



P. S. P. Sanstha's
Indra Institute
Of Pharmacy

A/P. Sadavali (Devrukh)
Tal: Sangameshwar,
Dist: Ratnagiri-415804
(Maharashtra)
Phone: 02354-241799
Fax: 02354-241499
E-Mail: info@iip.ind.in
Web: www.iip.ind.in
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SUMMARY SHEET

Criteria 3	Q _n M	3.5.1.	2017-18 To 2021-22
	Title	The number of MoUs, collaborations/linkages for Faculty exchange, Student exchange, Internship, Field trip, On-the- job training, research and other academic activities during the last five years	

3.5.1.1 Number of MoUs, collaborations/linkages for Faculty exchange, Student exchange, Internship, Field trip, On-the- job training, research and other academic activities during the last five years

The following enclosed data contains details of activities conducted by the institution under MOU and collaboration during the last five years



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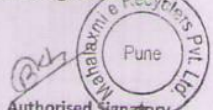
Date: 05/04/2021

Memorandum of Understanding for E waste disposal

This is a Memorandum of mutual understanding between **Mahalaxmi e Recyclers Pvt.Ltd. Pune**, hereafter termed as ewaste dismantler and **Indira Institute of Pharmacy, Sadavali, Devrukh** hereafter termed as client, made with an intention of environment friendly disposal of e waste collected by the client and to be disposed by the dismantler with following terms:

1. The client will inform the dismantler through mail or phone about such collection of e waste at their office and the dismantler will collect it from the said location after properly testing the same at mutually contracted rates.
2. The payment of the collected e waste will be made by the dismantler against delivery.
3. Once disposed to the dismantler, the client will not have right on any of the material disposed.
4. The dismantler will issue FORM6 of such disposal to the client for every delivery made by the client, in prescribed format and enter the same in the passbook issued by M.P.C.B.
5. All the legal issues will be dealt in the legal jurisdiction of Pune District.

Agreed & Signed Mutually



Authorised Signatory
For, Mahalaxmi e Recyclers
Pvt. Ltd. Pune

eSign

Signed by: Amol Baban Khade
Reason: MOU - Memorandum
of Understanding
Location: Ratnagiri, India
Date: 07-Apr-2022 (12:00 PM)

Principal

Indira Institute of Pharmacy, Sadavali, Devrukh

Mahalaxmi-Recyclers Pvt. Ltd.
Plot No 77&78, Subplot No 3A, Ramtekadi Industrial Area, Hadapsar,
Pune- 411013
Mobile: +91-72764 11826
Email : manoj@erecyclebin.com | www.erecyclebin.com

MPCB REGN. NO. : MPCB/RO(HQ)/HSMD/20/EW-08/Date-11thNov. 2020, Valid till 31st Oct. 2025
GST NO. 27AAICM758SMI2L



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E-waste Collection Drive

Indra Institute of Pharmacy
Sadavali
Prabodhan Shikshan Prasarak Sanstha's
INDIRA INSTITUTE OF PHARMACY

Accepted Items for Recycling

- Cellphones
- Laptops
- Small Electronics
- Tablets
- Audio and Video Devices
- Media Players

What We Don't Accept

- Batteries
- Light Bulbs
- Hazardous or Medical Waste
- Plastic or Paper



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Memorandum of Understanding

This Memorandum of Understanding (hereinafter referred to as MoU) is made and executed on this 23 day of June 2022 at Sadavali,

Between

PrabodhanShikshanPrasarakSanstha's, Indira Institute of Institute of Pharmacy, a residential institute approved by All India Council of Technical Education, Pharmacy Council of India and Directorate of Technical Education, Mumbai, Govt. of Maharashtra having an address at: At Post-Sadavali, Tal.- Sangameshwar, Dist. Ratnagiri, and Pin - 415 804

Through its Principal.

(hereinafter referred to as IIP)

and

Suyog Clinical Laboratory approved by National Council of Education and Research and Training, Maharashtra Paramedical council, having an address at State Bank Road Deorukh, Tal, Sangmeshwar, Dist-Ratnagiri and Pin-415804

(hereinafter referred to as SCL)

WHEREAS:

- A. IIP, a technical institute established in 2008 by PrabodhanShikshanPrasarakSanstha, Ambav, a renowned registered public charitable trust is running various institutions in the region since 1997. The degree and diploma courses are approved by AICTE, PCI, MSBTE, and DTE. The B.Pharm course is affiliated to Mumbai University while the diploma course is affiliated to Maharashtra State Board of Technical Education, Mumbai (MSBTE).
- B. SCL is run by qualified Professionals from Devrukh providing services like clinical pathology and biochemical test. The aim of the laboratory is to provide quality and economical service to the peoples of the Devrukh region.
- C. IIP and SCL desire to work in collaboration with each other to develop entrepreneurship skill and educational activities on the terms and conditions set out below :

A MoU has been signed between Indra institute of Pharmacy Sadavali and Suyog Clinical Laboratory.

As a part Academic syllabus, First year B. pharm students visited Suyog Clinical Laboratory for **demonstration of total blood cell count**, which is a part of Human Anatomy and Physiology-II Practical.

The student visited the lab in a batch of three from **28th to 30th June 2022**. It was indeed a good experience for the students to get a kind of exposure for venous blood collection for actually doing the CBC count on Cell Analyzer with the help of qualified technician.





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Report of guest lecture on 'Analgesic and Steroids'
Date: 11th April and 12th April 2022

Principal and Head of Department of Pharmaceutical Chemistry Dr. A. B. Khade and IQAC coordinator Mr V. S. Kulkarni have jointly organized guest lecture for final year student on topic **Analgesic and Steroids on 11th April and 12th April 2022** through virtual mode. **Dr. R. P. Marathe, Principal, Government College of Pharmacy, Ratnagiri**, was invited as guest speaker. Program was started with welcome address given by Mr Vivek S Kulkarni.

Dr. R. P. Marathe has given brief information regarding Analgesic and steroids. First day, he has completed the part of Morphine analgesic and on second day he has covered all the aspects of steroids in brief with respect to syllabus of fourth year Pharmaceutical Chemistry III. These sessions were a very interactive sessions. Some of the students from Shivajirao S. Jondhle College of Pharmacy, Shahapur, Asangaon have also joined the sessions and took the benefit of excellent sessions.



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Event brochure



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PRABODHAN SHIKSHAN PRASARAK SANSTHA'S (Ratnagiri)

INDIRA INSTITUTE OF PHARMACY

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Contact- 9423879885, 8275626299, 9373745126,

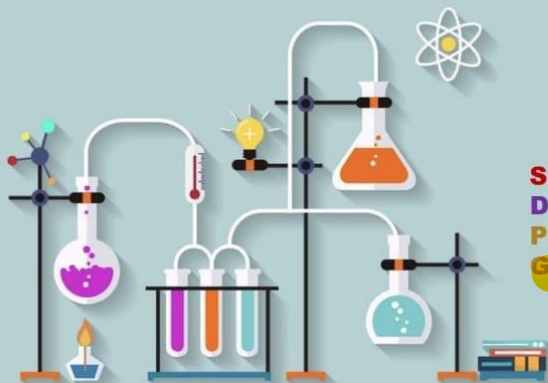
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IQAC & Department of Pharmaceutical Chemistry
Organizes

