times.

FORCE MAJEURE

Either party shall promptly notify the other party, in writing, of any situation or event arising from circumstances beyond their control, which they could not have reasonably foreseen, and which make the performance of all or part of the parties obligations under this contract impossible. Upon notification of the occurrence of such a situation or event, the performance of this contract shall be deemed to be postponed for a period of time equivalent to that caused by the Probably Majeure, and a reasonable period not exceeding one (1) week thereafter shall be allowed for remobilisation to continue the performance of the contract.

REVIEW AND AMENDMENTS

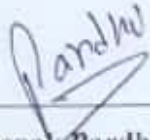
The Memorandum may be amended or revised if both parties agree. Such amendments or revisions shall be effective from the date of signature. Amendments may be decided at any time and shall be made in writing upon mutual consent of the parties.

TERMINATION OF MEMORANDUM

The Memorandum of Understanding may be terminated with immediate effect by mutual agreement between the parties or by either party giving the other not less than six (6) months notice in writing.

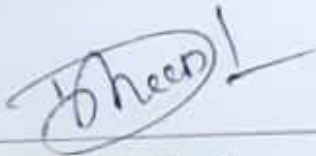
The Parties hereto have executed this Memorandum of Understanding on 09th August 2021

SIGNED for and on behalf of the PHARMAREGTECH PRIVATE LIMITED:



Mr. Deepak Pardhi
CEO PHARMAREGTECH
Pharmaeducare Private Limited, UK

SIGNED for and on behalf of the Priyadarshini J. L. College of Pharmacy, Nagpur



Dr. Dinesh R. Chaple
Principal
Priyadarshini J. L. College of Pharmacy, Nagpur



CERTIFICATE OF TRAINING



THIS IS TO CERTIFY THAT

Anuradha Dhokspande

Has Successfully Completed The Pharmaceutical Industrial Training Program Conducted By **Educareglobus** In Collaboration With Sunshine Consultancy London Ltd.

SUNSHINE CONSULTANCY
REGULATORY . COMPLIANCE . QUALITY . SAFETY



Deepa
CEO Sunshine Consultancy London Ltd
and
CEO Pharmaregtech Private Limited.



SUNSHINE CONSULTANCY COMPANY NUMBER: 08585883 & PHARMAREGTECH PRIVATE LIMITED REG NUMBER: C-199-MH-021PTC355263



EDUCARE
GLOBUS

CERTIFICATE OF TRAINING



THIS IS TO CERTIFY THAT

Bhakti Tapas

Has Successfully Completed The Pharmaceutical Industrial Training Program Conducted By **Educareglobus** In Collaboration With Sunshine Consultancy London Ltd.

SUNSHINE CONSULTANCY
REGULATORY · COMPLIANCE · QUALITY · SAFETY



Bhakti Tapas
CEO Sunshine Consultancy London Ltd
CEO Pharmaregtech Private limited.

SUNSHINE CONSULTANCY COMPANY NUMBER: 08585883 & PHARMAREGTECH PRIVATE LIMITED REG NUMBER: U74999MH2021PTC355263



CERTIFICATE OF TRAINING



THIS IS TO CERTIFY THAT

Bhushan Bisen

Has Successfully Completed The Pharmaceutical Industrial Training Program Conducted By **Educareglobus** In Collaboration With Sunshine Consultancy London Ltd.

SUNSHINE CONSULTANCY
REGULATORY · COMPLIANCE · QUALITY · SAFETY



[Signature]
CEO Sunshine consultancy London Ltd
and
CEO Pharmaregtech Private limited.

SUNSHINE CONSULTANCY COMPANY NUMBER: 08585883 & PHARMAREGTECH PRIVATE LIMITED REG NUMBER: U74999MH2021PTC355263



CERTIFICATE OF TRAINING



THIS IS TO CERTIFY THAT

Nikita Shukla

Has Successfully Completed The Pharmaceutical Industrial Training Program Conducted By **Educareglobus** In Collaboration With Sunshine Consultancy London Ltd.

SUNSHINE CONSULTANCY
REGULATORY · COMPLIANCE · QUALITY · SAFETY



Deepak Paulhu
CEO Sunshine Consultancy London Ltd
and
CEO PharmaRegtech Private limited.

SUNSHINE CONSULTANCY COMPANY NUMBER: 08585883 & PHARMAREGTECH PRIVATE LIMITED REG NUMBER: U74999MH2021PTC355263



CERTIFICATE OF TRAINING



THIS IS TO CERTIFY THAT

Pritam Utture

Has Successfully Completed The Pharmaceutical Industrial Training Program Conducted By **Educareglobus** In Collaboration With Sunshine Consultancy London Ltd.

SUNSHINE CONSULTANCY
REGULATORY . COMPLIANCE . QUALITY . SAFETY



Deepak Parth
CEO Sunshine consultancy London Ltd
and
CEO PharmaRegtech Private limited.



SUNSHINE CONSULTANCY COMPANY NUMBER: 08585883 & PHARMAREGTECH PRIVATE LIMITED REG NUMBER: U74999MH2021PTC355263



CERTIFICATE OF TRAINING



THIS IS TO CERTIFY THAT

Priya Yelore

Has Successfully Completed The Pharmaceutical Industrial Training Program Conducted By **Educareglobus** In Collaboration With Sunshine Consultancy London Ltd.

SUNSHINE CONSULTANCY
REGULATORY · COMPLIANCE · QUALITY · SAFETY



Devi Prasad
CEO Sunshine consultancy London Ltd
and
CEO Pharmaregtech Private limited.

SUNSHINE CONSULTANCY COMPANY NUMBER: 08585883 & PHARMAREGTECH PRIVATE LIMITED REG NUMBER: U-54002MH2021PTC355263



CERTIFICATE OF TRAINING



THIS IS TO CERTIFY THAT

Raksha Taori

Has Successfully Completed The Pharmaceutical Industrial Training Program Conducted By **Educareglobus** In Collaboration With Sunshine Consultancy London Ltd.

SUNSHINE CONSULTANCY
REGULATORY · COMPLIANCE · QUALITY · SAFETY



Deepti Kulkarni
CEO Sunshine consultancy London Ltd
and
CEO PharmaRegtech Private limited.

SUNSHINE CONSULTANCY COMPANY NUMBER: 08585883 & PHARMAREGTECH PRIVATE LIMITED REG NUMBER: U74555MH2021PTC355263



CERTIFICATE OF TRAINING



THIS IS TO CERTIFY THAT

Sakshi Bhandekar

Has Successfully Completed The Pharmaceutical Industrial Training Program Conducted By **Educareglobus** In Collaboration With Sunshine Consultancy London Ltd.

SUNSHINE CONSULTANCY
REGULATORY COMPLIANCE QUALITY SAFETY



Deepak Paulhi

CEO Sunshine consultancy London Ltd
and
CEO PharmaRegtech Private limited.

SUNSHINE CONSULTANCY COMPANY NUMBER: 08585883 & PHARMAREGTECH PRIVATE LIMITED REG NUMBER: U74999MH2021PTC355263

MEMORANDUM OF UNDERSTANDING

On
Collaborative Research
BETWEEN



Kusum Life Sciences

A13, MIDC, Wasmat,
District: Hingoli – 431512

AND



PRIYADARSHINI J. L. COLLEGE OF PHARMACY

Electronic Zone Building, M. I. D. C., Hingna Road,
Nagpur- 4420016, Maharashtra, India

On
19th May 2022

MEMORANDUM OF UNDERSTANDING

THIS MEMORANDUM OF UNDERSTANDING IS MADE AT NAGPUR ON THIS 19th DAY OF MAY IN THE YEAR 2022

BETWEEN

Kusum Life Sciences

A13, MIDC, Wasmat,

District: Hingoli - 431512

and

Lokmanya Tilak Jankalyan Shikshan Sanstha's

Priyadarshini J. L. College of Pharmacy,

Electronic Zone Building, MIDC, Hingna Road, Nagpur- 440016 (M. S)

MEMORANDUM OF UNDERSTANDING

Kusum Life Science, being reputed company hereinafter referred as the **FIRST PARTY** (which term unless the context otherwise requires shall include its representative, successors or assignees of first party)

And

Lokmanya Tilak Jankalyan Shikshan Sanstha's, Priyadarshini J. L. College of Pharmacy, Nagpur- 440016 (M. S.) hereinafter referred as the **SECOND PARTY** (which term unless the context otherwise requires shall include its representative successors or assignees of second party).

PREAMBLE:

a) **Kusum Lifescience**, Sahyog Chamber, shri Nagar Naded 431602, Maharashtra, A Kusum Life science is a Preclinical Contract Research Organization established in the year 2020 to provide quality Preclinical, Pharmacology, Analytical and Animal Supply services along with HBEL

(Health Based Exposure Limits/PDE/ADE/OEL) Estimation. Kusum life science is having its state of the art test facility led with highly experienced scientific team and has been providing toxicology, pharmacology, pharmacopoeia testing , nutraceutical, food and FMCG companies along with (health based exposure limits) PDE/ADE/OEL Estimation services. Kusum life science also provides research and development work with a well- equipped laboratory to meet the requirements of academics for basic science students, Ph.D. students and medical professionals along with oriented various certificate courses.

b) Priyadarshini J. L. College of Pharmacy, Nagpur- 440016

It is a premium Pharmacy institute imparting quality education in the sector of Pharmaceutical Sciences as well as carrying out research in the field of Pharmaceutical Sciences. It is affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur, recognized by the Pharmacy Council of India (PCI) and All India Council for Technical Education (AICTE), New Delhi. It offers Undergraduate (B.Pharm), Postgraduate (M.Pharm). and Ph.D. programmes. With the relentless efforts of dedicated and competent faculty, up-dated curriculum, innovative methods of instructions, modern infrastructure and strong support of management it has emerged as a center of academic excellence and attracting students from all over India.

GOALS AND OBJECTIVES:

Where the **FIRST PARTY** is engaged in quality Preclinical, Pharmacological, Analytical and Animal Supply services along with HBEL (Health Based Exposure Limits/PDE/ADE/OEL) and research and development work with well- equipped laboratory to meet requirement of academics in basic science students, Ph.D. Students and medical professionals

Whereas the **SECOND PARTY** is engaged in Academic Teaching and Research in Pharmaceutical Sciences

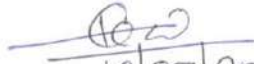
The **FIRST PARTY** and **SECOND PARTY** have agreed to take up joint projects in the areas of mutual interest such as *in-vitro* and preclinical studies along with training to the students of **SECOND PARTY**.

Now this deed of MOU is agreed by and between the parties under following terms and conditions.


TERMS AND CONDITIONS:

1. The **FIRST PARTY** shall provide animals (mice, rats etc) to the **SECOND PARTY** at economical rates as and when required.
2. **BOTH PARTIES** will share faculty expertise and instrumental facilities to each other as per mutual understanding.
3. The **SECOND PARTY** will provide laboratories and library facilities to **FIRST PARTY** by mutual understanding.
4. Both the parties have mutually agreed upon the usage of required instruments devoid of any charges and by following the norms, terms and conditions led herein, at their premises.
5. The workshop on preclinical studies and training to the interested students of the **SECOND PARTY** shall be conducted by **FIRST PARTY** at the premises of both the parties as per the schedule mutually agreed upon.
6. The visit of interested students of the **SECOND PARTY** to premises of the **FIRST PARTY** shall be taken up as per the schedule mutually agreed upon.
7. Both the parties shall initiate and exchange research facilities and other relevant things required to carry out research projects. The research project interchange and finalization will be done as per mutual understanding of **BOTH PARTIES**.
8. **BOTH PARTIES** may apply for joint research projects to the concerned research organizations. The workload, expenses & profit share in such instances shall be decided upon mutually.
9. If the results of the joint projects are liable to attract commercial benefits, then the financial profits shall be shared between the two parties as per the mutually agreed arrangements.
10. Any dispute arising shall be settled through mutual negotiations only without recourse to resolving the dispute by legal means.
11. This MOU shall take effect from the date of its signing by **BOTH PARTIES** and shall be valid for the period of 5 (Five) years from the date on which it came into force.

Signed on 19 May 2022 Valid upto 18 May 2027


19/05/2022

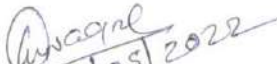
A) **Dr. Balaji Madrewar**
Director
Kusum Life Sciences,
A13, MIDC, Wasmat,
District: Hingoli-431512


19/5/22


B) **Dr. Dinesh R. Chaple**
Principal,
Priyadarshini J. L. College of
Pharmacy, Nagpur- 440016.

PRINCIPAL
Priyadarshini J. L. College of
Pharmacy, Nagpur.

Witnesses:


19/05/2022

C) **Dr. Gajanan Nagre**
Veterinarian,
Animal Facility,
Kusum Life Sciences,
A13, MIDC, Wasmat,
District: Hingoli-431512


19/05/2022

D) **Dr. Mrs. Shilpa Deshpande**
Associate Professor & Head,
Department of Pharmacology
Priyadarshini J. L. College of
Pharmacy, Nagpur- 440016.

Associates Prof. / Asstt. Prof.
Priyadarshini J. L. College of
Pharmacy, Nagpur.



INVOICE

KUSUM LIFE SCIENCES

A-13, MIDC Wasmal, District: Hingoli, 431512

Maharashtra, India (GST: 27EINPS4867N1Z1)

Email:sales@kusumlifesciences.com, Mobile:7995791646, 9011550111

To, Priyadarshini J. L. College of Pharmacy, Hingna Road, Nagpur			Invoice No. 248		DC NO.248	
			PO Number :		Date:25/04/2023	
Date	Particulars	Rate Per Animal	Quantity		Total No. of Animals	Total Amount
			Male	Female		
25/04/2023	Wistar rat	300	50	50	100	30,000/-
	Transportation					8,000/-
Total						38,000/-

Total Amount in Words: Thirty Eight Thousand Only.

Bank Details

Name: Kusum Life Sciences

Bank: Bank of Maharashtra Branch: Chikalwadi Nanded (Maharashtra)

Account number: 60384658307

IFSC Code: MAHB0000035

Best Regards

For:

Dr. Balaji Madrewar

Director Mobile: 7995791646, 9226799315

Registered Office :- Sahyog Chambers, Shri Nagar, Nanded 431602, Maharashtra, India
 Facility Office :- A-3, MIDC Wasmal, Hingoli 431512, Maharashtra, India.

info@kusumlifesciences.com
 sales@kusumlifesciences.com

Call - 7995791646, 7719888111

www.kusumlifesciences.com





INVOICE

KUSUM LIFE SCIENCES

A-13, MIDC Wasmal, District: Hingoli, 431512
Maharashtra, India (GST: 27EINPS4867N1Z1)

Email: sales@kusumlifesciences.com, Mobile: 7995791646, 9011550111

To, Priyadarshini J. L. College of Pharmacy, Hingna Road, Nagpur		Invoice No. 225		DC NO.225		
		PO Number :CON/2022-23/1298				
		Date:15/12/2022				
Date	Particulars	Rate Per Animal	Quantity		Total No. of Animals	Total Amount
			Male	Female		
15/12/2022	Sprague Dawley rat	300	150	150	300	90,000/-
	Transportation					8,000/-
Total						98,000/-

Total Amount in Words: Ninety Eight Thousand Only.