GUEST LECTURE

On

Analgesic & Steroids



Speaker:
Dr. R.P. Marathe
Principal,
Government college of Pharmacy, Ratnagiri



Date- 11th & 12th April 2022

Time- 4.00 PM onwards

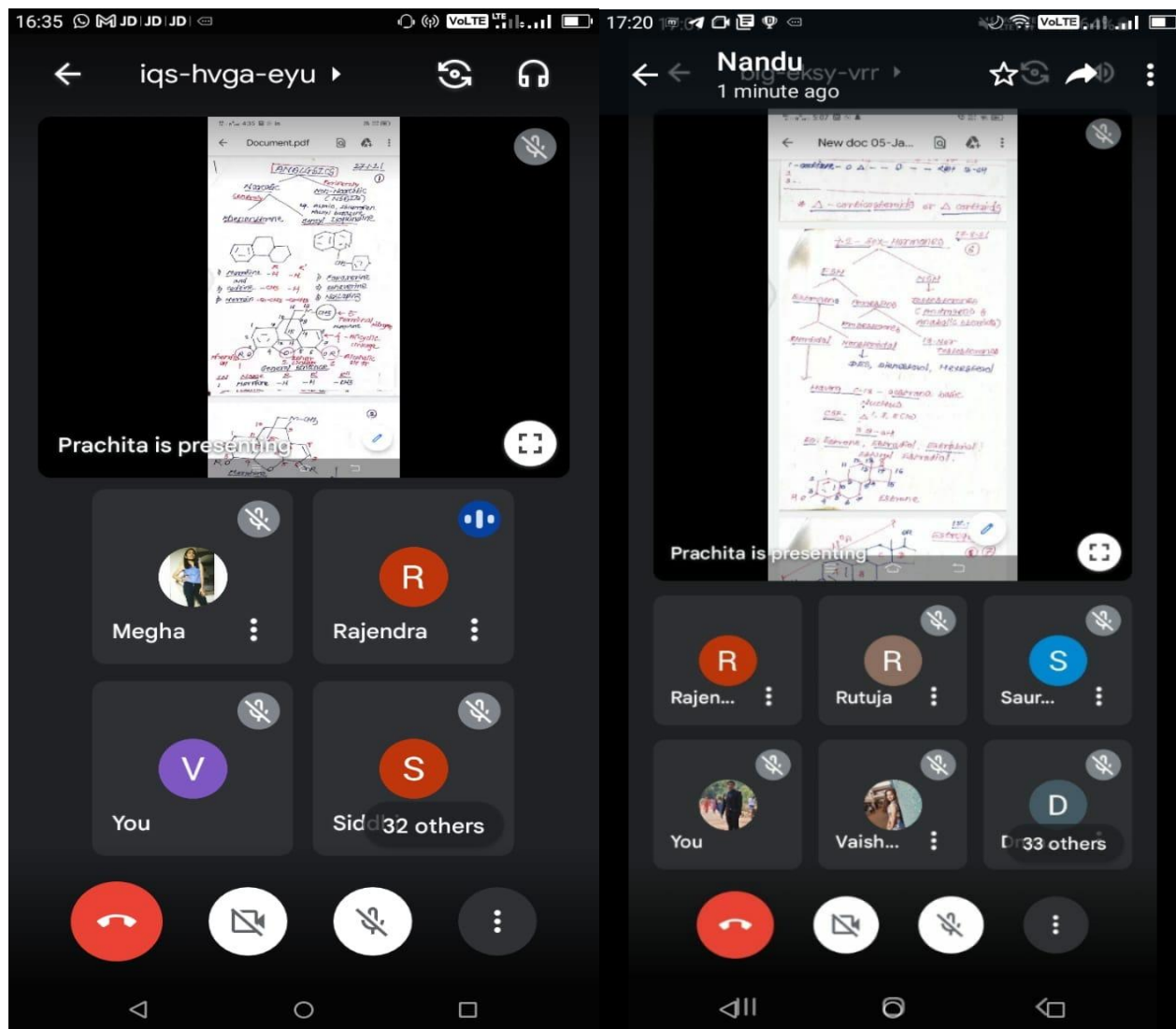
Live On- Google
meet



Mr. V.S.Kulkarni
IQAC & TPC Coordinator

Dr. A.B.Khade
Principal

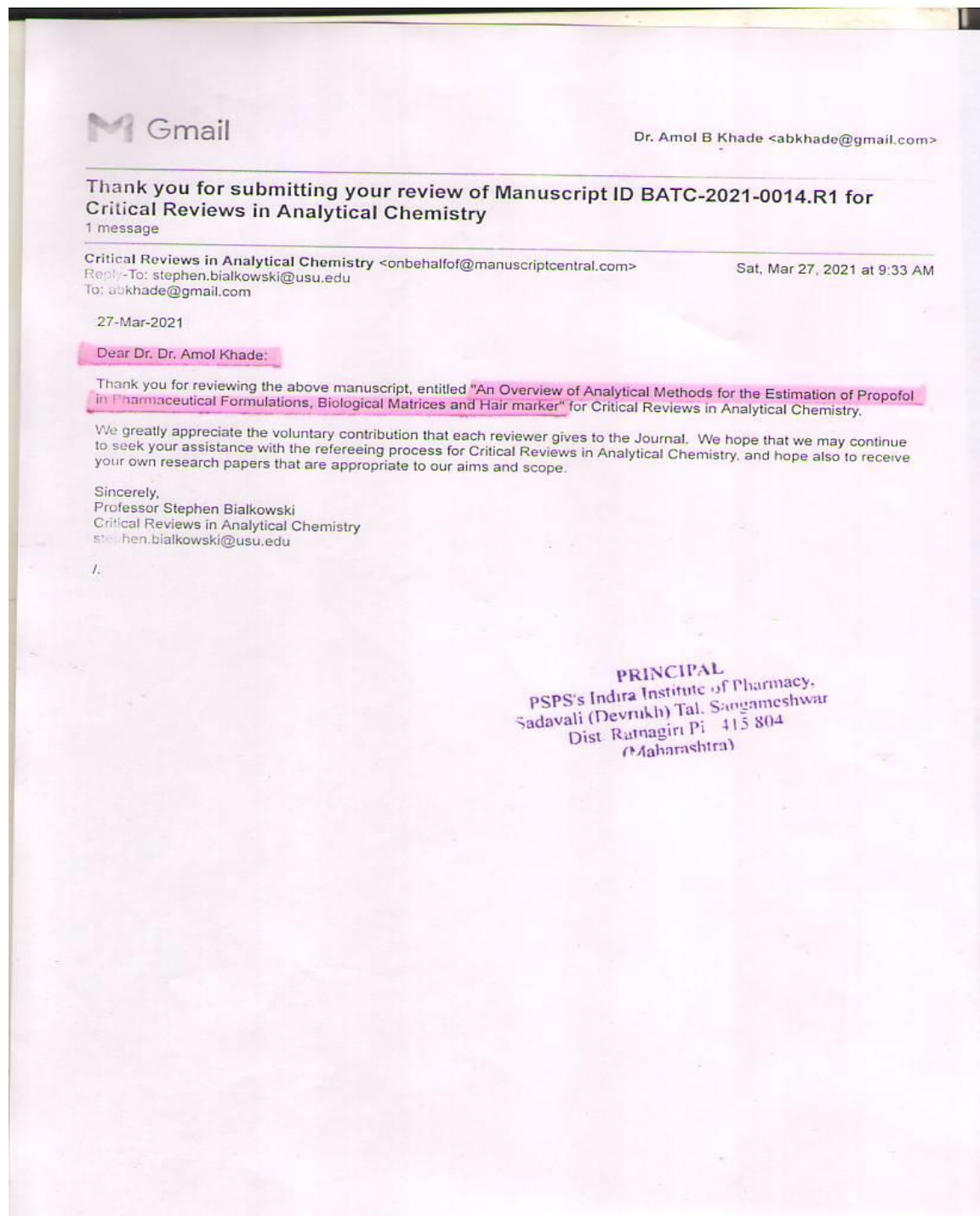
Event photographs





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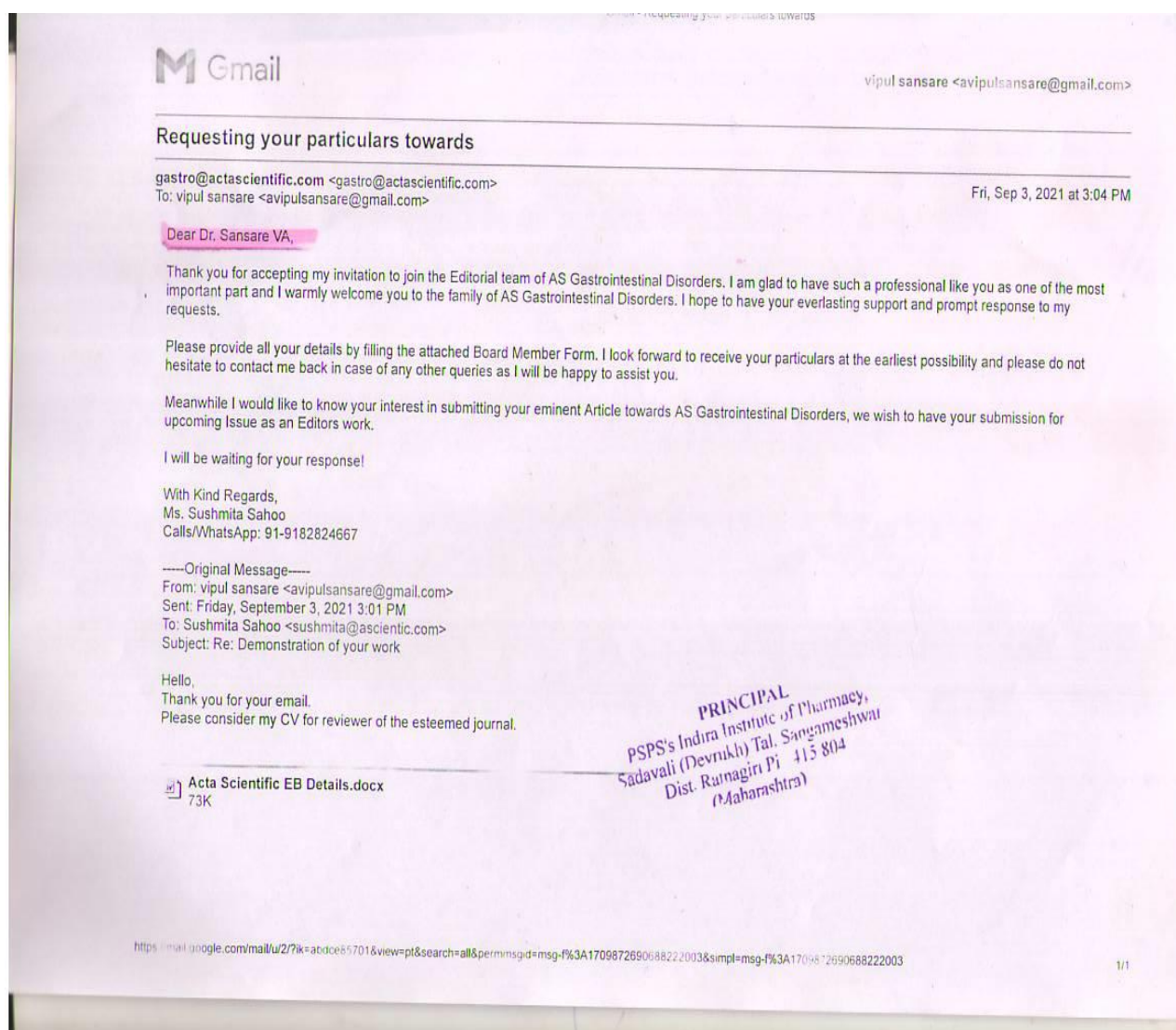
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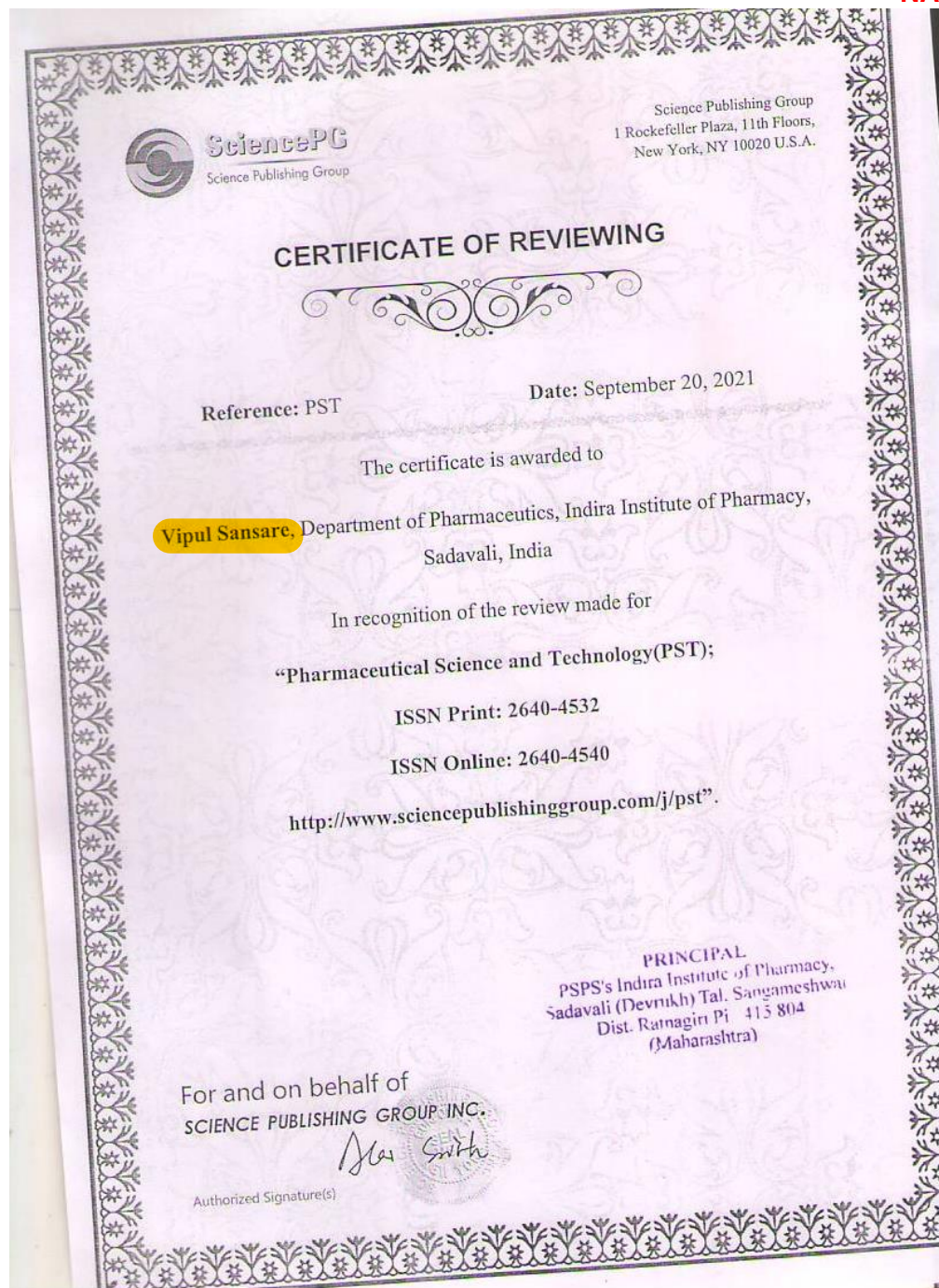
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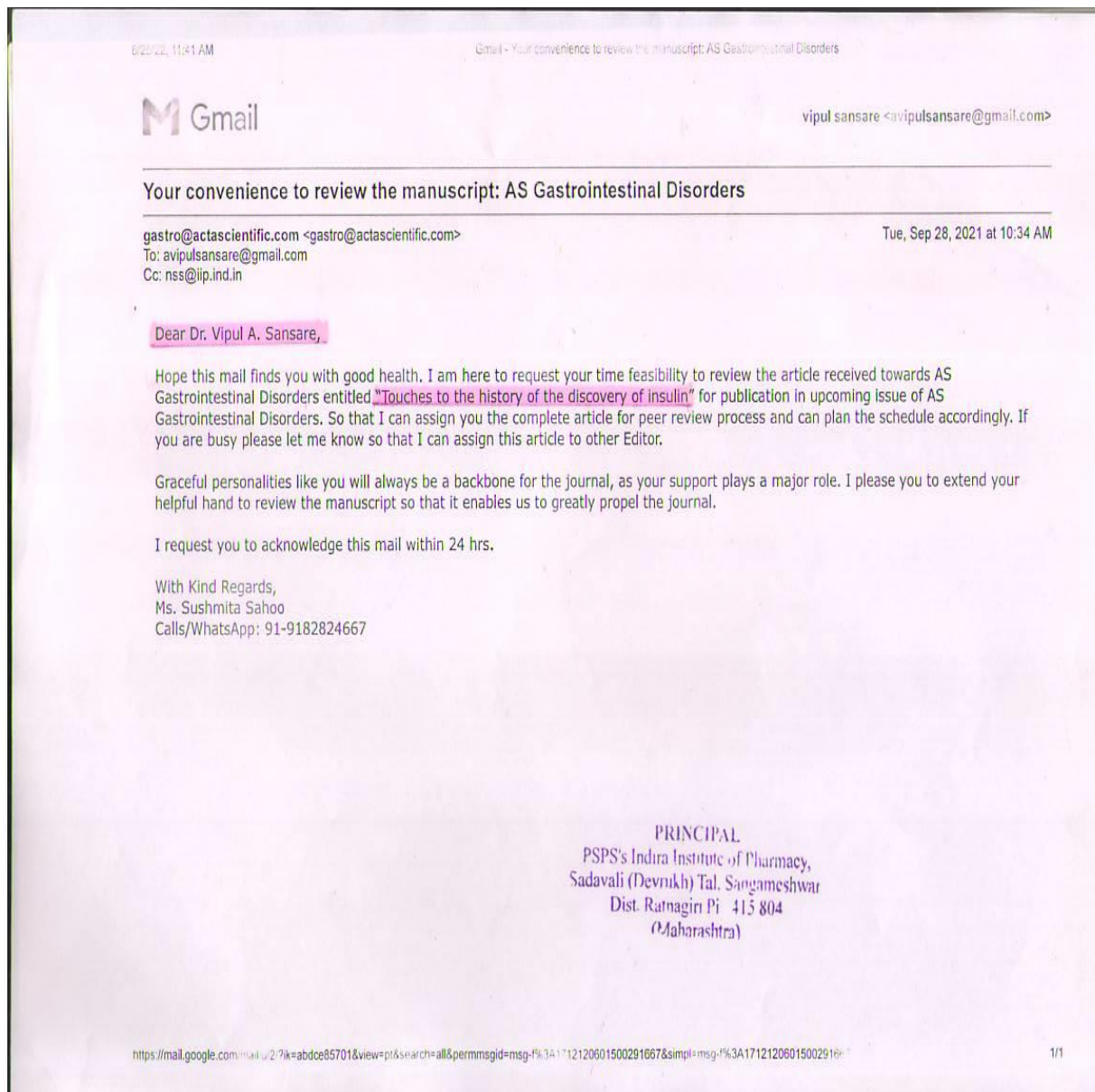
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Ars Pharmaceutica
Review: *Liposomal drug delivered: a comprehensive review*

1. Request 2. Guidelines 3. Download & Review 4. Completion

Submissions

Request for Review

You have been selected as a potential reviewer of the following submission. Below is an overview of the submission, as well as the timeline for this review. We hope that you are able to participate.

Article Title
Liposomal drug delivered: a comprehensive review

Abstract

Magic bullets was the first name given to liposomes. Liposomes are new delivery agents capable of delivering a wide range of drugs to various parts of the body. They can even produce targeted drug delivery to some complicated parts such as the brain, liver and lungs. Unlike other new drug delivery systems, liposomes are very cost effective and do not require sophisticated equipment for their production, they can be produced by a simple process such as solvent evaporation which will also produce liposomes in a stable form. Understanding the various methods of liposome preparation and their evaluation methods is inevitable in the study of liposomal drug delivery system. Hence, this paper reviews the current methods of formulation, Lipids and Polymers, Evaluation and Market Preparations. Liposomes possess a wide range of advantages such as targeted action, dose reduction, improved bioavailability compared to conventional dosage form. It also has some disadvantages such as drug leakage, lower stability compared to other novel drug delivery systems such as nanoparticles.

Review Type
Double-blind

[View All Submission Details](#)

Review Schedule

2022-08-04	2022-08-25	2022-09-01
Editor's Request	Response Due Date	Review Due Date

[About Due Dates](#)



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Ars Pharmaceutica Review: *Liposomal drug delivered: a comprehensive review*

Submissions 1. Request 2. Guidelines 3. Download & Review 4. Completion

Review Submitted

Thank you for completing the review of this submission. Your review has been submitted successfully. We appreciate your contribution to the quality of the work that we publish; the editor may contact you again for more information if needed.

Review Discussions Add discussion

Name	From	Last Reply	Replies	Closed
No Items				

Platform & workflow by
OJS / PKP

National Service Scheme Unit of Indira Institute of Pharmacy, Sadavali organized one day **Blood group detection camp in association with ICTC Department, Primary Health Centre, Devrukh** at well known temple 'Soljai', Devrukh on **12/03/2022**. The both programs were organized on the occasion of festival at Devrukh region. 20 NSS volunteers were actively involved in testing of blood group of people who visited temple. Mr. T. L. Patwardhan (Asst. Professor of Pharmacology) and Ms. A. V. Berde (Lecturer) played key role in creating awareness about blood group detection. In addition to this, 'poster exhibition' on 'HIV AIDS Awareness' was organized in association with DCAD College, Devrukh. Mrs. Snehalata Pujari and Mrs. Vidya Mane (ICTC Department) awarded helping hands for successful organization of both programmes.