Bank Details

Name- Kusum Life Sciences

Bank- Bank of Maharashtra Branch. Chikalwadi Nanded (Maharashtra)

Account number 60384658307

IFSC Code MAHB00000035

Best Regards

F08 *[Signature]*
15/12/22

Dr Balaji Madrewar

Director Mobile 7995791646, 9226799315

Passed for Payment of Rs. 98,000/-
(In words Rs. Ninety Eight Thousand only.)
[Signature] **Principal/Accountant**
[Signature] **Principal/Director**
19/12/22

Registered Office :- Sahyog Chambers, Shri Nagar, Nanded 431602, Maharashtra, India
Facility Office :- A-B, MIDC Wasmal, Hingoli 431512, Maharashtra, India

info@kusumlifesciences.com
sales@kusumlifesciences.com

In Word No. 352
Date 16/12/2022

www.kusumlifesciences.com



INVOICE

KUSUM LIFE SCIENCES

A-3, MIDC Wasmata, District: Hingoli, 431512

Maharashtra, India (GST: 27EINPS4867N1Z1)

Email: sales@kusumlifesciences.com, Mobile: 7995791646, 9011550111

To, Priyadarshini J. L. College of Pharmacy, Hingna road, MIDC, Nagpur- 440016P			Invoice No. 135 A		DC NO. 135A	
			PO NO. PJLCP/2021/3767		Date : 29/12/2021	
Date	Particulars	Rate Per Animal	Quantity		Total No. of Animals	Total Amount
			Male	Female		
29/12/2021	Sprague Dawley Rat	350	131	132	263	92,050/-
29/12/2021	Swiss albino mice	160	25	25	50	8000/-
	Transportation Charges		8,200/-			8,200/-
Total						1,08,250/-

Total Amount in Words: One Lakh Eight Thousand Two Hundred Fifty Only

Bank Details:

Name: Kusum Life Sciences

Bank: Bank of Maharashtra Branch: Chikalwadi Nanded (Maharashtra)

Account number: 60384658307

IFSC Code: MAHB0000035

Best Regards

For

 29/12/21

Dr. Balaji Madrewar
 Director Mobile: 7995791646, 9011550111
 Subject to Nanded Jurisdiction



For Kusum Life sciences

Registered Office :- Sahyog Chambers, Shri Nagar, Nanded 431602, Maharashtra, India
 Facility Office :- A-3, MIDC Wasmata, Hingoli 431512, Maharashtra, India.

info@kusumlifesciences.com
sales@kusumlifesciences.com

Call - 7995791646, 7719888111

www.kusumlifesciences.com



INVOICE

KUSUM LIFE SCIENCES

A-3, MIDC Wasmal, District: Hingoli, 431512

Maharashtra, India (GST: 27EINPS4867N1Z1)

Email: sales@kusumlifesciences.com, Mobile: 7995791646, 9011550111

To, Priyadarshini J. L. College of Pharmacy, Hingna road, MIDC, Nagpur- 440016P			Invoice No. 135		DC NO. 135	
			PO NO. - PJLCP/2021/3767		Date : 29/12/2021	
Date	Particulars	Rate Per Animal	Quantity		Total No. of Animals	Total Amount
			Male	Female		
29/12/2021	Sprague Dawley Rat	350	175	175	350	1,22,500
29/12/2021	Swiss albino mice	160	25	25	50	8000/-
29/12/2021	Rat/Mice Feed bag	1800	2		-	3600/-
	Transportation Charges		8,200/-			8,200/-
Total						1,42,300/-

Total Amount in Words: One Lakh Fourty Two Thousand Three Hundred Only

Bank Details:

Name: Kusum Life Sciences

Bank: Bank of Maharashtra Branch: Chikalwadi Nanded (Maharashtra)

Account number: 60384658307

IFSC Code: MAHB0000035

Best Regards

FOR

 29/12/21

Dr. Balaji Madrewar
 Director Mobile: 7995791646, 9011550111
 Subject to Nanded Jurisdiction



For Kusum Life sciences

Registered Office :- Sahyog Chambers, Shri Nagar, Nanded 431602, Maharashtra, India
 Facility Office :- A-3, MIDC Wasmal, Hingoli 431512, Maharashtra, India.

info@kusumlifesciences.com
sales@kusumlifesciences.com

Call - 7995791646, 7719888111

www.kusumlifesciences.com

MEMORANDUM OF UNDERSTANDING (MOU) FOR

RESEARCH PARTNERSHIP AND COLLABORATION

Between

GURUNANAK COLLEGE OF PHARMACY,

Nagpur, Maharashtra, India

And

PRIYADARSHINI J L COLLEGE OF PHARMACY,

Nagpur, Maharashtra, India

1.

Brief introduction of both parties:

Under the aegis of **The Sikh Education Society**, Gurunanak Technical Institute (Diploma in Pharmacy) was established in the year of 1983. Gurunanak College of Pharmacy (GNCP) was established in 2004, in the subsequent year's postgraduate courses (2009) and PhD (2014) in the pharmaceutical sciences was introduced. The college is situated on 10 acres of land away from the hustle & bustle of busy city traffic, in the peaceful area of Nari which is very well within the Nagpur city limits. A spacious, well planned, well lit, well ventilated building surrounded by the lush green campus is many neighbors' envy. The college has been successful in imparting quality education in pharmacy at all levels throughout these years and it is also providing a well equipped platform to carry out the research activities that are recognized at both national and international levels.

The institute has robust infrastructure that caters to the needs of the students. This covers aspects of teaching-learning, extra-curricular activities, social outreach, sports, gender equality, cultural involvement and research accomplishments. The success stories of the institute highlight hard work by enriched faculty members and obviously our beloved students including strong alumni. There are about 23 full time teachers in the institute and most of them are PhDs. We are trying to carry out quality research work both in the basic research as well as in industry oriented research. The quality of our research can be judged by the quality of our publications and by the fact that our research is actively utilized in the industry.

AND

Priyadarshini J. L. College of Pharmacy (Degree), Formerly J. L. Chaturvedi College of Pharmacy (Degree) (JLCCOP) is one of the most renowned colleges of central India imparting quality education in Pharmaceutical Sciences. Established in the year 1997, the college offers undergraduate as well as post graduate courses in Pharmaceutics, Pharmaceutical Chemistry, Pharmacology, and Pharmacognosy.

Ph.D. research centre for developing excellent research facilities for the benefit of the students and faculty. The institute has track record of research and development as evident from recent publications.

Both the institutes have agreed to enter into a Memorandum of Understanding (MOU) considering the long-term benefits of sharing the knowledge between the Institutes and establish a vibrant academic collaboration, by undertaking joint activities in their respective field of research,

2. Objectives and scope:

- This agreement ensures the collaborative research between GNCP and PLJCP in the field of Pharmaceutical Sciences.
- Both institutes will provide the required facilities to carry out the joint research activities without any financial expectations.
- In case of funded projects, government and non-government, sharing of financial resources will be decided based on the nature of activities to be performed in the project.
- Intellectual property of the product and the process through collaborative research will be equally held by both institutions and confidentiality of the research will be respected.
- In case of commercialization and patent filing of the product obtained out of this collaboration, both parties will consult before taking any financial decisions.
- Promotion of scientific aptitude in student through organization of joint scientific workshops and conferences.
- Student and faculty exchange programs where faculty or student of one institute will be invited to teach or share knowledge with the students and faculty of the other institute.

2.0 Executive responsibilities:

- Faculty of PLJCP will be performing research and administration through Principal.

- Faculty of GNCP will be responsible for taking decisions and execution of research activities through Principal.
- Responsible individuals of respective institutes will be joint investigators of the research projects.
- Due scientific weightage will be given to research involved in the research work for patents, publications, and commentaries.

3.0 Confidentiality clause:

It is hereby agreed that both the Institutes shall keep information and data collected completely confidential, not to reveal without knowledge of both parties, for further development.

4.0 Publication policy:

With mutual consent of both institutions and due acknowledgement of contribution from individuals involved in scientific outcomes, research can be published.

5.0 Duration:

The MOU is valid for a period of **five years** from the date of signing. It can be extended with mutual consent of both the organization.

6.0 Termination:

- Either Institute is free to terminate the agreement by having mutual understanding and providing prior notice of 1 month.
- Any dispute, if arises must be resolved with mutual consultations between both institutes. Court of law shall be involved as a last resort to find solution for the cause of dispute.
- The legal arbitration must be performed at a place of mutual understanding.

For,

Priyadarshini J L College of Pharmacy, Gurunanak College of Pharmacy,

Nagpur

Nagpur

Shan
12/09/2019
Principal,

Ambedkar
10/03/2019
Principal,

Priyadarshini J L College of Pharmacy, Gurunanak College of Pharmacy,

Nagpur, India
Dr. B. R. Chiple
PRINCIPAL
Priyadarshini J. L. College of
Pharmacy, Nagpur.

Date of Sign and Acceptance:

Nagpur, India

Dr. A. M. Itadwar
Principal
Gurunank College of Pharmacy
Nari, Near Dixit Nagar, Behind C. P. Foundn
Kamptee Road, Nagpur-440 026



8,690 7

Views | CrossRef citations to date | Altmetric | 1

Research Articles

Prospecting for *Cressa cretica* to treat COVID-19 via *in silico* molecular docking models of the SARS-CoV-2

Sapan Shah  , Dinesh Chaple, Sumit Arora , Subhash Yende , Chetan Mehta  & Usha Nayak 

Pages 5643-5652 | Received 29 May 2020, Accepted 02 Jan 2021, Published online: 15 Jan 2021

 Download citation  <https://doi.org/10.1080/07391102.2021.1872419>



Sapan Shaha* , Dinesh Chaplea, Sumit Arorab , Subhash Yendec , Chetan Mehtad  & Usha Nayakd 

a Department of Pharmaceutical Chemistry, Priyadarshini J. L. College of Pharmacy, Nagpur, Maharashtra, India

b Pharmacognosy and Phytochemistry Division, Gurunanak College of Pharmacy, Nagpur, Maharashtra, India

c Pharmacology Division, Gurunanak College of Pharmacy, Nagpur, Maharashtra, India;

d Department of Pharmaceutics, Manipal College of Pharmaceutical Sciences, Manipal Academy of Higher Education, Manipal, Karnataka, India



Exploring the active constituents of *Oroxylum indicum* in intervention of novel coronavirus (COVID-19) based on molecular docking method

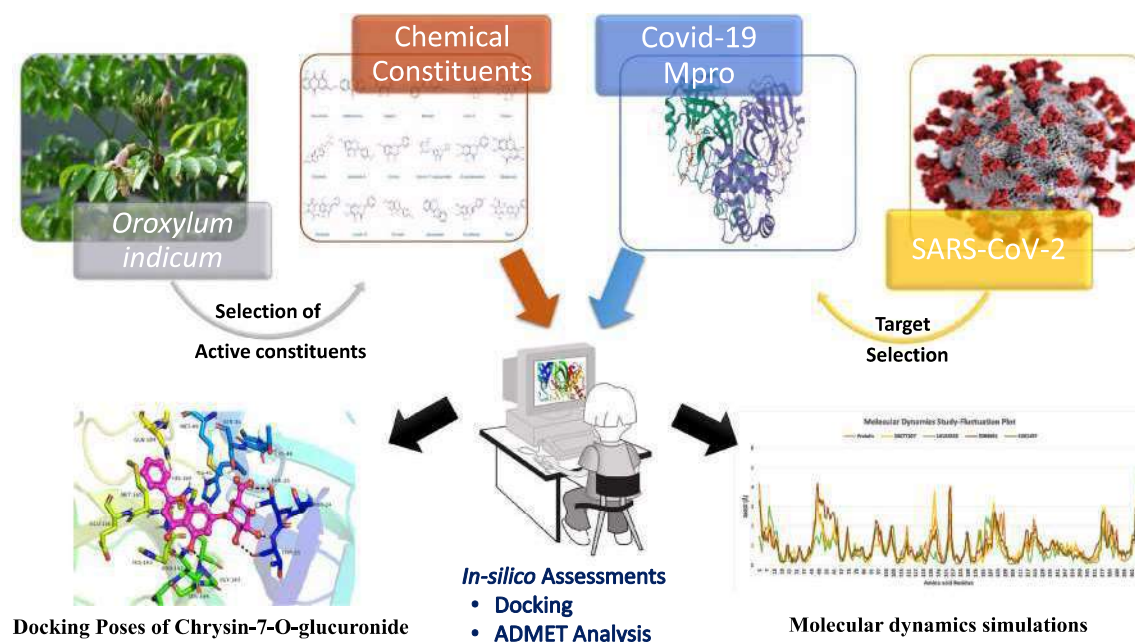
Sapan Shah¹ · Dinesh Chaple¹ · Sumit Arora² · Subhash Yende³ · Keshav Moharir⁴ · Govind Lohiya⁴

Received: 28 August 2020 / Revised: 24 November 2020 / Accepted: 15 December 2020 / Published online: 6 February 2021
© The Author(s), under exclusive licence to Springer-Verlag GmbH, AT part of Springer Nature 2021

Abstract

The severe acute respiratory syndrome COVID-19 declared a global pandemic by WHO has become the present wellbeing worry to the whole world. There is an emergent need to search for possible medications. We report in this study a molecular docking study of eighteen *Oroxylum indicum* molecules with the main protease (M^{Pro}) responsible for the replication of SARS-CoV-2 virus. The outcome of their molecular simulation and ADMET properties reveal four potential inhibitors of the enzyme (Baicalein-7-*O*-diglucoside, Chrysin-7-*O*-glucuronide, Oxindin and Scutellarein) with preference of ligand Chrysin-7-*O*-glucuronide that has the second highest binding energy (−8.6 kcal/mol) and fully obeys the Lipinski's rule of five.

Graphical abstract



Keywords COVID-19 · *Oroxylum indicum* · Molecular docking · Molecular dynamics · ADMET study

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s13721-020-00279-y>.

✉ Sapan Shah
shah.sapan@rediffmail.com

Extended author information available on the last page of the article



ISSN: 2455-0485

Ethnomedicinal and pharmacological potential of marine macroalgae for CNS disorders: An overview

Subhash R. Yende^{1*}, Radha Kapgate¹, Sumit K. Arora², Sapan K. Shah²,
Keshav S. Moharir¹, Ankit Mishra³

¹Gurunanak College of Pharmacy, Nagpur-440026, Maharashtra, India, ²Priyadarshini J. L. College of Pharmacy, Hingna Road, Nagpur-440016, Maharashtra, India, ³VNS Faculty of Pharmacy, Neelbud, Bhopal-462044, Madhya Pradesh, India

Received: September 13, 2021

Revised: March 07, 2022

Accepted: March 08, 2022

Published: March 29, 2022

*Corresponding Author

Subhash R. Yende

E-mail: subhashyende@gmail.com

ABSTRACT

Marine macroalgae or seaweeds have created a favourable implication in the area of biomedical sciences, due to the present of potential bioactive substances. Extensive studies are reported on neuropharmacological effects of terrestrial plants and their constituents but there is inadequate information on the potential application of marine macroalgae for behavioural and neurological disorders. This review will emphasize on recent studies and/or updates on bioactive compounds or extracts from marine macroalgae and their potential toward CNS disorders.

KEYWORDS: Marine macroalgae, Seaweed, CNS disorders

INTRODUCTION

Most medicines are obtained from natural sources and researchers are still searching the tropical rainforest for potentially high-priced medicinal products. Many products of sea origin were used as food supplement since early 20th century, like cod liver and shark liver oil. It was only in early years of 1950s that researchers began to scientifically probe marine flora for medicines. Till now, around 10,000 bioactive compounds have been explored from marine sources. The quest still continues to discover new bioactive compounds from oceans (Colwell, 2002; Proksch *et al.*, 2002).

Marine plants involve marine algae, mangroves, sea grasses and sand dune plants. Almost 90 percent of marine plants are marine algae (Dhargalkar & Pereira, 2005). Marine algae are of two types, macroalgae (seaweeds) and microalgae. Marine macroalgae are found in the coastal area between high tide to low tide or in the subtidal region. Marine macroalgae are of three types: Green algae (Chlorophyta), Brown algae (Phaeophyta) and Red algae (Rhodophyta) (Garson, 1989; El Gamal, 2010). Green algae (Chlorophyta) found in the fresh as well as marine habitats. It contains chlorophyll a & b as photosynthetic pigments. The photosynthetic product of these algae is starch, with ulvan being the major polysaccharide component. Brown algae (Phaeophyta) are found only in marine habitat. Photosynthetic pigments of these algae are carotenoid, fucoxanthin (pigment responsible for brown colour), chlorophyll a & c, carotene and xanthophylls.

The cell walls are made of cellulose and alginic acid. The photosynthesis of brown algae produced Laminarian, fucane and Manitol. Red algae (Rhodophyta) are exclusively marine (except for few species). Red algae contain phycoerythrin and phycothyanin (pigment responsible for red colour), chlorophyll a and b-carotene. The primary polysaccharides of these algae are agars and carrageenans (Bold & Wynne, 1978).

The macroalgae are used for human consumption in China and Japan. The countries like Singapore, Malaysia, Thailand, Indonesia, Korea used marine macroalgae in soup, salad or jelly. Marine macroalgae are loaded with proteins, soluble dietary fibers, minerals, polyunsaturated fatty acids, vitamins, antioxidants and essential amino acids (Dhargalkar & Pereira, 2005). Extensive studies are reported on the therapeutic prospective of marine macroalgae toward various diseases. We have previously published a review paper on therapeutic potential of various *Sargassum* species and their health benefits (Yende *et al.*, 2014). In present review article, CNS potential of various marine macroalgae are explored.

CNS Potential of Marine Macroalgae

As per WHO report, out of approximately 450 million people suffering from a mental or behavioural disorder, small number of them receive basic treatment, this accounts for 12.3 percent of the global burden of disease and will increase to 15 percent by the year 2020 (Herrera-Ruiz *et al.*, 2006). From last few

Copyright: © The authors. This article is open access and licensed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>) which permits unrestricted, use, distribution and reproduction in any medium, or format for any purpose, even commercially provided the work is properly cited. Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.



In silico prediction of phytoconstituents from *Ehretia laevis* targeting TNF- α in arthritis



Subhash R. Yende^a, Sapan K. Shah^{b*}, Sumit K. Arora^c, Keshav S. Moharir^d, Govind K. Lohiya^d

a. Department of Pharmacology, Gurunanak College of Pharmacy, Nagpur, Maharashtra 440026, India

b. Department of Pharmaceutical Chemistry, Priyadarshini J. L. College of Pharmacy, Nagpur, Maharashtra 440016, India

c. Department of Pharmacognosy and Phytochemistry, Gurunanak College of Pharmacy, Nagpur, Maharashtra 440026, India

d. Department of Pharmaceutics, Gurunanak College of Pharmacy, Nagpur, Maharashtra 440026, India

ARTICLE INFO

Article history

Received 12 March 2021

Accepted 01 August 2021

Available online 25 September 2021

Keywords

Rheumatoid arthritis

Ehretia laevis

In silico

Molecular docking

Pharmacokinetics

Tumor necrosis factor- α (TNF- α)

Lupeol

α -Amyrin

*Corresponding author: Sapan K. Shah, Assistant Professor. Research direction: natural product research and computational studies.

E-mail: shah.sapan@rediffmail.com.

Peer review under the responsibility of Hunan University of Chinese Medicine.

ABSTRACT

Objective Rheumatoid arthritis (RA) is an autoimmune disease involving the synovial lining of the major joints. Current therapies have noteworthy side effects. Our study involved *in silico* evaluation of *Ehretia laevis* (*E. laevis*) phytoconstituents targeting tumor necrosis factor- α (TNF- α).

Methods Molecular docking studies performed to investigate the binding pattern of the plant *E. laevis* phytoconstituents along with the crystal structure of TNF- α (PDB ID: 2AZ5) using Auto-Dock Vina followed by a study of interacting amino acid residues and their influence on the inhibitory potentials of the active constituents. Further the pharmacokinetic profile and toxicity screening carried out using SwissADME and pkCSM.

Results The docked results suggest that lupeol (– 9.4 kcal/mol) and α -amyrin (– 9.4 kcal/mol) has best affinity towards TNF- α compared to standard drug thalidomide (– 7.4 kcal/mol). The active chemical constituents represents better interaction with the conserved catalytic residues, leading to the inhibition/blockade of the TNF- α -associated signaling pathway in RA. Furthermore, pharmacokinetics and toxicity parameters of these phytochemicals were within acceptable limits according to AD-MET studies.

Conclusion The binding potential of phytoconstituents targeting TNF- α showed promising results. Nonetheless, it encourages the traditional use of *E. laevis* and provides vital information on drug development and clinical treatment.

DOI: 10.1016/j.dcmcd.2021.09.003

Citation: YENDE SR, SHAH SK, ARORA SK, et al. *In silico* prediction of phytoconstituents from *Ehretia laevis* targeting TNF- α in arthritis. Digital Chinese Medicine, 2021,4(3): 180–190.



The Sikh Education Society's
Gurunanak College of Pharmacy, Nagpur

One week hands on training program on

**Application of Computational Techniques in
Drug Design and Development**

Certificate of Appreciation

This certificate is proudly presented to

Sapan Kamleshkumar Shah

in recognition of your contribution for
conducting one week hands on training
program on "Application of

Computational Techniques in Drug

Design and Development" as a

Resource Person & Trainer from

18th to 23rd October 2021.


Convener

Dr. A. M. Itadwar
Principal


Coordinator

Dr. Nidhi P. Sapkal
Professor

MEMORANDUM OF UNDERSTANDING



is entered on 16/01/2020 Between



Swargiya Dadasaheb Kalmegh Smruti Dental College & Hospital,
Wanadongari Wadhamna Road, Hingna, Nagpur, Maharashtra 441 110 (M.S)

&

PRIYADARSHINI J. L. COLLEGE OF PHARMACY

Electronics Zone Building, MIDC, Hingna Road, Nagpur, 440016 (M.S.)

Swargiya Dadasaheb Kalmegh Smruti Dental College & Hospital, Nagpur (Hereinafter referred to as SDKSDCH) is the premier Institute of Central India. Since its very Inception In 2006. It has untiringly toiled amongst the most backward regions and the least privileged to provide them the opportunity to become self-reliant It is located at Wanadongri on Hingna road situated in the outskirts of the Nagpur city.

PRIYADARSHINI J. L. COLLEGE OF PHARMACY, Nagpur (Herein after referred to as PJLCP) is a pioneer Pharmaceutical Institution recognized for imparting high quality education since its establishment in 1997. The college has proved itself in producing graduates, post graduates and conducting doctoral research in the field of Pharmacy with sound scientific and technical background. The college is NAAC accredited, recognized by AICTE, PCI and affiliated to RTM Nagpur University, Nagpur.

This **MoU** shall commence from the date of its signing and shall continue for a period of Five years from date of its signing, unless either party notify in writing to the other party of its intension to terminate. PJLCP and SDKSDCH recognize that they share common goals and are desirous to establish a cooperative agreement for mutual benefit.

The said agreement between PJLCP and SDKSDCH will be in the following areas:

- 1. Technical Training Programs (TTPs):** TTPS helps to improve the knowledge & the skills of the individuals. An individual undergoing TTPS can benefit in multiple ways. He will be in a position to improve his productivity. This MoU's also envisages series of Technical Training Programs for the employees of SDKSDCH.
- 2. Industrial Testing & Use of Laboratories:** It is an important area to collaborate for both PJLCP and SDKSDCH members and shall utilize the various Laboratories that are available with PJLCP. The equipment & faculty expertise could be used by the SDKSDCH for varied purpose on chargeable basis as on decided by PJLCP.

3. Undertaking Need based Projects: The problems faced by an Institute/ Hospital undertaking are many viz. technical, biomedical, human, system & procedures. In this collaboration, the PJLCP will undertake Consultancy activities which will be need based. The activity will involve Problem Identification, Problem Definition, Data collection, Data Analysis, Problem solving by taking corrective actions. These projects would be undertaken in joint consultation and benefits will be shared suitably.

4. Institute Visit: It is an activity, where student community would like to experience the real life work situations. This MoU's will provide an opportunity to the students of PJLCP of different branches to visit the hospital research activities and vice versa.

5. Guest Faculty/Visiting Faculty: PJLCP will invite SDKSDCH experts to share their experience with students of PJLCP through Entrepreneurship Development Cell of various departments and vice-versa. These lectures would be organized on a mutually agreeable time & date. It is expected that SDKSDCH will depute the senior professors /doctors who are ready to share their experience with students of PJLCP.

6. Confidentiality: As part of this MoU's, either party will acquire or develop confidential and proprietary information concerning its dealings and methods of dealings. Both parties agree that such Confidential Matter is for the other party's exclusive benefit and that, either party will not directly or indirectly use or disclose any Confidential Matter, except for specified purpose. Receiving party shall use the Confidential Matter of the other party only to its employees, directors and advisors on a 'need to know' basis. Disclosing party does not give any warranty for accuracy or completeness of confidential matter. Upon the termination of this MoU's, either party will promptly return all confidential matters to the other party. The confidentiality obligations stated herein shall survive for two (2) years after termination of this MoU's. The obligations contained in this Clause shall not apply to information in the public domain or is received from a third party without restrictions or is developed independently or is in possession of the receiving party.

7. Presentation/Dissertation Evaluation: As a part of curriculum the students of PJLCP prepare dissertation/Presentation. SDKSDCH will support this activity of PJLCP by sharing technical data, Clinical Data and the necessary guidance to the students to make their dissertation/presentation technically perfect and unique.

8. Agreements for Research Collaboration: Each research collaboration undertaken by the parties hereunder shall be initiated by the signing of a separate research agreement between the parties, which will describe in detail:

- a. The nature, scope and schedule of the research collaboration.
- b. In the form of the research collaboration.
- c. The estimated cost of the research collaboration together with the amount of funding, if any, to be received from third parties.
- d. The treatment of intellectual property and data rights, including Patents, industrial design registration, copyrights and all other proprietary information (including innovations not patented designs, not registered etc.) which result from the research collaboration or

Shree

S. Sakshi

K. P. Padi

property shall survive the termination of the agreement.

(c) Termination shall not affect the projects/assignments agreed to be undertaken by both the parties before such termination and both the parties should complete such projects/assignments as if this MoU's is in operation.

(d) On termination, the Partner Institute shall handover the data which were used for processing to Counterpart.

BY SIGNING BELOW, the parties, acting by their duly authorized officers, have caused this memorandum of Understanding to be executed, effective as of the day and year first above written.

<p>On behalf of Swargiya Dadasaheb Kalmegh Smruti Dental College & Hospital, Nagpur</p> <p>By: <i>D. S. Barhude</i> Name: <i>Dr. Digesh Barhude</i> Title: <i>Dean</i> Witness: 1. <i>Ashish Lonjekar</i> (Dr. Ashish Lonjekar) 2. <i>Arun Sajjanan</i> (Dr. Arun Sajjanan)</p>	<p>On behalf of PRIYADARSHINI J. L. COLLEGE OF PHARMACY Nagpur</p> <p>By: <i>(Signature)</i> Name: <i>Dr. Dinesh R. Charle</i> Title: <i>Principal</i> Witness: 1. <i>S.S. Bakule</i> (Dr. S.S. Bakule) 2. <i>K.P. Upadhye</i> (Dr. K.P. Upadhye)</p>
---	---



Comparison of Efficacy of Topical Curcumin Gel with Triamcinolone-hyaluronidase Gel Individually and in Combination in the Treatment of Oral Submucous Fibrosis

Ashish B Lanjekar¹, Rahul R Bhowate², Suparna Bakhle³, Abhay Narayane⁴, Vipul Pawar⁵, Ranjeet Gandagule⁶

ABSTRACT

Aim: To study the efficacy of topical curcumin mucoadhesive semisolid gel, triamcinolone acetonide/hyaluronidase mucoadhesive semisolid gel, and a combination of both in the treatment of oral submucous fibrosis (OSMF).

Materials and methods: One hundred and twenty patients diagnosed with OSMF were randomly divided into groups I, II, and III. Each patients in groups I, II, and III was given professionally prepared mucoadhesive semisolid gel of curcumin, a combination of triamcinolone acetonide and hyaluronidase mucoadhesive semisolid gel, and a combination of all three, respectively. Patients were instructed to apply the gel thrice daily for 6 weeks on buccal mucosa bilaterally using the tip of index finger. Three parameters were evaluated at the end of each week, namely, mouth opening, burning on visual analog scale (VAS), and the color of oral mucosa on the binary scale. The results were subjected to statistical analysis.