Event Photographs



[Signature]
Principal
Indira Institute of Pharmacy,
Sadavali (Devrukh)



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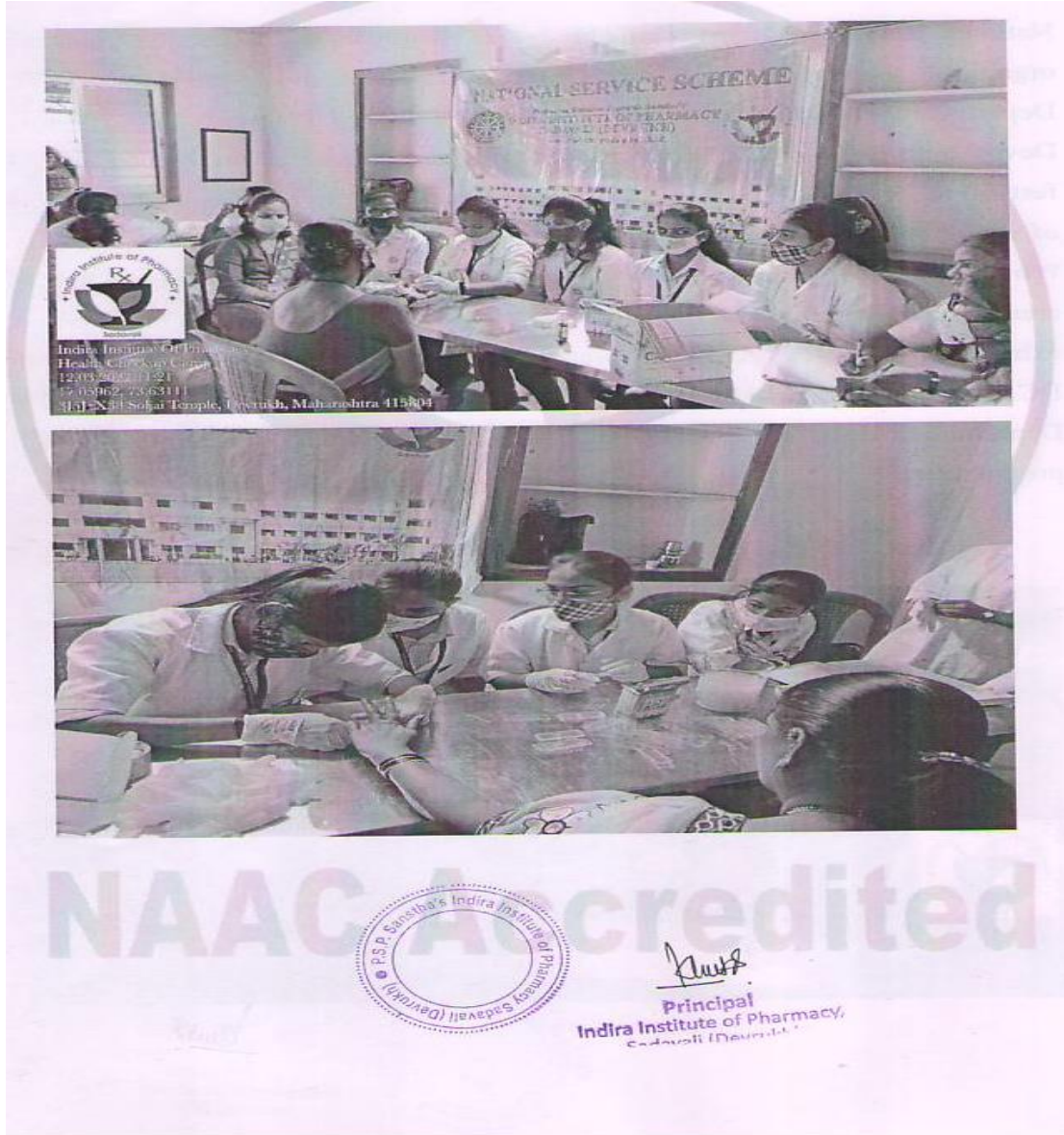
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माजी राज्यमंत्री श्री. रवींद्रजी माने यांच्या प्रेरणेतून साडवलीच्या फार्मसी महाविद्यालयात विविध राष्ट्रीय औषधशास्त्र सप्ताह २०२१ उपक्रमांतर्गत विविध कार्यक्रमांचे आयोजन साडवली येथील प्रबोधन शिक्षण प्रसारक संस्थेचे, इंदिरा इन्स्टिट्यूट ऑफ फार्मसी येथे राष्ट्रीय फार्मसी आठवड्याचे औचित्य साधून महाविद्यालयाच्या राष्ट्रीय सेवा योजना, उन्नत भारत अभियान व भक्तश्रेष्ठ श्री. वालावलकर रुग्णालय, डेरवण आणि आय. सी. टी. सी. विभाग, ग्रामीण रुग्णालय, देवरुख यांच्या संयुक्त विद्यमाने विविध उपक्रमांचे आयोजन करण्यात आले.

सदर उपक्रमांमध्ये श्री. स्वामी समर्थ रक्तपेढी, डेरवण यांच्यामार्फत रक्तदान शिबीर आयोजित करण्यात आले. रक्तदानाच्या या महायज्ञात महाविद्यालयातील 15 विद्यार्थी व संपावर असून देखील महाराष्ट्र राज्य परिवहन मंडळाच्या 15 कर्मचाऱ्यांनी रक्तदान केले.

मान्यवरांनी महाविद्यालयीन उपक्रमास भरभरून दाद दिली व कोविड कालावधीत महाविद्यालयाची रक्तदानाच्या माध्यमातून समाजाप्रती जपलेल्या बांधिलकी बदल कौतुक केले. सदर शिबिरात ३० जणांनी रक्तदान करून सामाजिक हित साधले. ग्रामीण रुग्णालयाच्या अंतर्गत महाविद्यालयीन विद्यार्थ्यांचे एड्स व इतर संसर्गजन्य रोगांबद्दल समुपदेशन करण्यात आले. ग्रामीण रुग्णालयामार्फत एकूण १७० विद्यार्थ्यांचे एच. आई. व्ही. आणि डायबिटीस असणाऱ्या कर्मचाऱ्यांचे रक्त शर्करा तपासणी शिबीर घेण्यात आले. महाविद्यालयामध्ये विद्यार्थ्यांसाठी प्रश्नमंजूषा स्पर्धा आयोजित करण्यात आली होती. सदर स्पर्धेमध्ये महाविद्यालयाच्या पदवी आणि पदविका विद्यार्थ्यांनी उत्स्फूर्त सहभाग नोंदवला.

विद्यार्थ्यांनी NPW - नॅशनल फार्मसी विकचा लोगो विद्यार्थ्यांनं मानवी साखळी मार्फत साकारला.

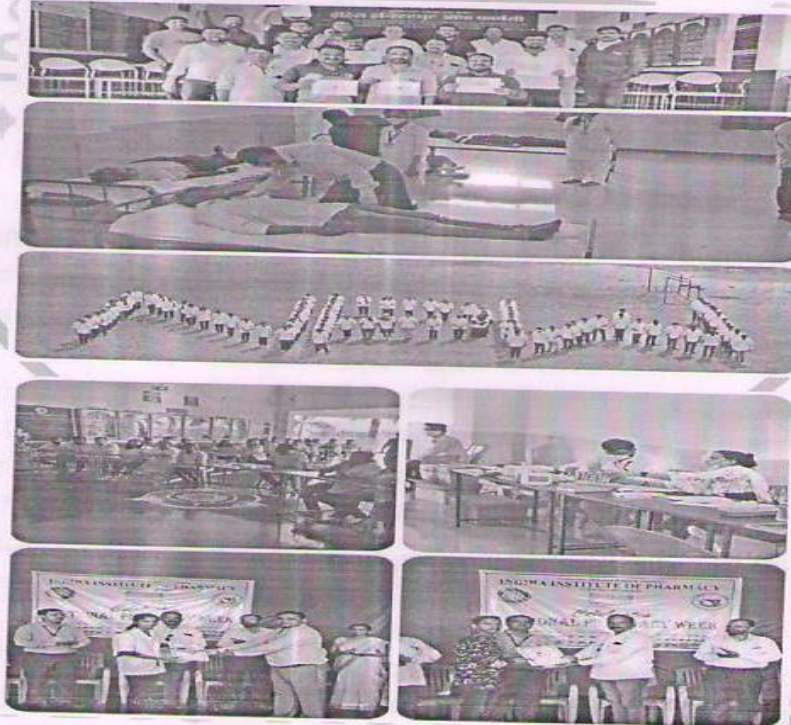
सन २०२० मध्ये केंद्र सरकारच्या उन्नत भारत अभियाना अंतर्गत, आय. आय. टी. मुंबई आणि जिल्हा एड्स नियंत्रण कक्ष, महाराष्ट्र राज्य यांच्या अंतर्गत कोविड १९ विषयावरील पोस्टर मेकिंग, निबंध व व्हिडिओ मेकिंग स्पर्धा घेण्यात आल्या होत्या.

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सदर स्पर्धामध्ये राज्य व जिल्हा स्तरावर पारितोषिक मिळालेल्या सर्व विद्यार्थ्यांचा सत्कार मान्यवरांच्या हस्ते करण्यात आला.

उपक्रमांच्या उदघाटनप्रसंगी संस्थेचे चेअरमन श्री. रवींद्रजी माने, सौ. नेहा माने, सामाजिक कार्यकर्ते श्री यूयुतसू आर्ते, साडवली गावचे सरपंच श्री. राजू शेट जाधव मीनाताई ठाकरे महाविद्यालयाचे प्राचार्य श्री. बळवंत नलावडे, प्राचार्य डॉ. अमोल खाडे, पदविका विभाग प्रमुख श्री. सुजित नगरे, आय. सी. टी. सी. विभागाच्या सौ. वैशाली पुजारी, सौ. विद्या माने व इतर प्राध्यापक उपस्थित होते.

Event Photographs



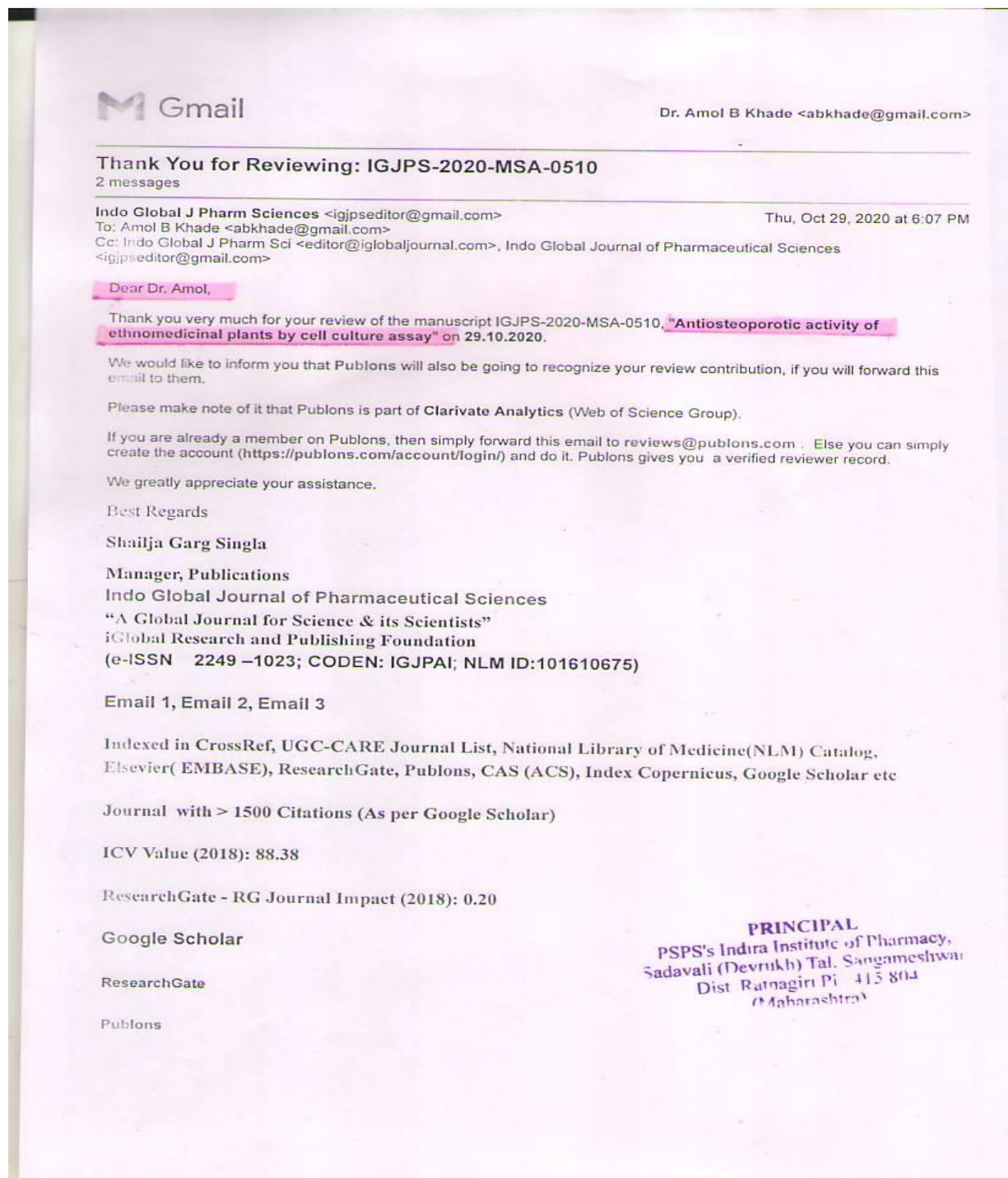
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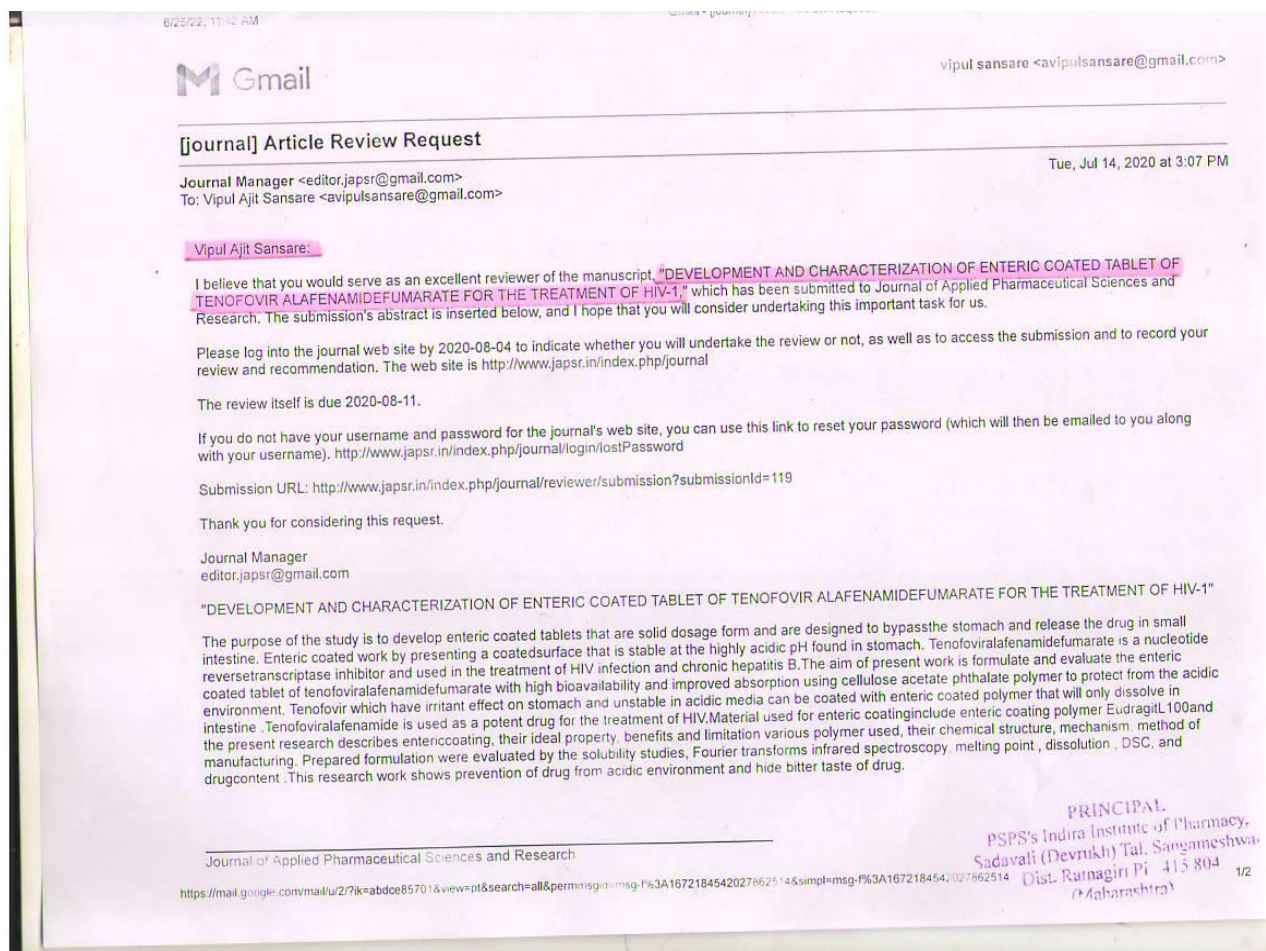
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FORM D