Results: It was observed that the group administered the three drug combinations achieved the greatest mouth opening (mean increase 4.05 mm) as compared to the other two groups. It was observed that triamcinolone and hyaluronidase group reported reduction in burning sensation on VAS (mean difference 6) as compared to the other two groups. It was observed that group III (1% curcumin, 1% hyaluronidase and 0.1% triamcinolone acetonide combined) drug therapy showed better change in mucosa color as compared to groups I (1% curcumin) and II.

Conclusion: Thus, we can conclude that curcumin has a therapeutic effect on patients diagnosed with OSMF. Maximum utilization and enhanced drug delivery were achieved with the help of a combination other two active drugs, namely, triamcinolone and hyaluronidase.

Clinical significance: Curcumin role in the treatment of oral cancers and the precancer lesion is very promising.

Keywords: Hyaluronidase mucoadhesive semisolid gel, Oral submucous fibrosis, Topical curcumin mucoadhesive semisolid gel, Triamcinolone acetonide mucoadhesive semisolid gel.

The Journal of Contemporary Dental Practice (2020): 10.5005/jp-journals-10024-2726

INTRODUCTION

The tremendous industrialization and urbanization of the 21st century has raised the standard of life in the recent times. However, there has also been a steady increase in stress that a human has to cope. In this scenario, people fall for habits such as gutkha, tobacco, and betel nut chewing are of great relief. They not only are addictive but also can cause debilitating irreversible damage to the oral cavity, one of which is the oral submucous fibrosis (OSMF).

Oral submucous fibrosis is a debilitating condition causing an overall reduction in the quality of life due to its ability to cause problems with speech, swallowing, opening of the mouth as well as the chances of developing into a malignant lesion. In India, the overall prevalence rate of OSMF is estimated to be about 0.2–0.5% and varies from 0.2 to 2.3% in males and 1.2 to 4.57% in females.¹

The condition is characterized by a burning sensation of the oral mucosa, ulceration, pain, blanching of oral mucosa, reduced movement, depapillation of tongue, depigmentation of oral mucosa, progressive reduction in mouth opening (MO), and scarring of the mucous membrane. The atrophic mucous may often ulcerate subsequently leading to malignancy.²

A wide array of treatments both surgical and medicinal has been advocated, which were hypothesized and justified by many researchers and clinicians over decades. Medicinal treatments such as systemic administration of antioxidants, immune milk, interferon- γ (IFN- γ) and intralesional injection of enzymes, steroids,

¹Department of Oral Medicine and Radiology, Swargiya Dadasaheb Kalmegh Smruti Dental College, Nagpur, Maharashtra, India

²Department of Oral Medicine and Radiology, Sharad Pawar Dental College, Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India

³Department of Pharmaceutic, Priyadarshini JL College of Pharmacy, Nagpur, Maharashtra, India

⁴Department of Prosthodontics and Crown and Bridge, Dr Hedgewar Smruti Rugna Seva Mandal Dental College and Hospital, Hingoli, Maharashtra, India

⁵Department of Oral Pathology, Dr Hedgewar Smruti Rugna Seva Mandal Dental College and Hospital, Washim, Maharashtra, India

⁶Department of Prosthodontics, Dr Hedgewar Smruti Rugna Seva Mandal Dental College and Hospital, Hingoli, Maharashtra, India

Corresponding Author: Ashish B Lanjekar, Department of Oral Medicine and Radiology, Swargiya Dadasaheb Kalmegh Smruti Dental College, Nagpur, Maharashtra, India, Phone: +91 9595052481, e-mail: Ashishlanjekar2007@gmail.com

How to cite this article: Lanjekar AB, Bhowate RR, Bakhle S, et al. Comparison of Efficacy of Topical Curcumin Gel with Triamcinolone-hyaluronidase Gel Individually and in Combination in the Treatment of Oral Submucous Fibrosis. *J Contemp Dent Pract* 2020;21(1):83–90.

Source of support: Nil

Conflict of interest: None



स्व. दादासाहेब काळमेघ
स्मृती प्रतिष्ठान
अमरावती

Swargiya Dadasaheb Kalmegh Smruti Dental College & Hospital

Wanadongri Road, Hingna, Nagpur - 441 110

Mob. No. : 7620221782

Fax No. : (07104) 280099

E-mail : dadasahebkalmeghdental@yahoo.com

SWARGIYA
DADASAHEB
KALMEGH
SMRUTI
DENTAL COLLEGE
& HOSPITAL

To

The Head

Priyadarshini College of Pharmacy

Nagpur.

Date: 30/7/22

Subject: Request for making the spirulina formulation for my Ph.D scholar regarding.

Respected madam/ sir,

Myself Dr R. Sathawane, Professor and Head Dept of Oral Medicine and Radiology, SDK Dental College, Nagpur. My student Dr N Vijayalaxmi is a registered Ph.D. scholar under me. She is undertaking her thesis on the topic "Efficacy of Topical Spirulina in the Treatment of Oral Candidiasis ". For which she will require the spirulina formulation, so requesting Mrs Bhakale madam of Priyadarshini College of Pharmacy to help her make the preparation for conducting the study.

Kindly support us in smooth conduct and completion of the thesis work.

Thank you.

Sathawane
30/7/22
H.S.P.

ORAL DIAGNOSIS & RADIOLOGY
SWARGIYA DADASAHEB KALMEGH
SMRUTI DENTAL COLLEGE & HOSPITAL
WANADONGRI WADKAMANA ROAD
HINGNA NAGPUR

MEMORANDUM OF UNDERSTANDING (MOU)

Between

**Bhausaheb Mulak Ayurved Mahavidyalaya & Medical
science & Research Hospital, Nagpur**

And

Priyadarshini J. L. College of Pharmacy, Nagpur

For

**Facilitating Collaborative Research & Development, Preclinical, Clinical
Studies, and Institute -Institute Interaction for teaching and research**

This memorandum of understanding is made on **18.03.2019** between Priyadarshini J. L. College of Pharmacy, Nagpur which is represented by Principal as Party one and Bhausaheb Mulak Ayurved Mahavidyalaya & Medical science & Research Hospital, Nagpur represented by Principal as Party two.

The MOU between the two parties is to collaborate on areas of mutual interests. The parties are agreed for:

- a) Faculty programs between Party one Priyadarshini J. L. College of Pharmacy, Nagpur and Party two Bhausaheb Mulak Ayurved Mahavidyalaya & Medical science & Research Hospital, Nagpur for better academic interactions.
- b) Party one Priyadarshini J. L. College of Pharmacy, Nagpur and Party two Bhausaheb Mulak Ayurved Mahavidyalaya & Medical science & Research Hospital, Nagpur agrees to provide facilities to the students of both the institutes for research activities involving analytical studies, product development and preclinical and clinical studies.
- c) Party one and party two agrees to acknowledge the support received from one another and also will take care of Intellectual Property Rights if involved.
- d) Party one & party two will mutually provide the institutional infrastructure for conduction of any programs if required by to one another.
- e) This agreement is to be in effect at least for five years from the time of its endorsement by both the parties.
- f) The officials representing Priyadarshini J. L. College of Pharmacy, Nagpur and Bhausaheb Mulak Ayurved Mahavidyalaya & Medical science & Research Hospital, Nagpur are signing this MOU to achieve the mutual benefits.

Signed for and on behalf of:

Priyadarshini J. L. College of Pharmacy,
Nagpur

Signed for and on behalf of:

Bhausaheb Mulak Ayurved Mahavidyalaya & Medical science & Research Hospital, Nagpur

Designation: Principal (Party One)
PRINCIPAL
Priyadarshini J.L. College of Pharmacy, Nagpur.

Witness:

Name: Mrs. S.V Mangrulkar

Associates Prof. / Asstt. Prof.
Priyadarshini J. L. College of Pharmacy, Nagpur

Designation: Principal (Party Two)
Principal
Bhausaheb Mulak Ayurved Mahavidyalaya, Nagpur

Name: Dr. Rajendra Urade
DR. RAJENDRA B. URADE
Professor & H.O.D.

Deptt. of Agadtantra & Vidhi Ayurved,
B.M. Ayurved College, Nagpur-9.



LOKMANYA TILAK JANKALYAN SHIKSHAN SANSTHA'S
PRIYADARSHINI J.L. COLLEGE OF PHARMACY

(Formerly known as J. L. Chaturvedi College of Pharmacy)

Electronics Zone Building, MIDC, Hingna Road, Nagpur - 440 016. (India)

Tel. & Fax No. : +91-7104-242169, 246811

E-mail : jlccp_ngp@rediffmail.com, principal.jlccp@ljss.net Website : www.jlccp.ljss.net



ACCREDITED WITH GRADE B++ BY NAAC

Ref: PJLCP/2020/6/149-1

Date: 20/08/2020

To whomsoever it may concern

This is to certify that Vd. **Anurag Satpute**, student of Post Graduate in Agadtantra Department of **Bhausahab Mulak Ayurved Mahavidyalaya, Nagpur**, has completed analytical and animal studies for his Post Graduate thesis work entitled '**In Vivo Study of Navneeyukta Meghnad Swaras As An Antidote of Gunja (Abrus precatorius) poisoning In Albino Mice**' in Pharmacology laboratory of Priyadarshini J.L. College of Pharmacy, Nagpur under the supervision of Mrs. Shubhada V. Mangrulkar, Assistant Professor. Our institute is affiliated to RTM Nagpur University, Nagpur and registered for performing experimentation on animals by CPCSEA, New Delhi (Registration No. 648/PO/ERe/S/02/CPCSEA).

This certificate is issued on his own request.

Received
For Sign

(Dr. D. R. Chaple)

PRINCIPAL
Priyadarshini J.L. College of
Pharmacy, Nagpur.

LOKMANYA TILAK JANKALYAN SHIKSHAN SANSTHA

Lokmanya Tilak Bhavan, Laxmi Nagar, Nagpur - 440022. Maharashtra. INDIA. Tel.: +91-712 2230665, 2245121. Fax No : +91-712 2221450. Website : www.ljss



LOKMANYA TILAK JANKALYAN SHIKSHAN SANSTHA'S
PRIYADARSHINI J.L. COLLEGE OF PHARMACY

(Formerly known as J. L. Chaturvedi College of Pharmacy)

Electronics Zone Building, MIDC, Hingna Road, Nagpur - 440 016, (India)

Tel. & Fax No. : +91-7104-242169, 246811

E-mail : jlccp_ngp@rediffmail.com, principal.jlccp@ljss.net Website : www.jlccp.ljss.net



ACCREDITED WITH GRADE B++ BY NAAC

PJLCP/2020/ 6105

Date: 15.06.2020

To
The Registrar,
MUHS, Nashik.

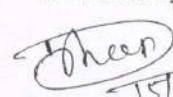
Subject- No Objection Certificate.

Dear Sir,

Vd. Dinesh Shankar Sontakke student of Post Graduate in Agadtantra Department of Bhausaheb Mulak Ayurved Mahavidyalaya, Nagpur wants to perform Post Graduate thesis work on animal studies in our Priyadarshini J.L. College of Pharmacy, Nagpur. Our institute is affiliated to RTM Nagpur University, Nagpur and registered for performing experimentation on animals by CPCSEA, New Delhi (Registration No. 648/PO/ERe/S/02/CPCSEA). This institute has no objection in allowing him to carry out his animal studies in institute animal house/laboratories, subjected to approval of his protocol (Form B) by our Institutional Animal Ethical Committee (Registration No. 648/PO/ERe/S/02/CPCSEA). As soon as the protocols get approved by IAEC, it will be communicated to your office.

Thanking you.

Yours faithfully


15/06/2020

(Dr. D. R. Chaple)

PRINCIPAL

Priyadarshini J.L. College of
Pharmacy, Nagpur.

LOKMANYA TILAK JANKALYAN SHIKSHAN SANSTHA

Lokmanya Tilak Bhavan, Laxmi Nagar, Nagpur - 440022. Maharashtra. INDIA. Tel.: +91-712 2230665, 2245121. Fax No : +91-712 2221430. Website : www.ljss.net

Memorandum of Understanding

Between



Paryavaran Pratham

Non-Government Organization (NGO), Nagpur

AND



Lokmanya Tilak Jankalyan Shikshan Sanstha's,

Priyadarshini J.L College of Pharmacy,

Electronic Zone Building, MIDC, Hingna Road, Nagpur-440016 (M.S.)

Page 1 of 3

The Memorandum of Understanding is to be executed between

'**Paryavaran Pratham**' a Non-Government Organization (NGO) registered under the Bombay Public Trust Act and Societies Registration Act existing since 6th December 2008

AND

Lokmanya Tilak Jankalyan Shikshan Sanstha's, Priyadarshini J. L. College of Pharmacy, Electronic Zone Building, MIDC, Hingna Road, Nagpur-440016 (M.S.)

On 18th day of August, Month 2018.

'**Paryavaran Pratham**' the NGO is a group of environment & nature lovers, actively involved in the activities related to the Climate Change, Tackling Global Warming, Eco-friendly initiatives, Disaster Management and Water Conservation hereinafter called as the party of the first part which expression unless repugnant to the context or meaning thereof, mean and include assigns of the first part.

Priyadarshini J. L. College of Pharmacy, Nagpur is a private institute affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur and involved in students catering in academics, professional and social activities hereinafter referred to as the party of the second part which expression unless repugnant to the context or meaning thereof, mean and include assigns of the second part.

Paryavaran Pratham and **Priyadarshini J. L. College of Pharmacy, Nagpur** has arrived at a mutual understanding and the two parties will work together to create awareness and build capacities about the Environment, Health, Safety and Disaster management issues for sustainable development of the society and Planet Earth.

This MOU envisages

- Activities related to Environment, Global warming, Disaster management, Water conservation and other areas as may be decided from time to time.
- Collaborative seminars, workshops or social awareness programmes on areas of mutual interest as may be agreed by the two parties

- The students from the party of the second part will participate in the activities held by the party of the first part whereas NGO will conduct the programmes in the institute.

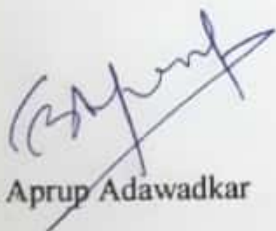
This agreement will be in effect initially for a period of 3 (three) years from the date of signing of this agreement by both the parties and may be renewed further if mutually agreed. Either party may terminate the agreement by written notification signed by the appropriate official of the institution initiating the notice. Such notice must be received by the other party 3 (three) months prior to the effective termination date.

All notices required to be given under this agreement and all correspondence with regard to any such notice hereunder shall be in writing and delivered in person, sent by certified mail or telefax transmission to the individuals named.

This agreement may be amended and renewed by the mutual written consent of the parties hereto.