Record of Animals Acquired and Experiments performed: (to be maintained by the Investigator)

Drug loaded nanofibers as Burn wound dressing material

Date	No. of animals acquired (specify Species, Sex and Age)	Name, Address and Registration No. of the Breeder from whom acquired with Voucher/ Bill No.	Date and IAEC approval number	Duration of experiment	Name and address of the person authorized to conduct the experiment	Signature of the Investigator certifying that all conditions specified for such an experiment have been complied.
27/11/2019	Albino Wistar Rats Male: 12 Female: 12 Total: 24 (animals were used after washing period for protocol no: IIP/IAEC/02/2019-20)	Global Bioresearch Solution Pvt. Ltd 1899/PO/Bt/S/16/CPCSEA G. No. 531, Nhavi, Bhore, Pune- 412205 GBL/19-20/57	IIP/IAEC/01/2019-20	28 days	Tejasvi Chalke Indra Institute of Pharmacy Sadavali Dr. Supriya R. Hyam Urjayu Wellness Research Center, Goa	<i>Palke</i> <i>Shage</i>

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Completion report

Protocol No. 01: IIP/IAEC/01/2019-20

Title: To evaluate drug loaded nanofibres as burn wound dressing material

Animal procurement: 12 male and 12 females Wistar albino rats of 150-200 gm were procured on 17th Nov. 19. Animals were procured from Global bioresearch solution Pvt. Ltd, Shirwal. The study was commenced on 6th Jan 20. The animals of protocol no. 03 were used after washout period.

Grouping of animals:

Group No.	Group description	No. of animals
1.	Standard	06
2.	Control	06
3.	Drug loaded nano fibres	06
4.	Nano fibres without drug	06
Total		24

Study procedure:

3rd degree burns was generated with a heated aluminium rod. The tip of the aluminium rod was used as a template to generate 1 cm wounds with square shapes on the posterior-dorsum of each mouse for 6 s.

The burn wounds photographs and sizes of wound at days 0 to 28 every day post-implantation with nanofiber mat and without nanofiber mat were recorded. Histological Examinations on day 28 was studied. Wound-Healing Scoring, Hair Follicle Formation, Scar Elevation Index, Epidermal Thickness Index, Masson's Trichrome, Immunohistochemistry.

Result: Application of *dressing material* on third degree burn wounds significantly decreased burn surface area and increased fibroblasts in comparison to control.



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FORM D

Record of Animals Acquired and Experiments performed: (to be maintained by the Investigator)

Evaluation of acute toxicity and anti-inflammatory activity of some new Substituted Coumarin Derivatives.

Date	No. of animals acquired (specify Species, Sex and Age)	Name, Address and Registration No. of the Breeder from whom acquired with Voucher/ Bill No.	Date and IAEC approval number	Duration of experiment	Name and address of the person authorized to conduct the experiment	Signature of the Investigator certifying that all conditions specified for such an experiment have been complied.
27/11/2019	Albino Wistar Rats Male: 27 Female: 27 Total: 54	Global Bioresearch Solution Pvt. Ltd 1899/PO/Bt/S/16/CPCSEA G. No. 531, Nhavi, Bhor, Pune- 412205 GBL/19-20/57	IIP/IAEC/02/2019-20	One day Animals were subjected to washing period after experiment	Tejasvi Chalke Indira Institute of Pharmacy Sadavali Dr. Supriya R. Hyam Urjayu Wellness Research Center, Goa	<i>Chalke</i> <i>Hyam</i>

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Completion report

Protocol No. 02: IIP/IAEC/02/2019-20

Title: Evaluation of acute toxicity study and anti-inflammatory activity of some new substituted coumarin derivatives.

Animal procurement: 27 male and 27 females Wistar albino rats of 150-200gm were procured on 17th Nov. 19. Animals were procured from Global bioresearch solution Pvt. Ltd, Shirwal. The acute toxicity study commenced on 1st Dec 19. And as there was no mortality the same 24 animals and additional 3 female and 3 male were used for Anti-inflammatory study. Anti-inflammatory study was commenced from 20th Dec 19.

Grouping of animals for acute toxicity study:

Group No.	Group description	No. of animals
1.	Test compound 1	06
2.	Test compound 2	06
3.	Test compound-3	06
Total		24

Grouping of animals for anti-inflammatory study:

Group No.	Group description	No. of animals
1.	Normal	06
2.	Control	06
3.	Standard (Celecoxib: 20 mg/kg, p.o.)	06
4.	Test compound-1 (1/10 th of maximum tolerable dose, p.o.) 200mg/kg	06
5.	Test compound-2 ((1/10 th of maximum tolerable dose, p.o.) 200mg/kg	06
6.	Test compound-3 (1/10 th of maximum tolerable dose, p.o.) 200mg/kg	06
Total		36



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FORM D

Record of Animals Acquired and Experiments performed: (to be maintained by the Investigator)

Evaluation of anti-convulsant activity of some new Substituted Coumarin Derivatives

Date	No. of animals acquired (specify Species, Sex and Age)	Name, Address and Registration No. of the Breeder from whom acquired with Voucher/ Bill No.	Date and IAEC approval number	Duration of experiment	Name and address of the person authorized to conduct the experiment	Signature of the Investigator certifying that all conditions specified for such an experiment have been complied.
8/12/2019	Albino Wistar Rats Male: 15 Female: 15 Total: 30	Global Bioresearch Solution Pvt. Ltd 1899/PO/BI/S/16/CPCSEA G. No. 531, Nhavi, Bhor, Pune- 412205 GBL/19-20/80	IIP/IAEC/03/2019-20	One day Animals were subjected to washing period after experiment	Tejasvi Chalke Indra Institute of Pharmacy Sadavali Dr. Supriya R. Hyam Urjaya Wellness Research Center, Goa	<i>Chalke</i> <i>Hyam</i>

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Completion report

Protocol No. 03: IIP/IAEC/03/2019-20

Title: Evaluation of anti-convulsant activity of some new Substituted Coumarin Derivatives

Animal procurement: 15 male and 15 females Wistar albino rats of 150-200gm were procured on 17th Nov. 19. Animals were procured from Global bio research solution Pvt. Ltd, Shirwal. The study was commenced on 28th Dec 19. The animals of protocol no. 02 were used after washout period.

Grouping of animals:

Group No.	Group description	No. of animals
1.	Normal	03
2.	Control	03
3.	Standard	06
4.	Combination of extract-2	06
5.	Combination of extract-3	06
6.	Combination of extract-4	06
Total		30

Study procedure:

The MES induced convulsions divided into five phases as: tonic flexion, tonic extension, clonic convulsions, stupor, recovery or death. A substance is known to possess anticonvulsant property if it reduces or abolishes the extensor phase. Phenytoin is taken as a standard drug 20mg/kg and test compound 20mg/kg. Solution of both standard & compound prepared in twin 80 & administered before 30 mins of test.

Result: In Maximal electro shock-induced convulsions model, three coumarin derivatives were used. MES produced hind limb tonic extension and hind limb tonic flexion seizures in all the animals used. The control rat showed tonic limb extension for the duration of 12.16 ± 2.95 s, tonic limb flexion 8.83 ± 1.95 s. The test group protected 4 of rat and considerably decreased the duration of hind limb tonic extension and hind limb tonic flexion produced by MES. The standard antiepileptic drug, also protected all the animals and significantly reduced the duration of hind limb tonic extension and hind limb tonic flexion.



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FORM D

Record of Animals Acquired and Experiments performed: (to be maintained by the Investigator)

To evaluate the acute, sub-acute and chronic toxicity study of Flucommune, Carditone, NeemPlus and herbal products

Date	No. of animals acquired (specify Species, Sex and Age)	Name, Address and Registration No. of the Breeder from whom acquired with Voucher/ Bill No.	Date and IAEC approval number	Duration of experiment	Name and address of the person authorized to conduct the experiment	Signature of the Investigator certifying that all conditions specified for such an experiment have been complied.
21-12-2019	Albino Wistar Rats Male: 15 Female: 15 Total: 30 (animals were used after washing period of protocol no: IIP/IAEC/05/2019-20 and IIP/IAEC/03/2019-20)	Global Bioresearch Solution Pvt. Ltd 1899/PO/Bt/S/16/CPCSEA G. No. 531, Nhavi, Bhore, Pune- 412205 GBL/19-20/80	IIP/IAEC/04/2019-20	90 days	Tejasvi Chalke Indra Institute of Pharmacy Sadavali Dr. Supriya R. Hyam Urjaya Wellness Research Center Goa	<i>Tejasvi Chalke</i> <i>Supriya R. Hyam</i>

Supriya R. Hyam
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Protocol No. 04: IIP/IAEC/04/2019-20

Title: To evaluate the acute, sub-acute and chronic toxicity study of Flucommune, Carditone, NeemPlus and herbal products

Animal procurement: 30 male and 30 females Wistar albino rats of 150-200gm were procured on 1st Jan. 20. Animals were procured from Global bio research solution Pvt. Ltd, Shirwal. The study was commenced on 10th Jan 20.

Samples : Total ten herbal products were studied. For each products three males and three females were used to study the acute, sub acute and chronic toxicity study.

Grouping of animals:

Group No.	Product name	No. of animals
1.	Flucommune	06
2.	Carditone	06
3.	Livit-2	06
4.	Ashwagandha	06
5.	Boswelya Plus	06
6.	My healthy digestion	06
7.	My healthy body	06
8.	My healthy immunity	06
9.	My healthy mood	06
10.	My healthy joints	06
Total		60

Study procedure:

Study Dose: 2000mg/kg

Acute oral toxicity was studied in the experimental rats by administration of suspension. For seven days, mortality was checked.

Sub-acute oral toxicity was studied in the experimental rats by administration of suspension. After 14 days, rats were sacrificed and evaluated for various parameters such as body weight, histopathology and blood analysis (LFT, Kidney functioning test, lipid profile, hematological studies) for toxicity.



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FORM D

Record of Animals Acquired and Experiments performed: (to be maintained by the Investigator)

To evaluate effect of polyherbal mixture on food intake and body weight of wistar rats for period of one month

Date	No. of animals acquired (specify Species, Sex and Age)	Name, Address and Registration No. of the Breeder from whom acquired with Voucher/ Bill No.	Date and IAEC approval number	Duration of experiment	Name and address of the person authorized to conduct the experiment	Signature of the Investigator certifying that all conditions specified for such an experiment have been complied.
8/12/2019	Albino Wistar Rats Male: 15 Female: 15 Total: 30	Global Bioresearch Solution Pvt. Ltd 1899/PO/Bt/S/16/CPCSEA G. No. 531, Nhavi, Bhor, Pune- 412205 GBL/19-20/80	IIP/IAEC/05/2019-20	30 days Animals were subjected to washing period after experiment	Tejasvi Chalke Indra Institute of Pharmacy Sadavali Dr. Supriya R. Hyam Urjayu Wellness Research Center, Goa	<i>Tejasvi Chalke</i> <i>Supriya R. Hyam</i>

Supriya R. Hyam
28/12/2020



Completion report

Protocol No. 05: IIP/IAEC/05/2019-20

Title: To evaluate effect of polyherbal mixture on food intake and body weight of wistar rats for period of one month

Animal procurement: 15 males and 15 females Wistar albino rats of 150-200gm were procured on 1st Jan. 20. Animals were procured from Global bioresearch solution Pvt. Ltd, Shirwal. The study was commenced on 10th Jan 20.

Samples : Total ten herbal products were studied. For each products three males and three females were used to study the acute, sub acute and chronic toxicity study.

Grouping of animals:

Group No.	Product name	No. of animals
1.	Normal	06
2.	Control	06
3.	Oil-1	06
4.	Oil-2	06
5.	Oil-3	06
Total		30

Study procedure:

Study Dose: the roll was rolled over the nose tip of respective rat three times once a day.

Each rat was kept in separate cage. The experimental group was fed with a specialized high cholesterol diet. The normal group animals was fed with standard high raw chaw and water ad libitum. All administrations was done by oral route. Except test samples were administered by nasal route. Animals were starved for 12 hrs after last diet. The blood samples were collected through heart puncture under mild anaesthesia on day 42. Serum was obtained by centrifugation of blood and serum will be subjected to analysis for biochemical parameters such Sr. total cholesterol, Sr. triglyceride, Sr HDL-C, Sr LDL-C, Sr VLDL-C. Body weight and amount of food intake was monitored every consecutive days throughout 42 days of study.

Result: The changes in the food intake and body weights exhibited that OIL-3 was the most effective in lowering the diet amount and the body weight.