Signed for and on behalf of

Paryavaran Pratham



Name: Mr. Aprup Adawadkar

Designation: Founder President



Signed for and on behalf of

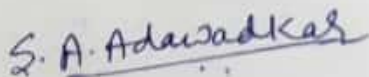
**Priyadarshini J. L. College of
Pharmacy, Nagpur**



Name: Dr. D. R. Chaple

PRINCIPAL
Designation: Principal
Priyadarshini J. L. College of
Pharmacy, Nagpur.

Nominated Members



Name: Mrs. Sonali Adawadkar

Designation: Secretary



Name: Dr. Mrs. Shilpa Deshpande

Designation: Associate Professor

Associates Prof. / Asstt. Prof.
Priyadarshini J. L. College of
Pharmacy, Nagpur.

Ref No: PJLCP/2021-22/6340

Date: 07/08/2021

To,
Mr. Aprup Adwadkar,
President,
Paryavaran Pratham(NGO)
Nagpur

Sub. : Regarding your lecture on occasion of Celebration of 75 years of
India's Independence

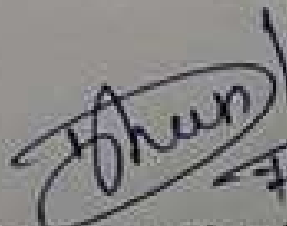
Sir,

As per the above cited subject and the letter from Govt. of India
F.30/2/NSSRD/2021-22/210-246 dated 4th August 2021, you are kindly
requested to deliver a lecture on the topic 'Rain harvesting and water
conservation' under the theme of 'Catch the rain' on 9/8/2021 at 3.00 p.m

Kindly give your consent by reply to this mail.

Thanking you.

Yours Faithfully,


7/8/21
(Dr. D. R. Chaple)
PRINCIPAL
Priyadarshini J.L. College of
Pharmacy, Nagpur

LOKMANYA TILAK JANAKALYAN SHIKSHAN SANSTHA
Priyadarshini J. L. College of Pharmacy

NOTICE

All the students of B. Pharm Sem I and III are hereby informed that a guest lecture by Mr. **Aprup Adavadkar, President, Paryavaran Pratham, NGO, Nagpur**, has been arranged on 18/08/2018 at 11:00 am in the seminar hall. All should remain present for the same.

Topic – "Fundamentals of Disaster Management"

Handwritten signature
DC

Handwritten signature
Principal
Priyadarshini J.L. College of
Pharmacy, Nagpur.

MEMORANDUM OF UNDERSTANDING (MoU)

BETWEEN

**PRIYADARSHINI J. L. COLLEGE OF
PHARMACY, NAGPUR**



AND

MAYON'S PHARMACEUTICALS LTD., NAGPUR

Mayon's[®]
PHARMACEUTICAL PVT LTD

FOR

**Facilitating Collaborative Research & Development
in the Areas of
Formulation Development, Analytical Techniques,
Industry-Academia Interaction for Teaching and Research**

PREAMBLE

The Memorandum of Understanding is to be executed between
Lokmanya Tilak Jankalyan Shikshan Sanstha's Priyadarshini J. L. College of Pharmacy, Electronic Zone Building, MIDC, Hingna Road, Nagpur- 440016, M. S.

AND

Mayon's Pharmaceuticals Ltd. Quaemi Bagh, Near Itwari Railway Station, Nagpur – 440002

Priyadarshini J. L. College of Pharmacy– an private educational institute undertaking research, clinical trial, education and training in health and allied sciences which is extended to mankind and imparts education and training. **Priyadarshini J. L. College of Pharmacy** hereinafter referred to as **First Party/ Institute** which expression, unless it be repugnant to the context or meaning thereof, shall include its successors and assigns.

Mayon's Pharmaceuticals Ltd. is a leading research and manufacturing pharmaceutical and homeopathic company committed to production of healthy medicinal & herbal products. These products are unique formulations of herbal and botanical extracts that call upon body's natural defense, detoxify the system, restore balance, and rejuvenate mind & body thoroughly and tenderly. The company is listed among the first 20 Indian companies as manufacturers of personal care products in Central India with ISO 9001-2008 certification and License for Exports. **Mayon's Pharmaceuticals Ltd.** hereinafter referred to as **Second Party/ Industry** which expression, unless it be repugnant to the context or meaning thereof, shall include its successors and assigns.

Mayon's Pharmaceuticals Ltd. Nagpur and **Priyadarshini J. L. College of Pharmacy, Nagpur** has arrived at a mutual understanding for cooperation and joint research in the areas of drug discovery, development and other areas as may be decided from time to time. This memorandum of understanding between the parties is to collaborate and conduct research on areas of mutual interest as may be agreed upon in separate agreements. This understanding also envisages:

- a) Faculty exchange programs and job placement between **the two parties** scientists for closer interactions.
- b) **Mayon's Pharmaceuticals Ltd. Nagpur** will sponsor collaborative research projects on specific areas of research to suitable candidates involved in the research. There shall also be periodical meetings of students and supervisors, subject to mutual consultation of both parties.

- c) The detailed modalities of the working of individual projects shall be arrived at after mutual discussion and documented separately as project specific Agreement / Contracts before taking up the project and it shall form a part of this Agreement.

1. OBLIGATIONS OF THE PARTIES:

1. The results of this agreement and research data which are collected, compiled and evaluated under this Agreement shall be shared and mutually exchanged by **the two parties**. Research findings as a result of this agreement will be published in the public interest.
2. As a result of this agreement the instruments & equipments available at the respective facilities shall be shared mutually by **the two parties**.
3. Frequent and effective communication is essential to the successful accomplishment of the objectives of this agreement. To this end, the scientific representatives of **the two parties** shall conduct periodical meetings (minimum half yearly) at the premises of **Mayon's Pharmaceuticals Ltd. Nagpur** and **Priyadarshini J. L. College of Pharmacy, Nagpur** by mutual consultation of both parties.
4. This agreement may be supplemented by work plans to be developed jointly, which describe more specifically the activities to be carried out under this cooperative programme.
5. **The two parties** may nominate members of their respective staff to work out the practical details of cooperation between the two organizations and in general, to ensure proper and effective implementation of this agreement. Such details, as agreed upon, will be confirmed by exchange of letters between the parties and such letters should be signed and acknowledged by both the parties and shall form part of this agreement.

2. TERM

This agreement will be in effect initially for a period of **5 (five) years** from the date of signing of this agreement by both the parties and may be renewed further if mutually agreed. Either party may terminate the agreement by written notification signed by the appropriate official of the institution initiating the notice. Such notice must be received by the other party 3 (three) months prior to the effective termination date.

3. **CONFIDENTIALITY**

The parties recognize that, by virtue of this agreement, they may be given and have access to confidential information, and other proprietary information. They undertake not to divulge or communicate to any person (unless required by law or by any regulation or by any governmental authorities or with proper authority or for the purpose of executing this Agreement) or use or exploit for any purpose whatsoever, any of the confidential information they may receive or obtain as a result of entering into this Agreement, and shall use reasonable endeavours to prevent its officers, employees or agents if any from doing so.

4. **INDEMNIFICATION**

1. **Priyadarshini J. L. College of Pharmacy, Nagpur**, shall indemnify and hold **Mayon's Pharmaceuticals Ltd. Nagpur** harmless from liability resulting from the negligent acts or omissions of **Priyadarshini J. L. College of Pharmacy, Nagpur**, its agents or employees pertaining to the activities to be carried out pursuant to the obligations of this agreement.
2. **Mayon's Pharmaceuticals Ltd. Nagpur** shall indemnify and hold **Priyadarshini J. L. College of Pharmacy, Nagpur**, harmless from any liability or loss resulting from judgments or claims against them arising out of the activities to be carried out pursuant to the obligation of this agreement.

5. **INTELLECTUAL PROPERTY**

1. "Invention" shall mean any discovery, concept, or idea, whether or not patentable, made during the conduct of the study/research, and arising directly from the performance of the study/research, including but not limited to processes, methods, software, tangible research products, formulas and techniques, improvements thereto.
2. Information and disclosures made hereunder are confidential information and the parties shall protect the information accordingly.
3. It is recognized and understood that the existing inventions and technologies of **the two parties**, are their separate property, respectively and are not affected by this agreement and neither party shall have any claims to or rights in such existing inventions and technologies of the other party.

6. **RELATIONSHIP OF PARTIES**

Mayon's Pharmaceuticals Ltd. Nagpur and **Priyadarshini J. L. College of Pharmacy, Nagpur**, shall act in their independent capacities in the performance of their respective functions under this Agreement and no party is to be considered the officer, agent, or employee of another party.

7. GOVERNING LAW

This agreement shall be governed and construed in accordance with the laws of India and jurisdiction limited to court at Nagpur, India.

8. ARBITRATION

Any disputes or disagreement, arising out of, relating to or in connection with the terms and conditions of this agreement whether during the subsistence of this agreement or after its termination, shall be amicably settled between the parties hereto by mutual discussions.

9. PUBLICATIONS

1. The parties reserve the right to publish or otherwise make public the data resulting from the study. The party wishing to publish or make public shall submit any such manuscript or release to the other party for comment prior to publication or release.
2. Neither **Priyadarshini J. L. College of Pharmacy, Nagpur** nor **Mayon's Pharmaceuticals Ltd. Nagpur** shall use the name of the other party or any of its employees in connection with any press release, advertising, promotional literature, or any other publicity matters without the express prior written consent of the other.
3. Except as otherwise required by law or regulation, neither party shall release or distribute any materials or information containing the name of the other party or any of its employees without prior written approval by an authorized representative of the non-releasing party, but such approval shall not be unreasonably withheld.
4. Both the parties undertakes that it shall keep strictly secret and confidential and shall not disclose, divulge or reveal during the continuance of this MoU or at any time thereafter the information or other information disclosed, communicated or given by either of parties to other party relating to the project, whether disclosed or communicated to either of them under this MoU or gained or otherwise acquired by them under or by virtue of or as a result of the implementation of this MoU, to any person, firm, body corporate or authority and shall ensure that the same shall be kept strictly secret and confidential.

10. NOTICES

All notices required to be given under this agreement and all correspondence with regard to any such notice hereunder shall be in writing and delivered in person, sent by certified mail or telefax transmission to the individuals named.

11. AMENDMENT

This agreement may be amended and renewed by the mutual written consent of the parties hereto.

12. SEVERABILITY

The invalidity or unenforceability of any term or provision of this agreement shall not affect the validity or enforceability of any other term or provision hereof.

13. ASSIGNMENT

Neither this agreement nor the rights or obligations hereunder shall be assignable or otherwise transferred or subcontracted by **Priyadarshini J. L. College of Pharmacy, Nagpur**, or **Mayon's Pharmaceuticals Ltd. Nagpur** without the other's prior written consent. Any attempted assignment will be void.

14. FORCE MAJEURE

- (a) Neither of the parties shall be held liable for non-performance or delayed performance of the obligations under this Agreement or part thereof due to any direct or indirect cause, which is outside the reasonable control of either Party, such as an Act of God, Government orders or restrictions, threat of war, warlike conditions, hostilities, mobilization, blockade, embargo, revolution, riot, looting, strike, lockout, epidemic, or fire provided that notice of its inability to perform and causes thereof shall be given immediately by the affected party to the other party.
- (b) A party may claim exemption from the timely performance of obligations due to the occurrence of Force Majeure as defined above. In order to claim such exemption and thus be excused from timely performance of obligations, notice must be given promptly to the other party and at the earliest possible date of event of occurrence of Force Majeure.

(c) A party claiming relief by reason of such circumstances of Force Majeure must take all reasonable steps to mitigate their length and effect. Promptly after the termination of the circumstances of Force Majeure, the party claiming relief shall forthwith notify the other party in writing.

15. COUNTERPARTS

This agreement may be executed in counterparts and those counterparts taken together constitute one and the same instrument.

In witness whereof, the parties here to cause this instrument to be executed on this 12th day of February 2019.

Signed for and on behalf of

MAYON'S PHARMACEUTICALS LTD.
NAGPUR

Signed for and on behalf of

PRIYADARSHINI J. L. COLLEGE
OF PHARMACY, NAGPUR

Mayon's Pharmaceuticals Pvt. Ltd.



Yusuf Chimthanawala
Name: Mr. Yusuf Chimthanawala
Director

Designation: Managing Director

Dr. D. R. Chaple

Name: Dr. D. R. Chaple

Designation: Principal
PRINCIPAL
Priyadarshini J.L. College of
Pharmacy, Nagpur.



Nominated Members

Mrs. Nasreen Chimthanawala
Name: MRS-NASREEN CHIMTHANAWALA
Designation: M

Dr. Mrs. Shilpa Deshpande
Name: Dr. Mrs. Shilpa Deshpande
Designation: Associate Professor
Associates Prof. / Asstt. Prof.
Priyadarshini J. L. College of
Pharmacy, Nagpur.



LOKMANYA TILAK JANKALYAN SHIKSHAN SANSTHA'S
PRIYADARSHINI J.L. COLLEGE OF PHARMACY

(Formerly known as J. L. Chaturvedi College of Pharmacy)
Electronics Zone Building, MIDC, Hingna Road, Nagpur - 440 016. (India)
Tel. & Fax No. : +91-7103-242169, 246811

E-mail : jiccp_ngp@rediffmail.com, principal.jiccp@ljss.net Website : www.jiccp.ljss.net



Ref: PJC/P/2019-20/6059

Date: 29/01/2020

Report of preclinical study

Sample: Calendula Gel -

- Calendula extract 1%V/V
- Chamomila extract 2% V/V
- Lavender extract 1% V/V
- UrticaUrens Extract 1% V/V

Manufactured By: Mayon's Pharmaceuticals, Nagpur

Investigator: Ms. Priti Bhojar, Post Graduate Research Student

Supervisor: Dr. Shilpa Deshpande, Associate Professor and Head, Pharmacology Department

Place of Study: Animal House of Pharmacology Department of Priyadarshini J.L. College of Pharmacy, Nagpur approved by CPCSEA, Ministry of Environment and Forests, Govt. of India, New Delhi.

Registration Number of Animal House: 648/PO/Re/S/02/CPCSEA; Dt.30/09/2013

Protocol Approval Number: PJC/P/2019/IAEC/21 approved by Institutional Animal Ethical Committee (IAEC)

Results of pharmacological evaluation studies:

- The product under study was found to be significantly effective in healing the wound induced by excision and burn method.
- The excision wound area was reduced by 98.13 % as compared to standard (97.97 %) and control (90.15%) with epithelisation period of 24 days and serum hydroxyproline content was increased with treatment.
- The burn wound area was reduced by 93.66 % as compared to standard (93.99 %) and control (92.601%) with epithelisation period of 18 days.
- Histopathological examination showed improved skin pathological changes of wound in the treatment group as compared to control and induced groups.

The details of the study results are attached along with.