The Blood reports also exhibited that the oil-3 sample has shown the good effect on vital blood serum levels as compared to the control group and other test groups.



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FORM D

Record of Animals Acquired and Experiments performed: (to be maintained by the Investigator)

To formulate, develop and evaluate nanoparticulate drug delivery system for anticancer drug.

Date	No. of animals acquired (specify Species, Sex and Age)	Name, Address and Registration No. of the Breeder from whom acquired with Voucher/ Bill No.	Date and IAEC approval number	Duration of experiment	Name and address of the person authorized to conduct the experiment	Signature of the Investigator certifying that all conditions specified for such an experiment have been complied.
27/11/2019	Albino Wistar Rats Male: 6 Female: 6 Total: 12	Global Bioresearch Solution Pvt. Ltd 1899/PO/Bt/S/16/CPCSEA G. No. 531, Nhavi, Bhor, Pune- 412205 GBL/19-20/57	IIP/IAEC/06/2019-20	48 hrs	Tejasvi Chalke Indira Institute of Pharmacy Sadavali Dr. Supriya R. Hyam Urjayu Wellness Research Center, Goa	<i>Chalke</i> <i>Hyam</i>

Supriya R. Hyam
20/12/2020



Completion report

Protocol No. 06: IIP/IAEC/06/2019-20

Title: Formulation and development and evaluation of nanoparticulate drug delivery system for anticancer drug

Animal procurement: 6 males and 6 females Wistar albino rats of 150-180gm were procured on 1st Jan. 20. Animals were procured from Global bioresearch solution Pvt. Ltd, Shirwal. The study was commenced on 12th Jan 20.

Grouping of animals:

Group No.	Product name	No. of animals
1.	Test	12
Total		12

Study procedure:

Study Dose: 100mg/kg

The animals were kept fasting overnight and had free access to water throughout the experimental period. One test sample was administered to male and female Wistar rats (n = 6 and 6) at a dose of 100 mg/kg by oral gavage in test sample group expect normal group. The blood samples (0.25 ml) will be collected from the retro-orbital plexus at predetermined time points (0, 1, 2, 3, 4, 8, 12, 24 and 48 h) into micro-centrifuge tubes containing 10 µl of EDTA from all animals. Plasma will be collected by centrifuging the blood at 5000 rpm for 10 min. The plasma (200 µl) samples will be obtained and stored at -20°C until assay.

Result: The blood samples were analysed by HPLC method and results were extrapolated by the calculation applying statistics.



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FORM D

Record of Animals Acquired and Experiments performed: (to be maintained by the Investigator)

Effect of Amruthotharm formulation on metabolic disorders

Date	No. of animals acquired (specify Species, Sex and Age)	Name, Address and Registration No. of the Breeder from whom acquired with Voucher/ Bill No.	Date and IAEC approval number	Duration of experiment	Name and address of the person authorized to conduct the experiment	Signature of the Investigator certifying that all conditions specified for such an experiment have been complied.
27/11/2019	Albino Wistar Rats Male: 27 Female: 27 Total: 54	Global Bioresearch Solution Pvt. Ltd 1899/PO/Bt/S/16/CPCSEA G. No. 531, Nhavi, Bor, Pune- 412205 GBL/19-20/57	IIP/LAEC/07/2019-20	Four months	Ketki Dhane Indira Institute of Pharmacy Sadavali Dr. Supriya R. Hyam Urjayu Wellness Research Center, Goa	<i>Supriya</i>

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Completion report

Protocol No. :IIP/IAEC/07/2019-20

Title:Effect of Amruthotharm formulation on metabolic disorders

Animal procurement:27 males and 27 females Wistar albino rats of 140-160gm were procured on 17th Nov 19. Animals were procured from Global bio research solution Pvt. Ltd, Shirwal. The study was commenced on 27th Nov 19.

Grouping of animals:

Group No.	Prodcut name	No. of animals
1.	Normal	06
2.	Test HFD	06
3.	Test HFD with alloxan	06
4.	Test HFD with Alloxan with std: Metformin	06
5.	Test HFD with metformin	06
6.	Test HFD with amruthotharm	06
7.	Test HFD with formulation 2	06
8.	Test HFD with Alloxan with amruthotharm	06
9.	Test HFD with Alloxan with formulation 2	06
Total		54

Study procedure:

Study Dose: 103.33mg/kg (calculated as per human dose 1g / day)

The experimental groups were fed with a specialized high cholesterol diet for 28 days. All administrations were done by oral route. Animals were starved for 12 hrs after last diet. The blood samples were collected through retroorbital puncture under mild anaesthesia on day 28. Serum was obtained by centrifugation of blood and serum was subjected to analysis for biochemical parameters such as Sr. total cholesterol, and blood glucose level.

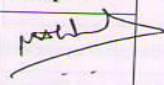

Once the onset of obesity was confirmed, diabetic was induced by alloxan model. Blood glucose level of test product (amruthotharam) was carried out in alloxan induced diabetic model. For this study both sex of rats with weight between 200-250gm was selected.

The animals were divided into 8 groups each having 6 rats & subjected to following treatment. Group I: will receive vehicle normal saline Group II: will receive high fat diet Group III: will receive high fat diet with alloxan Group IV: Standard group will receive alloxan with standard drug (Metformin) dose ,Group V: will receive high fat diet amruthotharam (formulation 1,) Group VI : receive high fat diet amruthotharam and formulation 2) Group VII :will receive high fat diet with alloxan formulation 1, Group VIII: will receive high fat diet with alloxan formulation

FORM D

Record of Animals Acquired and Experiments performed: (to be maintained by the Investigator)

Effect of AV LIVACT as hepatoprotective agent.

Date	No. of animals acquired (specify Species, Sex and Age)	Name, Address and Registration No. of the Breeder from whom acquired with Voucher/ Bill No.	Date and IAEC approval number	Duration of experiment	Name and address of the person authorized to conduct the experiment	Signature of the Investigator certifying that all conditions specified for such an experiment have been complied.
8/2/2019	Albino Wistar Rats Male: 36 Total: 36	Global Bioresearch Solution Pvt. Ltd 1899/PO/Bt/S/16/CPCSEA G. No. 531, Nhavi, Bor, Pune- 412205 GBL/19-20/86	IIP/IAEC/09/2019-20	8 weeks	Medha Khade Indira Institute of Pharmacy Sadavali Dr. Supriya R. Hyam Urjayu Wellness Research Center, Goa	 

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Completion report

Protocol No. :IIP/IAEC/09/2019-20

Title:Effect of AV LIVACT as hepatoprotective agent.

Animal procurement:36 males Wistar albino rats of 140-160gm were procured on 1st Feb 20. Animals were procured from Global bio research solution Pvt. Ltd, Shirwal. The study was commenced on 8th Feb 20.

Grouping of animals:

Group No.	Product name	No. of animals
1.	Normal	06
2.	Test CCl ₄	06
3.	Test CCl ₄ with std : silymarin	06
4.	Test CCl ₄ with livact 50 mg/kg	06
5.	Test CCl ₄ with livact 100 mg/kg	06
6.	Test CCl ₄ with livact 200 mg/kg	06
Total		36

Study procedure:

Study Dose: 50mg/kg, 100mg/kg, 200mg/kg

Hepatoprotective activity of test product (AV LIVACT) was carried out in CCl₄ (Carbon tetrachloride) induced liver injury model. For this study male Wistar rats with weight between 180-200 g was selected through approval of the committee. Animals were housed in a well-ventilated animal unit with normal daylight (12 hr light/dark cycle). The animal were fed with standard raw chaw & water ad libitum.

The animals were divided into 6 groups each having 6 rats & subjected to following treatment:

First group was served as normal control group & receive Olive oil.
Second group was served as toxicant control group & receive CCl₄ (1 mL/Kg).
Third, fourth and fifth group was served as test groups & receive AV LIVACT in the doses of 50 mg/Kg, 100 mg/Kg and 200 mg/Kg, respectively.
Sixth group was served as standard group & receive standard drug Silymarin 100 mg/Kg



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FORM D

Record of Animals Acquired and Experiments performed: (to be maintained by the Investigator)

Effect of AV MBJ and AV Metacare capsules as anti-inflammatory agents

Date	No. of animals acquired (specify Species, Sex and Age)	Name, Address and Registration No. of the Breeder from whom acquired with Voucher/ Bill No.	Date and IAEC approval number	Duration of experiment	Name and address of the person authorized to conduct the experiment	Signature of the Investigator certifying that all conditions specified for such an experiment have been complied.
13/3/2020	Albino Swiss mice Male: 51 Total: 51	Global Bioresearch Solution Pvt. Ltd 1899/PO/Bt/S/16/CPCSEA G. No. 531, Nhavi, Bhor, Pune- 412205 GBL/19-20/98	IIP/IAEC/10/2019-20	2 weeks	Medha Khade Indra Institute of Pharmacy Sadavali Dr. Supriya R. Hyam Urjaya Wellness Research Center, Goa	<i>[Signature]</i> <i>[Signature]</i>

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Protocol No. :IIP/IAEC/10/2019-20

Title:Effect of AV MBJ and AV Metacare capsules as anti-inflammatory agents

Animal procurement:51 males Swiss albinomice of 20-25 gm were procured on 06th March 20. Animals were procured from Global bioresearch solution Pvt. Ltd, Shirwal. The study was commenced on 13th Mar 20.

Grouping of animals:

Group No.	Prodcut name	No. of animals
1.	Normal	03
2.	Test LPS induced inflammation	06
3.	Test LPS induced inflammation with std: Indomethacin	06
4.	Test LPS induced inflammation with AV MBJ 9 mg/kg	06
5.	Test LPS induced inflammation with AV MBJ 18 mg/kg	06
6.	Test LPS induced inflammation with AV MBJ 36 mg/kg	06
7.	Test LPS induced inflammation with AV metacare 9 mg/kg	06
8.	Test LPS induced inflammation with AV Metacare 18 mg/kg	06
9.	Test LPS induced inflammation with AV Metacare 36 mg/kg	06
Total		51

Study procedure:

Study Dose: 9 mg/kg , 18 mg/kg, 36 mg/kg

Anti-inflammatory activity of test products (AV MBJ and AV METACARE) were carried out in LPS (Lipopolysaccharide) induced systemic inflammatory model. For this study either sex of mice with weight between 20-25 g will be selected through approval of the committee. Animals were be housed in a well-ventilated animal unit with normal daylight (12 hr light/dark cycle). The animal were fed with standard raw chaw & water ad libitum.

The animals were divided into 9 groups each having 6 mice & subjected to following treatment:

First group served as normal control group & receive sterile saline solution. Second group served as toxicant control group & receive LPS (1 mg/Kg) dissolved in sterile 0.9% NaCl.

Third, fourth and fifth group served as test groups & receive AV MBJ in the doses of 75 mg/Kg, 150 mg/Kg and 275 mg/Kg, respectively.



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FORM D

Record of Animals Acquired and Experiments performed: (to be maintained by the Investigator)

Effect of Effect of AV MBJ as anti-arthritis agent

Date	No. of animals acquired (specify Species, Sex and Age)	Name, Address and Registration No. of the Breeder from whom acquired with Voucher/ Bill No.	Date and IAEC approval number	Duration of experiment	Name and address of the person authorized to conduct the experiment	Signature of the Investigator certifying that all conditions specified for such an experiment have been complied.
8/2/2019	Albino Wistar Rats Male: 18 Femlae: 18 Total: 36	Global Bioresearch Solution Pvt. Ltd 1899/PO/Bt/S/16/CPCSEA G. No. 531, Nhavi, Bhor, Pune- 412205 GBL/19-20/86	IIP/IAEC/12/2019-20	4 weeks	Medha Khade Indra Institute of Pharmacy Sadavali Dr. Supriya R. Hyam Urjaya Wellness Research Center, Goa	<i>(Signature)</i> <i>(Signature)</i>

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20/12/2020



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Completion report

Protocol No. :IIP/IAEC/12/2019-20

Title:Effect of Effect of AV MBJ as anti-arthritis agent

Animal procurement:18 males and 18 females wistar albino rats of 150-180gm were procured on 1stfeb 2020. Animals were procured from Global bioresearch solution Pvt. Ltd, Shirwal. The study was commenced on 8thfeb20.

Grouping of animals:

Group No.	Product name	No. of animals
1.	Normal	06
2.	Test CFA induced arthritis	06
3.	Test CFA induced arthritis with std: Methotrexate	06
4.	Test CFA induced arthritis with AV MBJ 50 mg/kg	06
5.	Test CFA induced arthritis with AV MBJ 100 mg/kg	06
6.	Test CFA induced arthritis with AV MBJ 200mg/kg	06
Total		36

Study procedure:

Study Dose: 50mg/kg, 100 mg/kg, 200 mg/kg

Anti-arthritis activity of test product (AV MBJ) was carried out in CFA (Complete Freund's Adjuvant) induced arthritis model. For this study both sex Wistar rats with weight between 150-180 g were selected through approval of the committee. Animals were housed in a well-ventilated animal unit with normal daylight (12 hr light/dark cycle). The animals were fed with standard raw chaw & water ad libitum.

The animals were divided into 6 groups each having 6 rats & subjected to following treatment:

First group served as normal control group & receive Olive oil.
Second group served as toxicant control group & receive CFA (1 mg/mL).
Third, fourth and fifth groups served as test groups & receive AV MBJ in the doses of 50 mg/Kg, 100 mg/Kg and 200 mg/Kg, respectively.
Sixth group served as standard drug group & receive standard drug Methotrexate



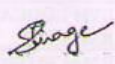
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FORM D

Record of Animals Acquired and Experiments performed: (to be maintained by the Investigator)

To evaluate anti-psoriatic activity of Polyherbal extracts.

Date	No. of animals acquired (specify Species, Sex and Age)	Name, Address and Registration No. of the Breeder from whom acquired with Voucher/ Bill No.	Date and IAEC approval number	Duration of experiment	Name and address of the person authorized to conduct the experiment	Signature of the Investigator certifying that all conditions specified for such an experiment have been complied.
13/3/2020	Albino Swiss mice Male: 39 Total: 39	Global Bioresearch Solution Pvt. Ltd 1899/PO/Bt/S/16/CPCSEA G. No. 531, Nhavi, Bor, Pune- 412205 GBL/19-20/98	IIP/IAEC/13/2019-20	3 weeks	Sujit Nagare Indira Institute of Pharmacy Sadavali Dr. Supriya R. Hyam Urjaya Wellness Research Center, Goa	



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28/12/2020



Completion report

Protocol No. 13: IIP/IAEC/13/2019-20

Title: To evaluate anti-psoriatic activity of Polyherbal extract.

Animal procurement: 21 male and 21 females Swiss albino mice of 25-30gm were procured on 6th march 2020. Animals were procured from Global bioresearch solution Pvt. Ltd, Shirwal.