Dr. Mrs. S. A. Deshpande

Head, Pharmacology Department

Associates Prof. / Asstt. Prof.
Priyadarshini J. L. College of
Pharmacy, Nagpur.

Dr. D. R. Chaple

Principal

Priyadarshini J.L. College of
Pharmacy, Nagpur.

LOKMANYA TILAK JANKALYAN SHIKSHAN SANSTHA

Memorandum of Understanding

Between



DEEPTI PHARMACEUTICALS

W-3 MIDC INDUSTRIAL AREA

NAGPUR -440028

AND



Lokmanya Tilak Jankalyan Shikshan Sanstha's,

Priyadarshini J. L. College of Pharmacy

Electronic zone Building, MIDC, Hingna Road, Nagpur-440016(M.S.)

Out No.:-

Date: 11/02/2019

Proposal for the Joint Collaborative Research Venture between **PRIYADARSHANI J.L. College of Pharmacy, Nagpur & DEEPTI PHARMACEUTIALS**, W-3 M.I.D.C Industrial Estate Area, Amravati Road, Nagpur - 440028

We will be referred to as The Institute and you as The Company in the MoU.

Proposed Objectives of Collaborative Research under MoU.

1. To carry out collaborative applied research in the areas of Pharmaceuticals, Nutraceuticals, Biochemicals, Phytochemicals, Cosmeuticals on regular basis in an ongoing manner. The company essentially being a commercial organization is interested in applied Research and **NOT** in Basic Research.
2. The company will provide the required raw inputs for the proposed research work like plant characteristics etc to the Institute to enable individual selected students to carry out the experimental works on the collaborative research.
3. The company will have the first right of refusal to shortlist the Pre Final / Final year Graduate / Post Graduate students for such collaborative research works.
4. The decision of the company in terms of selection of a particular student for a particular topic / subject will be final.
5. Students for short term training for 4 to 6 weeks as part of their curriculum will receive a suitable certificate on completion of the training program
6. Students desirous of working on their projects on a medium long term basis for 6 to 18 months will be required to visit the company facilities often.
7. The Institute will guide the company and ensure that the selected student has not been awarded any assignment by any other organization / institute for any research work.
8. The institute will further ensure that uninterrupted focused approach is exercised by the student, while working on all such collaborative research works.
9. All students will be required to sign a non disclosure agreement with the company prior to taking up the assignment on the collaborative research work.
10. The Institute will not engage with any other commercial organization for such work that will imply competition with the product range of the company.
11. The students will have freedom to use the existing facilities of the company including instruments at the premises of the group companies and / or other Institutes / Business associates with whom the company may enter allied research arrangements. As a matter of bilateral reciprocation, the Company will have freedom to utilize the facilities of the Institute.

12. The company has authorized its Technical Officer of the group to take all decisions as deemed appropriate to make this MOU a success.
13. Both parties either through the students and / or their respective supervisors / Research Guides, or in any manner will not disclose to a third party without proper authorization, any matter pertaining to the collaborative research work.
14. The company will nominate a suitable co author for technical papers if any published in journals of repute on the success of the collaborative research work. The decision of the company on the contents of the technical paper will be final.
15. The company will bear all reasonable expenses as required ONLY for the student to attend such seminars / conferences as deemed appropriate.
16. The company will have the first right of refusal to recruit such students from the institute, whether they have worked on such collaborative research with the company or not. The Institute will ensure priority selection in the campus for the company.
17. The company will have all the right to file any patent on the work as a result of any such collaborative research works. However the concerned student will be in the list of innovators / inventors in the patents.
18. As mutual benefits the company will depute its authorized representative The Technical Officer to guide and mentor all such final year students for effective campus interviews, as a reciprocation the Institute will extend all support to certify and validate the company products on efficacies etc as may be deemed appropriate and fit.

For, **PRIYADARSHANI J.L.**
College of Pharmacy
Nagpur.

Dr. D.R. Chaple
 11/02/2019

Dr. D.R.Chaple
 Principal
PRINCIPAL

Priyadarshini J.L. College of
 Pharmacy, Nagpur.

S. Bakhle
 Dr. Mrs. Suparna S. Bakhle
 Associate Professor,

Associates Prof. / Asst. Prof.
 Priyadarshini J. L. College of
 Pharmacy, Nagpur.

Dr. Mrs. kanchan Upadhye
 Associate Professor,

K. Upadhye
 Associates Prof. / Asst. Prof.
 Priyadarshini J. L. College of
 Pharmacy, Nagpur.



For, **Deepti Pharmaceuticals**
 W-3 M.I.D.C Industrial Estate Area,
 Amravati Road, Nagpur - 440028

S. A. Jinturkar

Mr. Suresh Jinturkar
 Partner

M. Nikhil

Mr. Nikhil Jinturkar
 Partner



DEEPTI PHARMACEUTICALS

Factory : W-3, M.I.D.C. Hingna Ind. Area, Nagpur-440 028. Phone (07104) 237306
Office Address: 217, Sandesh Dawa Bazar, Ganj Peth, Nagpur - 440018. Phone / Fax (0712) 2765733
Email ID : deeptipharmaceuticals@yahoo.com

DATE: 11/03/2022

To,
The Principal
Priyadarshini J.L. College of pharmacy,
Nagpur.

Respected Sir,

The staff of your pharmaceutics faculty and student of M. Pharm I & M. Pharm II year had visited to our company Deepti Pharmaceuticals ,Nagpur.

Thank you for visiting us, it was good to meet you.

Thanking you

Yours faithfully

S.O. Jinturkar
S.O. Jinturkar

Director Of Deepti Pharmaceuticals,

Nagpur-28

MEMORANDUM OF UNDERSTANDING (MOU)

Between

PRIYADARSHINI J. L. COLLEGE OF PHARMACY

NAGPUR

And



For

Facilitating collaborative research & development in the areas of new drug discovery, Formulation Development, clinical studies and Industry academia interaction for teaching and research

PREAMBLE

Priyadarshini J. L. College of Pharmacy— an educational institute undertakes research, clinical trial and education and training in health and allied sciences and extends such sciences to mankind and imparts education and training at **Priyadarshini J. L. College of Pharmacy** hereinafter referred to as institute which expression, unless it be repugnant to the context or meaning thereof, shall include its successors and assigns. The **Priyadarshini J. L. College of Pharmacy** has many National and international sponsored research projects.

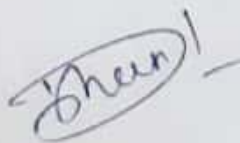
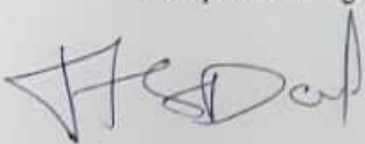
ZIM Laboratories Ltd. is a leading Pharmaceutical formulation Company in Central India. It has made a significant mark as a maverick pharma innovator especially in novel drug delivery segment. It is headquartered in the industrial belt of Nagpur City. ZIM is engaged in the activities of manufacturing, research, distribution and marketing of Pharmaceuticals formulations encompassing almost every solid dosage form including Tablets, Capsules, Dry Syrups, pellets, Powders etc. Zim is having its own DSIR (Govt. of India) recognized R & D centre. This is a WHO GMP certified company having state of art facilities for performing above stated activities. ZIM Laboratories Ltd. is represented by its Managing Director.

Zim Laboratories Ltd, Nagpur and **Priyadarshini J. L. College of Pharmacy, Nagpur** have arrived at a mutual understanding for cooperation and joint research in the areas of drug discovery and development and other areas as may be decided from time to time. This memorandum of understanding between the parties is to collaborate and conduct research on areas of mutual interest as may be agreed upon in separate agreements. This understanding also envisages,

- a) Faculty exchange programs between **Zim Laboratories Ltd, Nagpur** and **Priyadarshini J. L. College of Pharmacy, Nagpur** scientists for closer interactions.
- b) **Zim Laboratories Ltd, Nagpur** will sponsor collaborative research projects on specific areas of research to suitable candidates involved in the research. There shall also be periodical meetings of students and supervisors, subject to mutual consultation of both parties.
- c) The detailed modalities of the working of individual projects shall be arrived at after mutual discussion and documented separately as project specific agreement / contracts before taking up the project and it shall form a part of this MOU..

3. OBLIGATIONS OF THE PARTIES:

- 3.1 The results of this agreement and research data which are collected, compiled and evaluated under this Mou shall be shared and mutually exchanged by **Zim Laboratories Ltd, Nagpur** and **Priyadarshini J. L. College of Pharmacy, Nagpur**. Research findings as a result of this agreement will be published in the public interest. However, Zim Laboratories Ltd, Nagpur will hold editorial rights for the same, wherever need for protection of intellectual property generated through such work is indicated to safeguard mutual interests.
- 3.2 As a result of this agreement the instruments & equipments available at the respective facilities shall be shared mutually by **Zim Laboratories Ltd, Nagpur** and **Priyadarshini J. L. College of Pharmacy, Nagpur** for the purpose of execution of the collaborative projects.
- 3.3 Frequent and effective communication is essential to the successful accomplishment of the objectives of this agreement. To this end, the scientific representatives of **Zim Laboratories Ltd, Nagpur** and **Priyadarshini J. L. College of Pharmacy, Nagpur**, shall conduct periodical meetings (minimum half yearly) at the premises of **Zim Laboratories Ltd, Nagpur** and **Priyadarshini J. L. College of Pharmacy, Nagpur** by mutual consultation of both parties.
- 3.4 This agreement may be supplemented by work plans to be developed jointly, which describe more specifically the activities to be carried out under this cooperative programme and which sets forth the envisaged contribution of each part.
- 3.5 Any such plan or recommendation that is outside the scope of agreement shall be reduced to writing and referred to the management of each party for appropriate action.
- 3.6 Any such plan or recommendation so referred shall not be binding on either party unless incorporated into this agreement by amendment.
- 3.7 **Zim Laboratories Ltd, Nagpur** and **Priyadarshini J. L. College of Pharmacy, Nagpur** may nominate members of their respective staff to work out the practical details of cooperation between the two organisations and in general, to ensure proper and effective implementation of this agreement. Such details, as agreed upon, will be confirmed by exchange of letters between the parties and such letters should be signed and acknowledged by both the parties and shall form part of this agreement.



4. TERM

This agreement will be in effect initially for a period of 3 (three) years from the date of signing of this agreement by both the parties and may be renewed further if mutually agreed. Either party may terminate the agreement by written notification signed by the appropriate official of the institution initiating the notice. Such notice must be received by the other party 3 (three) months prior to the effective termination date.

Termination of this agreement shall not affect the obligation as stated under Clause-5 and Clause-7 of this agreement and the same shall be binding on the parties in perpetuity.

5. CONFIDENTIALITY

The parties recognize that, by virtue of this agreement, they may be given and have access to Confidential Information, and other proprietary information. They undertake not to divulge or communicate to any person (unless required by law or by any regulation or by any governmental authorities or with proper authority or for the purpose of executing this Agreement) or use or exploit for any purpose whatsoever, any of the Confidential Information they may receive or obtain as a result of entering into this Agreement, and shall use reasonable endeavours to prevent its officers, employees or agents if any from doing so. This obligation and restriction shall continue to apply without limit in point of time but shall cease to apply to information or knowledge, which may properly come into the public domain through no fault of the parties, or was already known.

6. INDEMNIFICATION

6.1 **Priyadarshini J. L. College of Pharmacy, Nagpur**, shall indemnify and hold **Zim Laboratories Ltd, Nagpur** harmless from liability or loss resulting from judgments or claims against them arising out of the negligent acts or omissions of **Priyadarshini J. L. College of Pharmacy, Nagpur**, its agents or employees pertaining to the activities to be carried out pursuant to the obligations of this agreement; provided however, that **Priyadarshini J. L. College of Pharmacy, Nagpur**, shall not hold **Zim Laboratories Ltd, Nagpur** harmless from claims arising out of the negligence or wilful malfeasance of **Zim Laboratories Ltd, Nagpur**, its officers, agents, or employees, or any person or entity not subject to **Priyadarshini J. L. College of Pharmacy's**, supervision or control.

6.2 **Zim Laboratories Ltd, Nagpur** shall indemnify and hold **Priyadarshini J. L. College of Pharmacy, Nagpur**, harmless from any liability or loss resulting from judgments or claims against them arising out of the activities to be carried out pursuant to the obligation of this agreement, including but not limited to the use by **Zim Laboratories Ltd, Nagpur** of the results of the study/research; provided

however, that the following is excluded from **Zim Laboratories Ltd, Nagpur's** obligation to indemnify and hold harmless;

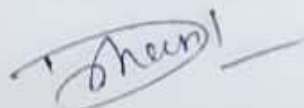
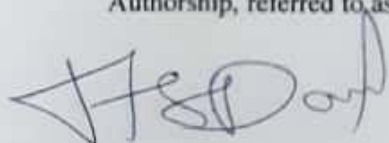
- 6.3 The negligent failure of either party, **Zim Laboratories Ltd, Nagpur** and **Priyadarshini J. L. College of Pharmacy, Nagpur**, to comply with any applicable governmental requirements or to adhere to the terms of the research.

7. **INTELLECTUAL PROPERTY**

- 7.1 "Invention" shall mean any discovery, concept, or idea, whether or not patentable, made during the conduct of the study/research, and arising directly from the performance of the study/research, including but not limited to processes, methods, software, tangible research products, formulas and techniques, improvements thereto, and know-how related thereto.
- 7.2 Information and disclosures made hereunder are confidential information and the parties shall protect the information accordingly.
- 7.3 It is recognized and understood that the existing inventions and technologies of **Zim Laboratories Ltd, Nagpur** and **Priyadarshini J. L. College of Pharmacy, Nagpur**, are their separate property, respectively and are not affected by this agreement and neither party shall have any claims to or rights in such existing inventions and technologies of the other party.
- 7.4 It is agreed by both the parties that any intellectual property invented during the project, Zim will take responsibility regarding filing, and processing of collaborative intellectual property, and the intellectual property shall be assigned to Zim on non exclusive basis and those who are involved in the creation of the intellectual property will be the co inventors in the said intellectual property.

8 **Invention Disclosure**

- 8.1 **Disclosure:** That **Priyadarshini J. L. College of Pharmacy, Nagpur** shall disclose promptly to Zim Laboratories Ltd each Invention, whether or not reduced to practice, which is conceived or learned during the course of the project (either alone or jointly with others) Further it is agreed by **Priyadarshini J. L. College of Pharmacy, Nagpur** that all patent applications shall be filed by Zim Laboratories Ltd during the term of the project.
- 8.2 That **Priyadarshini J. L. College of Pharmacy, Nagpur** agrees that they will not incorporate, or permit to be incorporated, any Excluded Inventions, Improvements, and Original Works of Authorship, referred to as "Prior inventions" owned by them or in which they has an interest, into a



ZIM's product, process without ZIM'S prior written consent, the ZIM is hereby deemed to have been granted and shall have a nonexclusive, royalty free, irrevocable, perpetual, worldwide license to make, have made, modify, use and sell such "Prior invention", and Original Works of Authorship as part of or in connection with such product, process.

- 8.3 **COMPANY Property Assignment: Priyadarshini J. L. College of Pharmacy, Nagpur** acknowledges and agrees that all Inventions made, written, discussed, developed, secured, obtained or learned during the term of the relationship shall be the sole property of ZIM, including without limitation all domestic and foreign patent rights, rights of registration or other protection under the copyright laws, or other rights, pertaining to the Inventions. **Priyadarshini J. L. College of Pharmacy, Nagpur** further agrees that all services, products and Inventions that directly or indirectly result from engagement with company shall be deemed to have arisen out of the course of the project/research for which this MOU is executed and accordingly all rights associated therewith shall vest in ZIM

9. RELATIONSHIP OF PARTIES

- 3.8 **Zim Laboratories Ltd, Nagpur and Priyadarshini J. L. College of Pharmacy, Nagpur**, shall act in their independent capacities in the performance of their respective functions under this Agreement and no party is to be considered the officer, agent, or employee of another party.

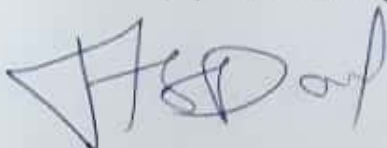
10. GOVERNING LAW

This agreement shall be governed and construed in accordance with the laws of India and jurisdiction limited to courts at Nagpur, India.

11. ARBITRATION

Any disputes or disagreement, arising out of, relating to or in connection with the terms and conditions of this agreement whether during the subsistence of this agreement or after its termination, shall be amicably settled between the parties hereto by mutual discussions.

If any question of dispute shall at any time during the Term or thereafter arise between the Parties with respect to the validity, interpretation, implementation or alleged material breach of any provision of this memorandum or the rights or obligations of the Parties hereunder, or regarding any question including the question as to whether the termination of this memorandum by either



Party has been legitimate, then the Parties shall attempt to settle such dispute amicably between them by referring the matter to senior management of both Parties. In the event that such dispute has not been amicably settled within sixty (60) days, then such a question or dispute shall be referred to the arbitration in accordance with the provisions of the Indian Arbitration and Conciliation Act, 1996 to be conducted by a sole arbitrator to be appointed jointly by the Parties. In the event of the parties not being able to concur on the appointment of a sole arbitrator then such sole arbitrator to be appointed as per the provisions of the Indian Arbitration and Conciliation Act, 1996. The award of the arbitrator shall be final and binding on the Parties. The place of arbitration shall be Nagpur and the language to be used in the arbitral proceedings shall be English. The arbitrator's fee shall be borne equally by the parties. All other costs and expenses of the arbitration shall be borne by the Parties as the arbitrator may award. This Agreement shall be interpreted and governed in all respects by the laws of India and the courts of Nagpur alone and no other courts shall be entitled to entertain and try any dispute or matter relating to or arising out of this MOU.

11. PUBLICATIONS

- 11.1 The parties reserve the right to publish or otherwise make public the data resulting from the study. The party wishing to publish or make public shall submit any such manuscript or release to the other party for comment prior to publication or release.
- 11.2 Neither Priyadarshini J. L. College of Pharmacy, Nagpur nor Zim Laboratories Ltd, Nagpur shall use the name of the other party or any of its employees in connection with any press release, advertising, promotional literature, or any other publicity matters without the express prior written consent of the other.
- 11.3 Except as otherwise required by law or regulation, neither party shall release or distribute any materials or information containing the name of the other party or any of its employees without prior written approval by an authorized representative of the non-releasing party, but such approval shall not be unreasonably withheld.
- 11.4 Both the parties undertakes that it shall keep strictly secret and confidential and shall not disclose, divulge or reveal during the continuance of this MOU or at any time thereafter the information or other information disclosed, communicated or given by either of parties to other party relating to the project, whether disclosed or communicated to either of them under this MOU or gained

or otherwise acquired by them under or by virtue of or as a result of the implementation of this MOU, to any person, firm, body corporate or authority and shall ensure that the same shall be kept strictly secret and confidential provided, however, that nothing contained in this article shall prevent either of parties from disclosing or imparting the same to the Director and its other senior officers or employees but only in so far as may be necessary for the satisfactory and proper performance and discharge of their duties and responsibilities hereunder : provided further that the Director and Officers or Employees shall prior to such disclosure have given a written undertaking to respective parties in terms previously approved by both the parties, not to disclose or divulge the information or any documents or other information relating to the manufacture, sale or distribution of the said Products to any person, firm, body corporate or authority.

12. NOTICES

All notices required to be given under this agreement and all correspondence with regard to any such notice hereunder shall be in writing and delivered in person, sent by certified mail or telefax transmission to the individuals named.

13. AMENDMENT

This agreement may be amended and renewed by the mutual written consent of the parties hereto.

14. SEVERABILITY

The invalidity or unenforceability of any term or provision of this agreement shall not affect the validity or enforceability of any other term or provision hereof.

15. ASSIGNMENT

3.9 Neither this agreement nor the rights or obligations hereunder shall be assignable or otherwise transferred or subcontracted by **Priyadarshini J. L. College of Pharmacy, Nagpur**, or **Zim Laboratories Ltd, Nagpur** without the other's prior written consent. Any attempted assignment will be void.

16. FORCE MAJEURE

- (a) Neither of the Parties shall be held liable for non performance or delayed performance of the obligations under this Agreement or part thereof due to any direct or indirect cause, which is outside the reasonable control of either Party, such as an Act of God, Government orders or restrictions, threat of war, warlike conditions, hostilities, mobilization, blockade, embargo, revolution, riot, looting, strike, lockout, epidemic, or fire provided that notice of its inability to perform and causes thereof shall be given immediately by the affected Party to the other Party.
- (b) A Party may claim exemption from the timely performance of obligations due to the occurrence of Force Majeure as defined above. In order to claim such exemption and thus be excused from timely performance of obligations, notice must be given promptly to the other Party and at the earliest possible date of event of occurrence of Force Majeure.
- (c) A Party claiming relief by reason of such circumstances of Force Majeure must take all reasonable steps to mitigate their length and effect. Promptly after the termination of the circumstances of Force Majeure, the Party claiming relief shall forthwith notify the other Party in writing.

17. COUNTERPARTS

This agreement may be executed in counterparts and those counterparts taken together constitute one and the same instrument.

In witness whereof, the parties here to cause this instrument to be executed on this 31st day of January 2017.

[Handwritten signature]

[Handwritten signature]

Signed for and on behalf of


ZIM LABORATORIES LTD, NAGPUR



Name: Mr. Anwar S. Daud

Designation: Managing Director

Witness

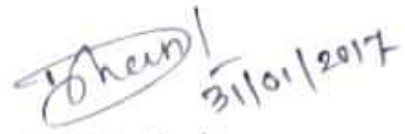


Dr. Sunil Gupta

R&D Manager

Signed for and on behalf of

**Priyadarshini J. L. College of
Pharmacy, Nagpur**



Name: Dr. D. R. Chaple

Designation: Principal



Mrs. Gouri Dixit

Associate Professor



Zeal & Innovation in Medicine

Ref. No. ZLL/HR/2019-20/233

Date: 02/07/2019

To
Ms. Kiran Belsare
Priyadarshini J.L. College of Pharmacy
Nagpur

Sub: Approval for M.Pharm Project Work.

Dear Kiran,

With reference to your college application received on dated: 29/06/2019 this is to inform you that management has accepted your application & we hereby permit you to carry out your research project in our organization as partial fulfillment of the Master of Pharmacy course.

For Zim Laboratories Ltd.


Riaz A. Kamal
(Director Administration)



ZIM LABORATORIES LIMITED

www.zimlab.in | info@zimlab.in | CIN: L1999MH1994PLC032171

Work: B-21, 22, MIDC Area, Kalmeshwar - 441501 Dist. Nagpur,
Maharashtra, India ☎ +91 7118271370 | Fax: +91 7118271470

Regd. office: Secoddy Gyan, (Ground Floor), Opp. NADT, Nelson Square,
Nagpur - 440013 Maharashtra, India ☎ +91 7123588070



LOKMANYA TILAK JANKALYAN SHIKSHAN SANSTHA
PRIYADARSHINI J.L. COLLEGE OF PHARMACY

(Formerly known as) J. L. Chatterjee College of Pharmacy

Electronics Tower Building, WPC, Dimgur Road, Nagpur - 440 016 (India)

Tel. & Fax No. : +91-734-242399, 244811

E-mail : principal@priyadashini.ac.in, principal.priyadashini.ac.in Website : www.priyadashini.ac.in



ACCREDITED WITH GRADE B++ BY NAAC

Ref. No. : P.L.C.P / 2019-20 / 5820

Date : 29/06/2019

To,
HR Manager
Zim Laboratories Ltd.,
Kalmeshwar
Nagpur

Sub. : Regarding project work


Dear Sir / Madam,

Ms. Kiran Dashrath Belsare is a bonafide student of our college studying in M. Pharm III Sem in academic session 2019-20. She wishes to complete her M.Pharm. project work in your company for a duration of six months. The institute permits her to pursue her project work in your company.


Hoping for your grand co-operation.

Thanking You,

Yours faithfully,


(Dr. Mrs. S.S. Bakhle)
Research Guide

Associate Prof. / Asstt. Prof.
Priyadarshini J. L. College of
Pharmacy, Nagpur.


(Dr. D. R. Chapple)
Principal
PRINCIPAL
Priyadarshini J.L. College of
Pharmacy, Nagpur.

LOKMANYA TILAK JANKALYAN SHIKSHAN SANSTHA

Ref. No. ZLL/HR/2019-20/48

Date: 17/06/2019

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

Ms. Vaibhavi Jaunjalkar, B. Pharm student of Priyadarshini J. L. College of Pharmacy, Nagpur has undergone in-plant training at our factory from 17/05/2019 to 16/06/2019. She was trained in different department such as Tablet, Capsule, and Quality Control etc.

During her training period she made herself conversant with various machine and processes employed in the manufacture of our pharmaceutical specialties. She also made herself aware of controls and responsibilities of pharmaceutical production and test.

She took keen interest in the training imparted. She was punctual and hard worker. We find her keen, analytical & disciplined.

With Regards,
For Zim Laboratories Ltd.

Riaz A. Kamal
(Director Administration)



ZIM LABORATORIES LIMITED

www.zimlab.in | info@zimlab.in | CIN: L99999MH1984PLC032172

Plot No. 21, 22 MIDC Area, Kalmeshwar - 441501 Dist. Nagpur,
Maharashtra, India. ☎ +91 7118 271370 | Fax: +91 7118 271470

Regd. office: Sadashy Gyan (Ground Floor), Opp. NADT Nelson Square,
Nagpur - 440013 Maharashtra, India. ☎ +91 712 2589070



Innovation in Medicine

Ref. No. ZLL/HR/2019-20/164

Date: 17/06/2019

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

Mr. Pravin Dharage, B. Pharm student of Priyadarshini J. L. College of Pharmacy, Nagpur has undergone in-plant training at our factory from 17/05/2019 to 16/06/2019. He was trained in different department such as Tablet, Capsule, and Quality Control etc.

During his training period he made himself conversant with various machine and processes employed in the manufacture of our pharmaceutical specialties. He also made himself aware of controls and responsibilities of pharmaceutical production and test.

He took keen interest in the training imparted. He was punctual and hard worker. We find him keen, analytical & disciplined.

With Regards,

For Zim Laboratories Limited

Riaz A. Kamal
(Director Administration)



ZIM LABORATORIES LIMITED

www.zimlab.in | info@zimlab.in | CIN: L99999MH1984PLC032172

21, 22, MIDC Area, Kalmeshwar - 441501 Dist. Nagpur,
Maha. India ☎ +91.7118.271370 | Fax: +91.7118.271470

Regd. office: Sadoday Gyan, (Ground Floor), Opp. NADT, Nelson Square,
Nagpur -440013. Maharashtra, India ☎ +91.712.2588070

Ref. No. ZLL/HR/2018-19/167

Date: 29/06/2018

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

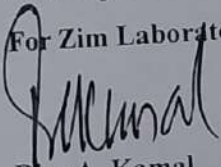
Mr. Harsh Chauhan, B.Pharm student of Priyadarshini J. L. College of Pharmacy, Nagpur has undergone in-plant training at our factory from 26/05/2018 to 25/06/2018. He was trained in different department such as Tablet, Capsule, and Quality Control etc.

During his training period he made himself conversant with various machine and processes employed in the manufacture of our pharmaceutical specialties. He also made himself aware of controls and responsibilities of pharmaceutical production and test.

He took keen interest in the training imparted. He was punctual and hard worker. We find him keen, analytical & disciplined.

With Regards,

For Zim Laboratories Limited


Riaz A. Kamal
(Director Administration)



ZIM LABORATORIES LIMITED

www.zimlab.in | info@zimlab.in | CIN: L99999MH1984PLC032172

Works: B-21/22, MIDC Area, Kalmeshwar - 441501 Dist. Nagpur,
Maharashtra, India ☎ +91.7118.271370 | Fax: +91.7118.271470

Regd. office: Sadoday Gyan, (Ground Floor), Opp. NADT, Nelson Square,
Nagpur -440013, Maharashtra, India ☎ +91.712.2588070

2-018



MEMORANDUM OF UNDERSTANDING



This memorandum of understanding is signed between:-

The **Priyadarshini J. L. College of Pharmacy**, located at Electronic Zone Building, MIDC, Hingna Road, Nagpur, established in 1997 affiliated to RTM Nagpur University, Nagpur

AND

Datta Meghe Institute of Medical Sciences (Deemed to be University), located at Sawangi Meghe, Wardha

This MOU has been signed with an objective to disseminate and advance knowledge by providing instructional, research and extension facilities in the field of Medical and Pharmaceutical Sciences as it may deem fit and it shall endeavor to provide students and teachers the necessary atmosphere and facilities for the promotion of:

- i. Innovations in education leading to restructuring of courses
- ii. Inter-disciplinary and multi-disciplinary research
- iii. Applied and advance knowledge of medical science to the field of Pharmacy

NOW, therefore the

The **Priyadarshini J. L. College of Pharmacy, Nagpur**

Herein referred as "PJLCP"

AND

Datta Meghe Institute of Medical Sciences(DU), located at Sawangi Meghe, Wardha

Herein referred as "DMIMS(DU)"

Have intended, agreed and consented to the following terms and deeds in pursuance of a common intent to promote and develop the interdisciplinary research.