Grouping of animals:

Group No.	Group description	No. of animals
1.	Normal	06
2.	Control	06
3.	Combination of extract-1	06
4.	Combination of extract-2	06
5.	Combination of extract-3	06
6.	Combination of extract-4	06
7.	Combination of extract-5	06
Total		42

Study procedure:

The animals were sensitized by the application of 100 μ l of 1.5% oxazolone in ethanol to the dorsal lumbar region for a period of 6 days on 14th March 2020. Starting of day 7 (20th Mar 20) following sensitization, herbal gel has been applied topically to ear of mice. For further 14 days of course analysis, ear thickness, ear swelling will be measured and on 14th day the ears are cut and evaluated by histopathology evaluation.

Results:

The study revealed that all combination extract were effective but the combination of extract-4 (comprising guduchi, aloe and neem extracts).



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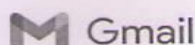
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Vipul A. Sansare : has Bachelor's degree (B.Pharm) from Indira Institute of Pharmacy, Sadavali; Master's degree (M.Pharm) in Pharmaceutics from Bombay College of Pharmacy, Mumbai. His area of specialization is Novel Drug Delivery Systems. Currently he is associated with Indira Institute of Pharmacy, Sadavali as an assistant professor of Pharmaceutics. He has 3 years of experience in teaching. He has authored 10 research papers in reputed national international journals, published 3 textbooks and presented 5 papers in international conferences. He has received two prestigious awards in international conferences for his papers. He has guided many undergraduate projects and scientific posters. He is member of MSPC, APTI, CRS-IC, SPER, The international Nanoscience Community, International Society for Lyophilization/Freeze Drying (ISL-FD) and Institute of scholar.

Dr. Manish Kumar Gupta : has been awarded Bachelor's degree (B.Pharm) from B.N. College of Pharmacy, Udaipur; Master's degree (M.Pharm) in Pharmaceutics from Birla Institute of Technology, Mesra, Ranchi and Ph.D. in Pharmaceutical Sciences from Jaipur National University, Jaipur. His specialization is in the field of Novel Drug Delivery Systems. Currently he is associated with School of Pharmaceutical Sciences, Jaipur National University, Jaipur as Professor (Pharmaceutics) and Coordinator to coordinating various important activities. He has several research papers published in journals of repute and presented at national / international conferences. During his over 18 years of professional experience, including 15 years teaching and 3 years industrial experience, he has guided 10 postgraduate students. Presently, 6 students are pursuing Ph.D. under his guidance. He is member of various professional bodies, social groups and organizations. His expertise in the field of Pharmaceutical Sciences including automation using software systems has significant recognition and is also appreciated greatly by his colleagues and students.

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Chapter - 3

Nanocarrier Mediated Urinary Bladder Targeted Drug Delivery

Vipul Sansare, Manish Kumar Gupta and Birendra Shrivastava

Abstract

The urinary bladder has certain unique anatomical features which enable it to form an effective barrier to toxic substances diffusing from the urine into the blood. Different diseases such as interstitial cystitis, overactive bladder syndrome, urinary tract infection, and bladder cancer affect the bladder's normal function. Treatment of urinary bladder diseases with systemic drug administration suffers from several limitations such as poor bioavailability and first pass metabolism leading to a low drug concentration in bladder tissue and the subsequent need for high drug doses which may increase side effects. Such conditions may benefit from intravesical drug delivery (IDD), which involves direct instillation of drug into the bladder via a catheter, to attain high local concentrations of the drug with minimal systemic effects. IDD however has its limitations, since the permeability of the urothelial layer is very low and instilled drug solutions become diluted with urine and get washed out of the bladder during voiding, necessitating repeated infusions of the drug. New Drug-delivery systems (DDSs) for bladder disorders such as overactive bladder, interstitial cystitis, bladder cancer, and recurrent urinary tract infections are discussed in this article. Nanocarriers, polymeric hydrogels, intravesical systems, encapsulated DDSs, and gene therapy are all discussed, along with the rationale and strategies for both system and local delivery methods. We present a comprehensive overview of bladder-related DDSs, including nanotechnology and gene therapy, as well as their current and future prospects.

Keywords: urinary bladder, bladder disorders, delivery, targeted drug delivery

1. Introduction

The development of a new drug molecule is both costly and time-consuming. Individualizing drug treatment, dose titration and clinical drug



Chapter - 2

Recent Advances in Phytoactive Delivery

Vijul A. Sansare, Manish Kumar Gupta, Deepa U. Warriar and Prashant Gurav

Abstract

Plant derived phytoconstituents are well known for their therapeutic potential. It has been experimentally demonstrated that whole plant extract or isolated phytoconstituents reveal various therapeutic potentials like hepatoprotective, antimicrobial, neuroprotective, antitumor, antioxidant, skin protectives etc. Although these phytoconstituents have potential therapeutic benefits, their use is limited due to their poor bioavailability, stability in biological fluids and authentication issues. These continue to be an open problem that affects application of these valuable ancient herbal herbs in effective treatment and management of various disease conditions. A potential solution to these difficult problems could be encapsulation of phytoactives in novel colloidal particulate systems. Novel colloidal carriers like liposomes, phytosomes, proniosomes, niosomes, nanoparticles, microspheres, lipid microparticles, ethosomes as well as transfersomes were effectively utilized recently to solve drawbacks and for effective delivery of phytoactives. Several landmark studies observed better therapeutic efficacy of phytoactive loaded colloidal carrier compared to conventional drug delivery. Thus colloidal carrier based phytoactive delivery is recently developed promising and attractive strategy for better therapeutic control on disease conditions. The present exhaustive review highlights recent advances in herbal bioactives loaded colloidal carrier-based drug delivery systems.

Keywords: plant extracts, phytoactives, phytopharmaceuticals, novel drug delivery systems, colloidal carriers

Introduction

Plant extract has been used worldwide for treatment of various diseases as well as accepted by physicians and patients because of their fewer side effects [1]. Therapeutic potentials of herbs are widely reported and greatly explored in the literature by ancient Indians. Plant derived phytoconstituent based drug delivery systems are becoming more popular in the modern

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CHAPTER 1

World Health Organization Proclaimed Global Crisis: An overview of the 2019 new Coronavirus (COVID-19) Outbreak

Manish Kumar Gupta¹, Ketaki Dhane^{2*}, Hemant Chikhale³, Amol khade⁴,
Abhinandan Patil⁵

^{1,2}School of Pharmaceutical Sciences, Jaipur National University, Jaipur

³Gokhale Education Society's, Sir Dr. M. S. Gosavi College of
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⁴PSPS, Indra Institute of Pharmacy, Sadavali, India

⁵School of Pharmaceutical Sciences, Sanjay Ghodawat University, Kolhapur, India

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Abstract

A novel coronavirus, COVID-19, was identified as the pathogenic agent (WHO). The pandemic of severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS)-related coronavirus disease 2019 (COVID-19) is sweeping the world. A strange outbreak of pneumonia with no known cause occurred in Wuhan City, Hubei Province, China, in December 2019. The virus was discovered in bats in Wuhan, China, and then transferred to humans via an unknown intermediary species. COVID-19 has not yet been successfully treated with a clinically approved antiviral or vaccine. Only a few broad-spectrum antiviral drugs have been studied in clinical trials against COVID-19, and only a few have proven to be successful. The global emergence and pathogenicity of COVID-19 infection are summarized and compared in this paper.

Keywords: COVID-19, Corona virus, SARS, MERS, Pneumonia

Introduction

Coronavirus is a significant infection that mostly affects the respiratory system of humans. Previous corona virus (CoV) outbreaks include the severe acute respiratory syndrome (SARS)-CoV and the Middle East respiratory syndrome (MERS)-CoV, both of which have been labelled as major public health threats. A group of people was hospitalized to hospitals in late December 2019 with an initial diagnosis of pneumonia

Comprehensive review on use of phospholipid based vesicles for phytoactive delivery

Manish Kumar Gupta^a, Vipul Sansare^a, Birendra Shrivastava^a, Santosh Jadhav^b and Prashant Gurav^c

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ABSTRACT

Plant-derived phytoconstituents are well known for their therapeutic potential. It has been experimentally demonstrated that whole-plant extract or isolated phytoconstituents reveal various therapeutic potentials like hepatoprotective, antimicrobial, neuroprotective, antitumor, antioxidant, skin protectives, etc. Although these phytoconstituents have potential therapeutic benefits, their use is limited due to their poor bioavailability, stability in biological fluids, and authentication issues. These continue to be an open problem that affects the application of these valuable ancient herbal herbs in the effective treatment and management of various disease conditions. A potential solution to these difficult problems could be the loading of phytoactives in phospholipid-based vesicular systems. Phospholipid-based vesicles like liposomes, phytosomes, ethosomes as well as transfersomes were effectively utilized recently to solve drawbacks and for effective delivery of phytoactives. Several landmark studies observed better therapeutic efficacy of phytoactive loaded vesicles compared to conventional drug delivery. Thus phospholipid-based vesicles mediated phytoactive delivery is a recently developed promising and attractive strategy for better therapeutic control on disease conditions. The present short review highlights recent advances in herbal bioactive loaded phospholipid-based vesicles.

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Plant extracts;
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herbal novel drug delivery
systems; phospholipid
vesicles; nanotechnology

1. Introduction

Plant extract or isolated therapeutically active phytoconstituents have long been used worldwide for the treatment of various diseases as well as accepted by physicians and patients because of their fewer side effects (Musthaba *et al.* 2009). The therapeutic efficacy of herbs is widely reported and extensively explored in the literature by ancient Indians. Plant-derived phytoactives based drug delivery systems (DDS) are becoming more popular in the modern world for treating various diseases with lesser toxic impressions and better therapeutic potential. Modern herbal medicines are developed based on traditional ayurvedic knowledge regarding the therapeutic potentials of phytoactives. Nearly, 50% of modern herbal medicines are developed using isolated active phytoconstituents from various parts of herbs. In addition to this, most of the novel therapeutic molecules discover nowadays are developed using plant-based lead molecules (Chancharl *et al.* 2008). However therapeutic effects of some herb-based products are limited due to various constraints like limited solubility as well as stability in the gastrointestinal tract (GIT), poor absorption across GIT linings, considerable first-pass metabolism, and limited oral bioavailability. These issues are well documented in the scientific literature. In order to tackle limitations associated with conventional herb-based products, various scientific experts have utilized nanotechnology-based approaches (Goyal *et al.* 2011).

Nanotechnology is an interdisciplinary area of research and development associated with the production, processing, and utilization of materials having a nanometer size range (Patra *et al.* 2018). Furthermore, nanotechnology in the herbal drug domain has been investigated to improve the bioavailability of phytoconstituents. In recent decades, noble attention has been paid to the use of nanotechnology-based looms for the development of herbal novel drug delivery systems (NDDS) (Wang *et al.* 2013). Clear, strong, and well-documented evidence supports the concept of herbal actives loaded NDDS (Wang *et al.* 2014). Extensive research and investigations in the field of herbal NDDS came up with successful designs of herbal actives encapsulated NDDS (Devi *et al.* 2010). Numerous phospholipid based vesicles like liposomes, phytosomes, ethosomes (Abdulbaqi *et al.* 2016), transfersomes glycosomes (Manconi *et al.* 2018), santosomes (Apolinário *et al.* 2021), glycosomes (Pleguezuelos-villa *et al.* 2020) and hyalurosomes (Manca *et al.* 2019) were successfully utilized for effective delivery of plant extracts/isolated phytoconstituents (Bonifácio *et al.* 2014).

The use of colloidal carriers is considered a promising strategy because they offer various advantages like enhance solubility, stability, bioavailability as well as pharmacology activity, and controlled release kinetic of herbal actives (Yan *et al.* 2020).

Additionally, it is feasible to alter features of colloidal carriers like composition (polymer, lipid, phospholipid, non-ionic

RESEARCH ARTICLE

Design and evaluation of sesamol loaded hyaluronic acid functionalized phospholipid nanovesicles: DPPH radical scavenging potential assay

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ABSTRACT

Objective(s): The unfavorable physicochemical properties of well recognized antioxidant phytoactive sesamol limits its oral bioavailability as well as potential application as an antioxidant drug. The aim of the study is to design and evaluate sesamol encapsulated hyaluronic acid anchored phospholipid nanovesicles to enhance its antioxidant potential.

Methods: Drug encapsulated hyalurosomes were prepared using thin film hydration method and evaluated for particle diameter, physical stability, drug encapsulation efficiency, sesamol release behavior in vitro and DPPH radical scavenging assay.

Results: The selected method was found to be effective for fabrication of phospholipid nanovesicles with particle diameter 200 ± 10.173 nm and zeta potential -29.8 ± 4.16 mV. The drug loaded hyalurosomes revealed significantly better radical scavenging potential compared to free sesamol and unloaded hyalurosomes.

Conclusions: Hyaluronic acid functionalized phospholipid nanovesicles is novel phospholipid based carrier for delivery of phytoactives. Thus formulated phospholipid based system could be acceptable system for delivery sesamol with improved antioxidant potential.

How to cite this article

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INTRODUCTION


The poor gastrointestinal bioavailability and significant metabolism via conjugation are major hurdles in oral delivery of plant based antioxidant phytoactive sesamol (SM). SM is phenolic chemical constituent isolated from sesame oil [1]. Chemically SM is [3, 4-methylenedioxyphenol]. Various landmark studies have proved liver protective and antioxidant activities of SM [2]. The solubility of SM in polar solvents is good. In addition to this, the lipophilicity of SM is also good [3]. To solve drawbacks of SM and to enhance oral

bioavailability, it need to formulate novel drug delivery system, which can release encapsulated drug in controlled manner and possibly improve drug circulation in the body.

Colloidal nanocarriers are promising nanosized particles for delivery of phytoactive [4]. novel nanovesicles like liposomes [5, 6], ethosomes [7, 8], transfersomes [9, 10], glycosomes [11], glycethosomes [12] and hyalurosomes [13] have been investigated phytoactive delivery [14].

Hyalurosomes are phospholipid novel nanovesicles designed using phospholipid and natural polymer i.e. hyaluronic acid [15]. These

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Development and Evaluation of Topical Polyherbal Formulations for their Antimicrobial Potential

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Antimicrobial activity,
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ABSTRACT

The different types of skin diseases caused due to microorganisms. In recent years the use of the traditional medicinal system was increased because of more minor side effects and cost effective. The single herbal drugs were found to be less potent, which can be improved by utilizing more than one herb in the single formulation, known as polyherbal formulation. The present work involved the development and evaluation of the different polyherbal formulations (cream, gel, and emulgel) using natural ingredients. The aim of the present work is to produce a formulation with improved antimicrobial potency and stability of formulations when compared with the individual extracts of herbal drugs. All the prepared formulations were tested against various microbial strains and concluded that the polyherbal formulations (C25, G1, EG1) were found potent against most selected strains. The prepared formulations can be used as a multipurpose formulation.

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INTRODUCTION

Microorganisms are the causative agents of almost all acute and chronic diseases. Dermatologic diseases are the fourth most common cause of all human illnesses. Skin disorders cause higher year loss due to disability than other diseases such as diabetes mellitus. There are around 3000 different types of skin disorders. Intensity and symptoms of infections that are self-limiting and benign tumors, chronic inflammatory disorders, and malignant neo-

plasms are all examples of diseases that cause considerable morbidity and have a negative impact on quality of life. Antibiotics (which kill microorganisms or stop the growth of microorganisms) are the medicines used to treat different infections. Still, they may build resistance due to longer use and becomes less effective. It may produce a severe allergic reaction. It causes diarrhea, abdominal pain, vomiting, and nausea. It also kills the healthy bacteria in the body. To minimize all these drawbacks, herbal medicine has been commonly used for the treatment and prevention of diseases and health promotion, as well as for enhancement of the span and quality of life.

In many developing societies, traditional medicine, of which herbal medicine is a core part, is the only system of health care available or affordable. However, there is a lack of a systematic approach to assessing their safety and effectiveness. The holistic approach to health care makes herbal medicine very attractive to many people, but it also makes scientific evaluation challenging because many factors must be considered. Herbal medicines are in widespread use and although many believe herbal



Preparation and Evaluation of Topical Polyherbal Emulgel Formulation for its Wound Healing Potential

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ABSTRACT

Physical harm that causes the skin to break or open up are known as wounds. For the repair of broken anatomical continuity and compromised functional status of the skin, proper wound healing is crucial. It is the end result of a coordinated response to harm from various cell types. The contraction and closure of the wound as well as the restoration of a functional barrier are the consequences of the intricate, multifactorial process known as wound healing. Due to its lower risk of side effects and lower cost, traditional medicine has seen increased use in recent years. When more than one herb is included in a single formulation, this is known as a polyherbal formulation, and the potency of the single herbal medications is increased. The purpose of the current study was to assess an emulgel made of developed polyherbal ingredients against wound healing. The current study aims to assess the created formulation's ability to treat burns and excision wounds in terms of wound healing potential. Excise and burn wounds largely recovered. A group of rats given the medication showed signs of re-epithelialization of cells in newly formed tissue. At the healing site, there was also evidence of fibroblastic and vascular procreation. Without the presence of any microorganisms, the formulation effectively increases the rate of epithelialization and collagen viability across the wound region. According to the findings, the produced formulation (EG1) was superior to the extract in terms of effectiveness for wound healing.

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INTRODUCTION

Physical harm that causes the skin to split or open up are called wounds. For the repair of broken anatomical

continuity and compromised functional status of the skin, proper wound healing is crucial. It is the end result of a coordinated response to harm from various cell types. The contraction and closure of the wound as well as the restoration of a functional barrier are the consequences of the multifaceted, complex process of wound healing (Umachigi *et al.*, 2007b). A series of actions, including inflammation, cell proliferation, and cell type migration, result in the repair of damaged tissues (Sidhu *et al.*, 1999). The physiologic process of wound healing is divided into three phases: the substrate phase, the proliferative phase, and the remodeling phase (Umachigi *et al.*, 2007a). A number of cytokines, including growth factors, govern how all these actions are carried out (Pierce *et al.*, 1991). Herbal medicine is a crucial component of traditional medicine, which is



UNI-Directional Double Run Multi-Marker Based Standardization of "Amruthothram" Ayurvedic Medicine by HPTLC

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ABSTRACT

Ayurveda and Unani Medicine are the most classy and commonly practiced systems in India. In India's AYUSH systems, some 8,000 herbal remedies have been codified. Amruthotharam/Amrutottaram Kashayam is one of such preparation which takes care of metabolic disorders through inflammation. The formulation contains guduchi (*Tinospora cordifolia*), haritaki (*Terminalia chebula*), and shunthi (*Zingiber officinale*) in the ratio 6:4:2. Natural remedies obtained from wild sources; therefore, sustaining consistent product quality is difficult because of extrinsic variables including soil conditions, light and water availability, temperature changes, nutrients, and geographic location. The present work aimed to develop and validate uni-dimensional double development high-performance thin layer chromatography to standardize the marker-based compounds such as gallic acid, berberine and gingerol-6, because the power of one-dimensional chromatography is often inadequate for complete resolution of the components present in complex samples which can be improved by separating actives through UDDD.

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INTRODUCTION

The term Traditional herbal medicine is a knowledge, skills, and practices relies on indigenous concepts, beliefs, as well as experiences used to maintain health also to prevent, diagnose, improve or cure physical as well as mental illness (World Health Organization, <http://www.who.int/topics/traditional-medicine/en/>). Traditional medicine is divided

into many diverse systems, each having its own philosophy and practices inspired by the geographic place as well as environmental conditions in which it first developed (WHO, 2005). Though, a prevalent concept is a holistic approach to life, which emphasizes the body, mind, also environment, as well as a focus on health rather than sickness (WHO 2005). Herb comes from the Latin word "herba" and the old French word "herbe." Together, these two words form the modern English word "herb." Today, the term "herb" can be used to refer to any part of a plant, such as the seed, flower, fruit, stem, leaf, bark, stigma, or root, also the plants that are not woody. According to the evidence, Unani Hakims, Indian Vaid, cultures from Europe and the Mediterranean, and cultures from the rest of the world have all employed plants as medicine for more than 4000 years. Indigenous communities in Rome, Egypt, Iran, Africa, and America practised healing rituals that involved the use of herbs. Other indigenous communities developed traditional medical practises, such as Unani, Ayurveda, and Chinese

ORIGINAL ARTICLE



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**Evaluation of the Impact of the Ayurvedic Formulation
"Amruthotharam" on Obesity-Related Diabetic and Hepatic Disorders**

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ABSTRACT

Diabetes mellitus (DM) is a non-communicable disease that affects people all over the world and is defined by ongoing hyperglycemia. Sulfonylureas, biguanides, -glucosidase inhibitors, and non-sulfonylurea secretagogues are a few oral hypoglycemic medications that are frequently recommended by doctors for managing diabetes. Oral hypoglycemic medication use causes noticeable negative effects, and there is currently no permanent viable treatment for DM recovery. Complementary and alternative therapies must be used to lower the incidence of disease until better medical methods are discovered. The search for an efficient medication, either by itself or in combination, to treat diabetes continues to be fruitless. This might have a viable replacement in the shape of herbal preparations, which are widely employed in conventional medical systems. In order to determine the impact of Amruthotharam kashaya prepared using a traditional method for a four-week treatment period on blood glucose levels as well as other biochemical parameters like total cholesterol, LDL, HDL, and VLDL in HFD-alloxan-induced diabetic rats, the present study was designed. Significant weight loss was also seen with diabetes management, and this was partially reversed after formulation administration. The formulation significantly decreased increased levels of a few particular biochemical markers and avoided other hyperglycemia-related complications. These findings offer scientific support for the anti-diabetic usage of a conventional formulation and imply that the administration of the formulation to rats can be used safely by humans because it lowers the levels of several biochemical factors that contribute to diabetes.

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INTRODUCTION

Diabetes is a metabolic condition that manifests as frequent urination, thirst, and hunger in addition to high or above-normal blood glucose levels (70–110 mg/dL). The main causes are either decreased insulin synthesis by -cells or diminished insulin sensitivity in cells. (Singab *et al.*, 2014) Diabetes raises the chance of obesity, heredity, ageing, hereditary insulin receptor and beta-cell function alterations, medication and infection abuse, and other cofactors. Type 1 diabetes, type 2 diabetes, and type 3 diabetes are the three forms of diabetes according to pathological reasons.



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A review on metabolic syndrome

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Abstract---Metabolic syndrome is considered a major reason for the emergence of chronic dreadful diseases. Obesity and wrong food habit are key factors for metabolic syndrome. Globally people are affected by glucose intolerance, central obesity, hypertension, and dyslipidemia. Diabetes is a major part of metabolic syndrome. Targeted anti-inflammatory therapy has been suggested for both prevention and treatment of many of the above-said syndrome especially diabetes. Diet is an important regulatory factor in the immune response. There is considerable evidence to suggest that malnutrition leads to immune suppression due to a susceptibility to infection. On the other hand, over-nutrition leads to immune activation due to a susceptibility to an inflammatory condition. Inflammation may have an important role in the development and progression of diabetes and its complications; however, the impact of experimental anti-inflammatory treatments on diabetes deterioration over time and cardiovascular outcomes is still elusive. Thus proper diet with some drug therapy not only resolves the issue but can prevent the progression of the disease at extreme levels.

Keywords---metabolic syndrome, obesity, inflammation, diabetes, diet.

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Fabrication and evaluation of mannose decorated curcumin loaded nanostructured lipid carriers for hepatocyte targeting: *In vivo* hepatoprotective activity in Wistar rats

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ABSTRACT

Curcumin is a well-recognized antioxidant phytoactive isolated from the rhizomes of *Curcuma longa*. Numerous landmark investigations have proved the antioxidant and hepatoprotective potential of curcumin. The aim of present study was to target curcumin loaded nanocarriers to hepatocytes using asialoglycoprotein receptors targeting strategy. Mannose, a water-soluble carbohydrate, was hydrophobized by anchoring stearylamine with an objective to conjugate mannose on the surface of curcumin loaded nanostructured lipid carriers for targeting asialoglycoprotein receptors on hepatocytes. Mannose conjugated stearylamine was synthesized and characterized using various analytical techniques. The synthesized targeting ligand was incorporated curcumin loaded nanostructured lipid carriers and characterized by photon correlation spectroscopy. Zeta potential measurement was used to confirm the conjugation of the synthesized ligand to the surface of drug-loaded nanostructured lipid carriers. CCl₄ induced hepatotoxicity in male Wistar rats was used as an experimental animal model to evaluate the hepatoprotective potential of formulated drug encapsulated nanostructured lipid carriers. The hepatoprotective potential was assessed by measuring serum liver injury markers and oxidative stress parameters in the liver post-mitochondrial supernatant. Mannose conjugated nanostructured lipid carriers showed acceptable particle size which revealed its suitability for hepatocyte targeting. In addition to this, mannose conjugated nanocarriers revealed significantly better ($p < 0.05$) reduction of serum liver injury markers and proinflammatory cytokines compared to the unconjugated one which confirmed hepatocytes targeting potential of the synthesized ligand. Asialoglycoprotein receptors targeting could be a landmark strategy for hepatocyte targeting. Thus, the synthesized mannose anchored stearylamine could be a promising novel targeting ligand having hepatocyte targeting potential.

1. Introduction

Liver is a complex and specialized organ which regulates numerous biochemical functions like synthesis and metabolism of a number of complex molecules. Various liver diseases affect millions of people worldwide, which are difficult to treat with conventional drug delivery (Bartneck et al., 2014). World Health Organization has reported 30–50% of liver cirrhosis globally due to alcohol consumption and more than 300 million cases of chronic hepatitis infections in 2020 (Vasanthkumar et al., 2017). Numerous drugs have been investigated for the treatment of

diseases associated with liver, however a correct drug delivery system needs to be found for the delivery of drugs.

Majority of conventionally administered drugs are accumulated in the liver, however, the efficient therapeutic effect in diseases like hepatocellular carcinoma, hepatitis, liver cirrhosis and hepatic tuberculosis is not achieved. To overcome the limitations associated with conventional drug delivery, novel colloidal carriers like liposomes (Castangia et al., 2015; Shah et al., 2013; Tang and Ge, 2017), nanoparticles (NPs) (Guhagarkar et al., 2015; Raposo et al., 2020), solid lipid nanoparticles (SLNs) (Bonferoni et al., 2018; Kakkar and Kaur, 2012; Mohanalakshmi

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7/1/22, 12:56 PM Gmail - Fwd: Plants for antimicrobial study

M Gmail vipul sansare <avipulsansare@gmail.com>

Fwd: Plants for antimicrobial study

NAGARE SUJIT <nagaresk@gmail.com> Fri, Jul 1, 2022 at 12:48 PM
To: vipul sansare <avipulsansare@gmail.com>

----- Forwarded message -----

From: Pratap Naikwade <naikwade.pratap@gmail.com>
Date: Fri, Sep 22, 2017 at 8:02 PM
Subject: Plants for antimicrobial study
To: nagaresk <nagaresk@gmail.com>

Dear Sir,
This year in Avishkar Research Convention we are planning to present antimicrobial activity of following 4 plants. First three are very common in Ratnagiri and other area and used as wild vegetable. Before selecting these species I have read some papers available on Internet regarding their antimicrobial activity. We have prepared leaf and stem powder of these plants which is ready for extraction. Please suggest any changes if any, from point of view of experiment.

Plant1:
Botanical Name: Clerodendrum Serratum
Local name: Bharangi
it is best used to cure respiratory system related diseases. Decoction prepared by leaves has bronchodilator effect. It is not toxic plant and its flowers and leaves are also edible. Root of this plant is bitter, dry, anti-inflammatory, digestive, carminative, stimulant, expectorant and anti-spasmodic

Plant:2
Botanical Name:Cassia tora or Senna tora
Local Name: Takla, Tarvat
It has anti-cancer potential, externally used for snake bite poisoning, it reduces cholesterol. Fresh leaves are pounded with alcohol or vinegar, it is applied externally to treat eczema and psoriasis.

Plant 3
Botanical Name:Celosia argentia
Local Name: kurdu, kombda
The flower and seed is astringent, haemostatic, ophthalmic, parasiticide and poultice. It is used in the treatment of bloody stool, haemorrhoid bleeding, uterine bleeding, leucorrhoea and diarrhoea. The seed is hypotensive and ophthalmic.

Plant 4
Botanical Name:Murraya koenigii
Local Name: kadipatta
Leaves have anti diabetic properties. The leaves, the roots and the bark of the curry tree can be used as tonics as well as a stomachic. A mixture made from the curry tree is applied on external wounds and is known to relieve bites of poisonous animals. The leaves of Murraya Koenigii are eaten raw for relieving vomiting and dysentery. The oil made of the curry tree leaves is said to contain antifungal and antibacterial properties.

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Synthesis, Characterization and Biological Evaluation of Indole-Pyrazole Amalgamated α -Cyano Substituted Chalcones

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Price: \$65

Abstract

Background: Indole and pyrazole constitute a major class of biologically active scaffolds. The amalgamation of two or more pharmacophores would generate novel molecular templates that are likely to unveil remarkable biological properties.

Objective: An efficient and high yielding synthesis of indole-pyrazole integrated α -cyano substituted chalcones and their in vitro anti-breast cancer and antioxidant evaluation.

Methods: The synthesis of a series of indole-pyrazole amalgamated α -cyano substituted chalcones (6a-o) was achieved by reacting substituted 3-cyanoacetyl indole 2 with substituted pyrazole aldehyde 5 in the presence of piperidine. All the newly synthesized compounds have been characterized by IR, ^1H NMR and HRMS spectroscopy.