AND/OR

Make provisions for research and for the advancement and dissemination of knowledge


Registrar
DMIMS (DU)
Sawangi (M) Wardha


PRINCIPAL
Priyadarshini J.L. College of
Pharmacy, Nagpur

AND/OR

To organize and to undertake extra-mural studies and extension services

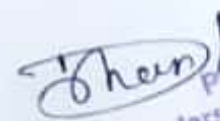
A. FIELD OF CO-OPERATION:-

1. Both, PJLCP and DMIMS(DU) shall evolve a mutually acceptable schedule to develop programs and exchange visits.
2. The said academic interaction and intellectual assimilation may include:-
 - i. Deputing PG students as a project trainee with/without stipend
 - ii. Collaborative interdisciplinary research
 - iii. Sharing of academic data, scientific information, intellectual property, articles and publications
 - iv. Providing assistance for the training and placements of UG & PG students

B. EXCHANGE OF STAFF/STUDENTS/TEACHERS:-

1. Reciprocal arrangements based on mutually acceptable terms shall be accomplished to give an impetus to collaborative research and joint projects either sponsored or non-sponsored
2. The DMIMS(DU) will provide the required raw inputs for the proposed research work to PJLCP to carry out the experimental works on the collaborative research.
3. Interdisciplinary projects can be operated by research coordinators of both DMIMS(DU) and PJLCP, after the signing of confidential agreement of the said project.
4. Students and faculty members of PJLCP and DMIMS(DU) can be deputed for short term training programs of one to two weeks and will receive a suitable certificate on completion of the training program.
5. Research coordinators of DMIMS(DU) and PJLCP with mutual consents, can apply for the funding for collaborative projects to various funding agencies as a principal investigator (PI) and co-PI
6. The output of collaborative research can be published/patented/commercialized with mutual consent mentioning names of research coordinators of both DMIMS(DU) and PJLCP
7. This intellectual property will belong to both DMIMS(DU) and PJLCP and same should not be utilized for any techno-commercial use by any party without prior written consent of the other counterpart.


Registrar
DMIMS (DU)
Sawangi (M) Wardha


PRINCIPAL
Priyadarshini J.L. College of
Pharmacy, Nagpur.

8. The students and faculty members from DMIMS(DU) and PJLCP will have freedom to use the existing facilities of both parties including instruments and other consumables.

9. DMIMS(DU) and PJLCP should authorize its research coordinator to take all decisions as deemed appropriate to make this MoU a success.

10. Both DMIMS(DU) and PJLCP, either through the students and / or their respective supervisors / research guides or in any manner will not disclose to a third party without proper authorization, any matter pertaining to the collaborative research work.

11. Teachers, researchers, guides, and students of both the organizations shall be encouraged to work in tandem in the laboratories, workshops, industrial facilities and departments of both the organizations.

C. MISCELLANEOUS:-

1. The details for the efficacious implementation of this MoU shall be jointly worked out on mutually acceptable terms within the parameters of the policies, rules and regulations of both the organizations.

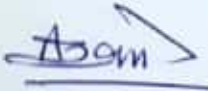
2. The parties to this memorandum may, by mutual consent, add modify, amend, delete, review or revise any tem(s) and condition(s) of this agreement.


3. The MoU shall remain in force for a period of three years from the date of its signature and seal, and may be terminated by either side by giving a six months notice to that effect in writing. However, notwithstanding the notice of the intent to terminate the memorandum, all rights, obligations and corresponding duties and subsisting therein shall be respected and mandated till the finalization and accomplishment thereof.

E. The parties to this MoU undertake to treat as **CONFIDENTIAL AND PRIVILEGED** information of the other institution, which is so classified in advance.

The terms of confidentiality and mode of disclosure shall be as per mutually acceptable terms.


F. This MoU shall require the ratification of the competent academic/executive body of both the organizations.


Registrar
DMIMS (DU)
Sawangi (M) Wardha


PRINCIPAL
Priyadarshini J.L. College of
Pharmacy, Nagpur.

Signed at Nagpur 02nd May on 2018

For, Priyadarshini J. L. College of Pharmacy, Nagpur



PRINCIPAL
Priyadarshini J.L. College of
Pharmacy, Nagpur.
Dr. D. R. Chaple
Principal
PJLCP,
Nagpur

Seal:



Date: 02/05/2019

For, Datta Meghe Institute of Medical Sciences (DU),
Sawangi Meghe, Wardha



Registrar
DMIMS(DU), Sawangi Meghe,
Wardha
Registrar
DMIMS (DU)
Sawangi (M) Wardha

Seal:

Date: 02/05/2019



Resveratrol: A Pleiotropic Phytoconstituent

Prashant N. Amale¹, Manish P. Deshmukh², Ashish B. Budhrani³, Shilpa A. Deshpande^{*1}

¹Department of Pharmacology, Priyadarshini J. L. College of Pharmacy, MIDC, Electronic Zone Building, Hingna Road, Nagpur, Pin-440016, Maharashtra, India

²Department of Pharmacology, Jawarharlal Nehru Medical College, Datta Meghe College of Pharmacy, Datta Meghe Institute of Medical Sciences (DU), Wardha, Pin-442001, Maharashtra, India

³Department of Pharmaceutics, Datta Meghe College of Pharmacy, Datta Meghe Institute of Medical Sciences (DU), Wardha, Pin-442001, Maharashtra, India

Article History:

Received on: 31 Jul 2020
Revised on: 23 Aug 2020
Accepted on: 02 Sep 2020

Keywords:

Resveratrol,
Pleiotropic,
phytoconstituents,
pain,
inflammation

ABSTRACT

Resveratrol (RSV) is a plant polyphenol or phytoalexin phytoconstituents obtained from the grapes, berries, peanut, and wine. RSV is obtained from natural source and regarded as safe, effective, and hepatoprotective drug with no other serious organ toxicities are reported yet. This property of RSV makes it advantageous over the allopathic medicine having symptomatic cure and plethora of adverse effects. It's a cheap and widely available phytoconstituent approved in the global market in the active form as trans-resveratrol. It has multiple pharmacological actions including, analgesic, anti-inflammatory, anti-anxiety, anti-parkinsonian, anti-alzheimers, antioxidant, antidepressant, anti-cancer, anti-diabetic, anti-atherosclerotic effects. These effects are mediated via modulation of diverse underlying endogenous molecules like reactive oxygen species, nitric oxide, malonaldehyde, neutrophil, sirtulin, cyclo-oxygenase, inducible nitric oxide synthases, superoxide dismutase, catalase, glutathione s-transferase, alpha-secretase, metalloproteinases, C-reactive protein, dopamine, nor-adrenaline, serotonin, cytokines (interleukins), nuclear factor kappa, signal transducer activator of transcription, brain derived neural factor, neuropeptide, hypothalamo-pituitary axis, astroglia, mitochondrial dysfunction, glutamate, adrenergic, cholinergic, opioidergic, and purinergic receptors. Researchers are trying to explore its additional health benefits and preparing new analogues for better survival in the field. Present review will help to enlighten the multi-target pleiotropic pharmacological nature of a RSV in relation to the variety of the molecular targets modulation through extensive web science literature survey.



*Corresponding Author

Name: Shilpa A. Deshpande
Phone: +91-9422443171
Email: Shilpa@hotmail.co.in

ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11iSPL4.4325>

Production and Hosted by

IJRPS | www.ijrps.com

© 2020 | All rights reserved.

INTRODUCTION

Resveratrol (RSV) is a polyphenol, abundantly found in grape (skin and seeds), berries, peanuts and wine. This compound has many properties, including activity against glycation, immune response, oxidative stress, inflammation, neurodegeneration, several types of cancer, and aging (Kataria and Khatkar, 2019). RSV is well tolerated phytoconstituent and believed to be a promising compound in preventing many diseases, like depression, diabetes, asthma and other complications (Chen



Evolutionary Role of Epigenetics in Ischemic Stroke: A Review

Rohini Agrawal¹, Prashant Amale¹, Shilpa Deshpande¹, Manish Deshmukh², Priti Bhoyar¹, Kiran Gomkale¹, Uma Sunchuwar¹, Ashish Budhrani^{*3}

¹Department of Pharmacology, Priyadarshini J. L. College of Pharmacy, Electronic Zone Building, Nagpur-440016, Maharashtra, India

²Department of Pharmacology, Datta Meghe College of Pharmacy, Datta Meghe Institute of Medical Sciences (DU), Wardha-442001, Maharashtra, India

³Department of Pharmaceutics, Datta Meghe College of Pharmacy, Datta Meghe Institute of Medical Sciences (DU), Wardha-442001, Maharashtra, India

Article History:

Received on: 08 Sep 2020
Revised on: 05 Oct 2020
Accepted on: 08 Oct 2020

Keywords:

Epigenetics,
Ischemic stroke,
Excitotoxicity,
Stem cell,
REST

ABSTRACT

Stroke is a Central Nervous System (CNS) disorder which occurs due to the obstruction in the brain blood flow. Stroke is mainly of two types, such as ischemic and hemorrhagic stroke. Ischemic stroke (80%) caused due to obstruction of blood flow through Middle Cerebral Artery (MCA) and characterized by a decreased supply of oxygen and glucose to CNS. In comparison, Hemorrhagic stroke (20%) mainly occurs due to the rupturing of blood vessels. Epidemiologically, it is the common reason of death after cancer and affecting millions of global population. There are many risk factors such as hypertension; hypercholesterolemia etc. which can exaggerate the condition of stroke. Various conventional therapies like Antiplatelets, Thrombolytic are available, but, there is a need to obtain a therapeutic approach that can provide prevention as well as a cure for the stroke. So the present review is primarily focused on epigenetic approach for ischemic stroke by Endogenous Transplantation of Neural Stem/Progenitor Cells (NSPCs). This, in turn, will decrease the level of REST protein at the genetic level and enhance the activity of Na⁺-Ca⁺ exchanger activity and lowers the excitotoxicity.



*Corresponding Author

Name: Ashish Budhrani
Phone: 8888944700
Email: ashu.budhrani123@gmail.com

ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11iSPL4.4346>

Production and Hosted by

IJRPS | www.ijrps.com

© 2020 | All rights reserved.

INTRODUCTION

Stroke is a debilitating neurological condition and defined as a sudden loss of functions of neurons including either loss of supply of glucose and oxy-

gen, i.e. Cerebral Blood Occlusion (Ischemic Stroke) Figure 1 or inter cerebral bleeding (Haemorrhagic Stroke) (Moretti *et al.*, 2015). It shows symptom like limb weakness, bilateral or unilateral immobility, and inability to speak and become a reason of death and disability worldwide. It generally involves 1 in every 18 deaths and requires long-term care due to their functional and cognitive disabilities. There is a marked decrease in the survival rates of the victims suffering from ischemic stroke (68%) as compared to Haemorrhagic stroke (28%) (Krishnamurthi *et al.*, 2013). This is due to the formation of thrombus in the cerebral arteries, which leads to the obstruction of blood flow through the cerebral blood vessels, which cause irreversible cell injury. The present article is aimed to introduce the evolutionary epigenetic perspective for the prevention and treatment of ischemic stroke by endogenous

DATTA MEGHE COLLEGE OF PHARMACY

Constituent unit of Datta Meghe Institute of Medical Sciences (Deemed to be University)
Conferred 'A' Grade Status by Ministry of HRD, Govt. of India
Re-accredited by NAAC (3rd Cycle) with 'A+' Grade

Office : Sawangi (Hirapur) 442002 Maharashtra (India)

e-mail : medical_wda@sanchamnet.in, principaldmcp@gmail.com Website : www.dmimsu.edu.in

Date: 28/07/2020

To,
The Principal,
J.L. Chaturvedi College of Pharmacy,
Hingna Road, Nagpur

Subject- Regarding permission for utilising the lyophiliser facility of your institute for research work

Respected Sir,

I would like to inform you that Mrs. Pooja Shaligram is pursuing PhD at Datta Meghe Institute of Medical Sciences (DU), in the faculty of Pharmaceutical Sciences. She is working on Platelet Rich Plasma (PRP) therapy for diabetic wound healing and need to lyophilise the PRP samples as a part of my research work.

I request you to please permit her to utilise the lyophiliser facility of your institute for research work. She will be bearing the charges for lyophilisation as per the policy of your institute. She will provide PRP sample (2-5 mL) for lyophilisation certified as free from any disease, pathogens and abnormalities.

Thanking You


Principal

Datta Meghe College of Pharmacy
Sawangi (M), Wardha

सर्वे सन्न निरा



LOKMANYA TILAK JANKALYAN SHIKSHAN SANSTHA'S
PRIYADARSHINI J. L. COLLEGE OF PHARMACY

(Formerly called: J. L. Chaturvedi College of Pharmacy)
Electronics Zone Building, MIDC, Hingna Road, Nagpur-440016 (M.S.)
Tel & Fax No. +91-7104-242188, E-mail: pcps@priyadarshini.edu.in, Website: www.pcps.edu.in
(Approved By AICTE & DTE, New Delhi; Affiliated to P. T. M. Nagpur University Nagpur)
NAAC Accredited

Ref/PJLCP/2022/CoA

Date: 27/04/2022

To,
Ms. Pooja Shaligram
Research Scholar
Datta Meghe college of Pharmacy
Wardha Nagpur.

Subject: Bill and Report of sample for Lyophilization/ Freeze Drying.


Mam,

Here we are providing the Bill and report/result for the Lyophilization/Freeze Drying of 2 Sample (S1, S2) carried out in PJLCP Research Laboratory as per requested. The result is as follows-

Sr No	Specification/Evaluation/ Test	Sample Code
1	Lyophilization/ Freeze Drying 2 Sample 90ml (PRP Rabbit)	S1, S2
2	Instrument Specification	MAC Lyophilizer (Freeze Dryer) (Cat. No. : MSW-137) Serial No-2511 Macro Scientific Works® Private Limited 10A/UA, Jawahar Nagar, Delhi 7
3	Instrument Parameters and Conditions	Nutronics- Temperature : -35.0 °C (-34.8 °C) Vacuum Gauge: -987mm/Hg Gauge Time Duration: 10 hours (8 cycles)
4	Finished Sample	(S1) 1000-1500mg Approx., Brownish black (S2) 2000-2500mg Approx., reddish brown crystalline in nature in nature

The receipt of amount incurred for the above analysis of 2 sample for Lyophilization/ Freeze Drying was 1800=00 Nine Hundred rupees only. (Charge is One Thousand Rupees per sample, Research student concession 10% applied)

Thanking you.


Dr. V. D. Gulkari
Analyst


Dr. D. R. Chaple
Principal

PRINCIPAL
Priyadarshini J. L. College of
Pharmacy, Nagpur.

Associates Prof. / Asstt. Prof.
Priyadarshini J. L. College of
Pharmacy, Nagpur