Results: Anti-breast cancer evaluation of the synthesized compounds in vitro against MCF-7 cell line revealed high anti-breast cancer activities. Amongst the compounds screened 6f, 6g, 6h, 6c, 6d, 6e, 6i and 6k unveiled excellent activity against breast carcinoma ($\text{GI}_{50} < 0.1 \mu\text{M}$) as good as adriamycin ($\text{GI}_{50} < 0.1 \mu\text{M}$). The compounds were also screened against the normal Vero monkey cell line and the results demonstrated more selectivity against MCF-7. On the other hand, compounds 6b, 6c, 6d, 6h and 6l have shown moderate DPPH and NO radical scavenging activity.

Conclusion: Most of the synthesized compounds exhibited significant antitumor activities. These results further support its safety margin by studying the activity on normal Vero monkey cell line. These results acclaim the possible use of these compounds for the design and development of potent anti-breast cancer agents.

Keywords: Indole-pyrazole chalcones, anti-breast cancer, anti-inflammatory, antioxidant, α -cyano pharmacophores.

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MECHANISMS OF METABOLIC DISORDERS
INTERNATIONAL POSTGRADUATE COURSE
April 4th, 2022 – July 8th, 2022

Graphical Abstract

Chemical structure diagram showing the synthesis of indole-pyrazole amalgamated α -cyano substituted chalcones. The diagram includes the following text: "Incorporation of IR or MCO groups would increase activity", "Electron withdrawing groups increases activity", and "Substitution is essential for activity enhancement".

Figure 6f: MCF-7 $\text{GI}_{50} = 0.1 \mu\text{M}$; (10) = 8.2 μM ; (9) = 0.2 μM ; (12) = 1.0 μM .

Synthesis and in vitro anti-breast cancer (MCF-7) evaluation of indole-pyrazole amalgamated α -cyano substituted chalcones.



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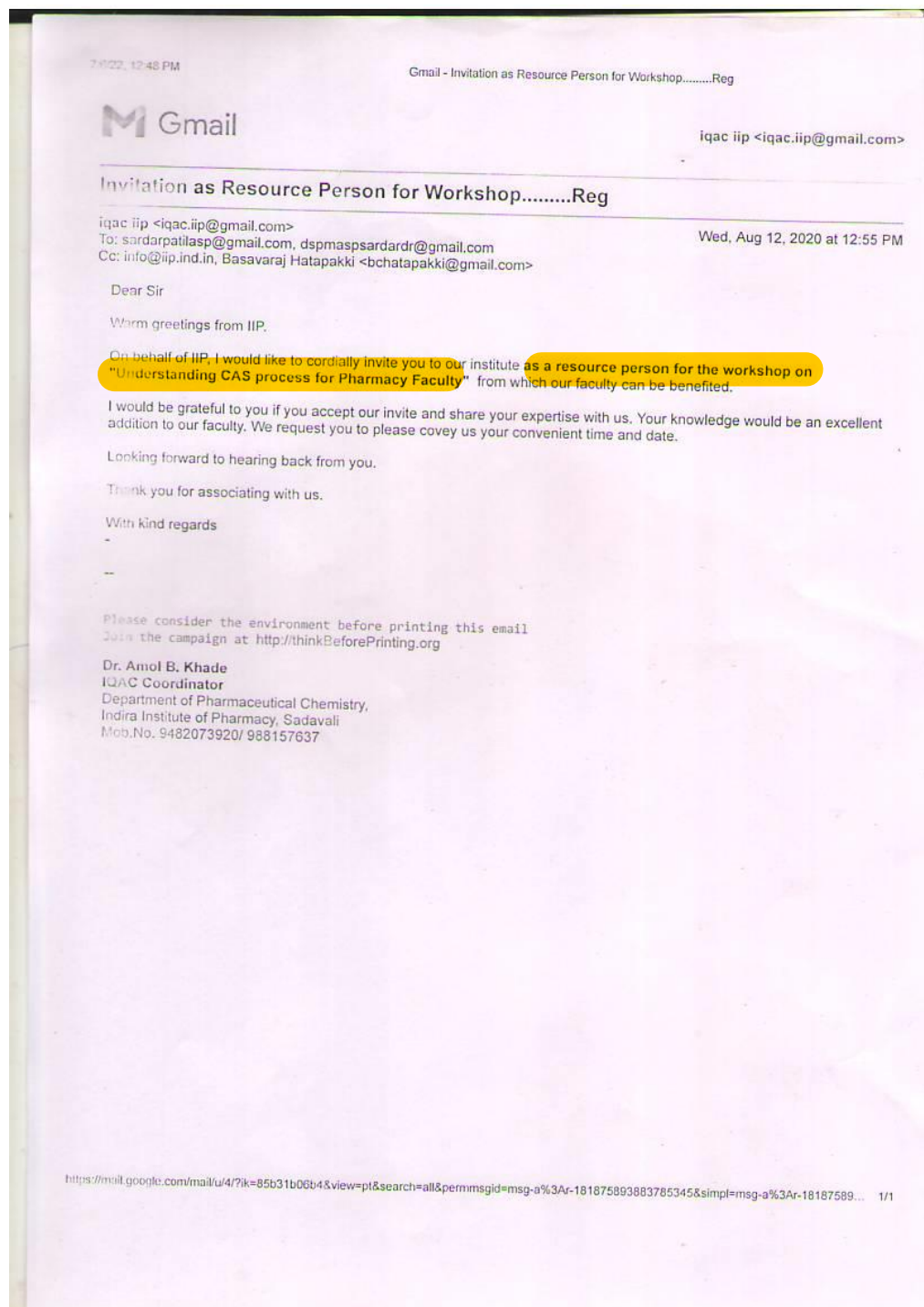
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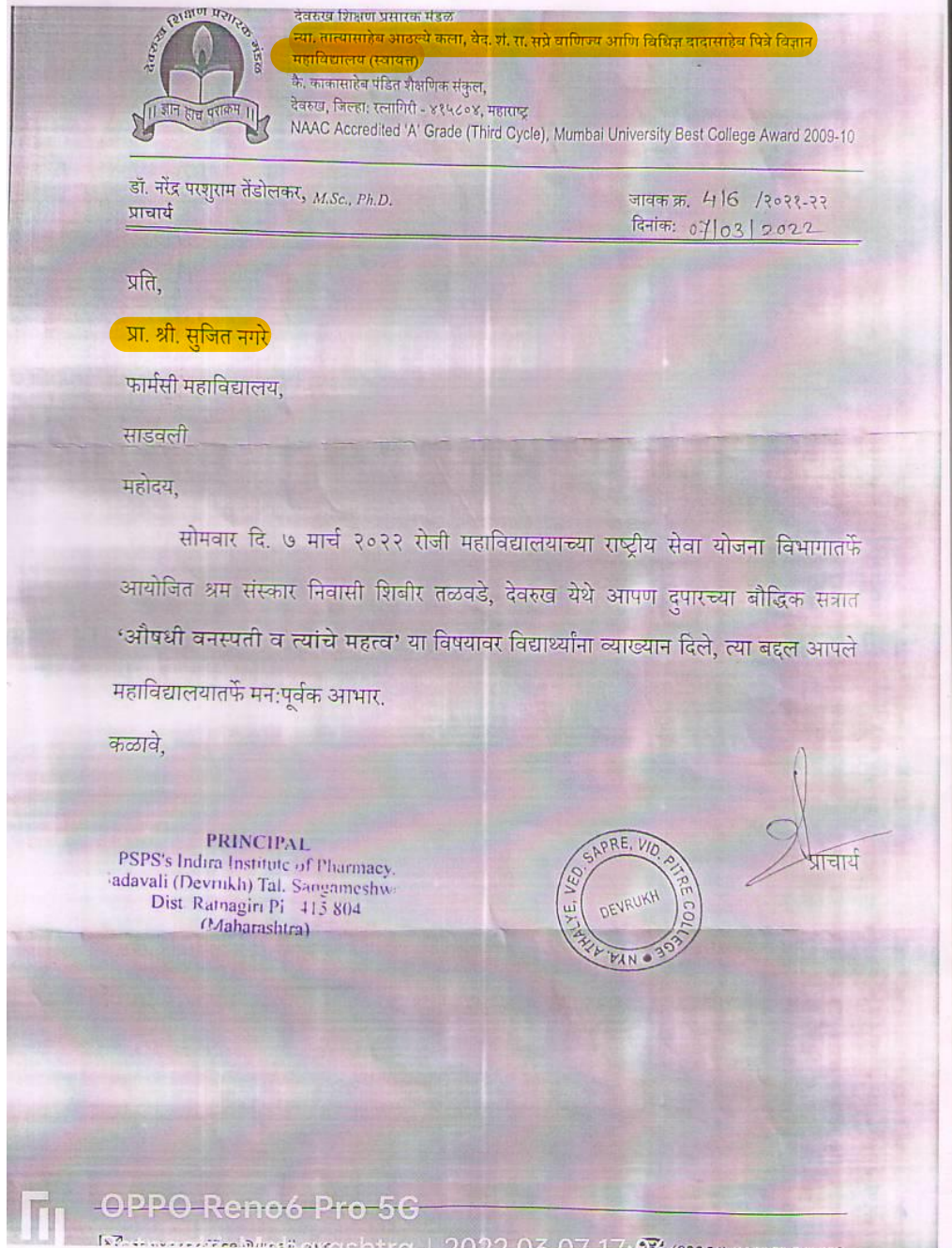
IQAC, of IIP has successfully conducted guest lecture on "Understanding CAS and API process for its faculty", **Dr. Sardar Patil, Asst. Professor and HOD of Geography, ASP College, Devrukh** was invited as the resource person for guest lecture.





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Our faculty Mr. Sujit K. Nagare (HOD: Department of Pharmacognosy) delivered an invited talk at village Talawade, Dist: Ratnagiri in National Service Scheme special camp organized by **ASP College of Arts, Commerce, and Science** on 7th March 2022. He highlighted the 'Importance of Medicinal plant' in his talk.





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Report of Webinar

Topic: Gender Equality Today For Sustainable Tomorrow

**Resource person: Dr. Prashant T. Nargude (Assistant Professor,
A.S.P College, Devrukh)**

Date: 11 April – 30 March 2022

No. of participants: 90

College Women Development Cell of the institute organized webinar on “Gender Equality Today For Sustainable Tomorrow” on 30th March 2022

The theme of day was “Gender Equality Today For Sustainable Tomorrow”. The programme was followed by felicitation of all the dignitaries by Dr. Amol B. Khade (Principal, IIP). Ms. Vaishnavi B. Nalawade (Coordinator, CWDC) highlighted welcome address. Dr. Amol B. Khade delivered principal address.

Dr. Prashant T. Nargude, Assistant Professor, A.S.P College Devrukh (Resource person) expressed his thoughts. The main objective of the webinar was to empower students and help them to understand the concept of Gender Equality and Women Empowerment. However, the session brought to the fore much serious issues and the plight of uninformed women who fall prey to these inhumane and irrational practices in our society. It was an informative and insightful session.

Girl students of the institute, showed active participation in the webinar. 90 girls students were participated for the event.

CWDC members were actively involved to made the programme successfully. The program was concluded with vote of thanks, by Ms. vaishnavi B. Nalawade.




Principal
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INDIRA INSTITUTE OF PHARMACY
SADAVALI

College Women Development Cell

We are delighted to invite you all to attend
Webinar On
**GENDER EQUALITY TODAY
FOR SUSTAINABLE
TOMORROW**

Resource Person


Dr. Prashant Nargude
Dept. of Sociology
A.S.P. College Devrukh


 <http://meet.google.com/gyp-znve-yva>

Wednesday, 30th March, 2022
11:00am - 12:00pm

Programme organised by: CWDC

Ms. V. B. Nalawade **Dr. A. B. Khade**
Coordinator **Principal**




Principal
Indira Institute of Pharmacy,
Sadavali (Devrukh)



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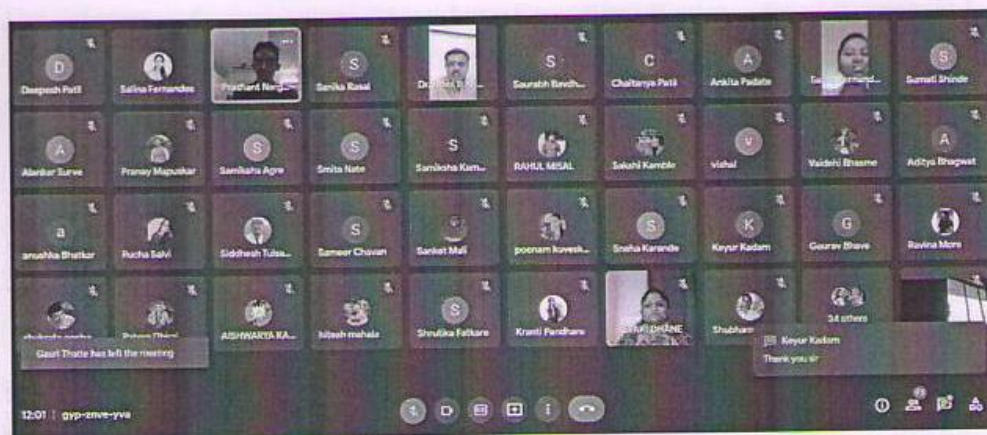
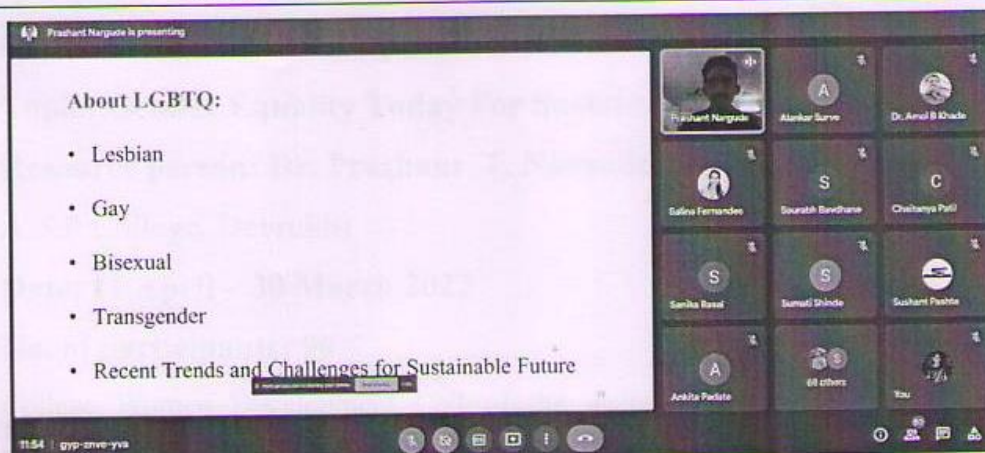
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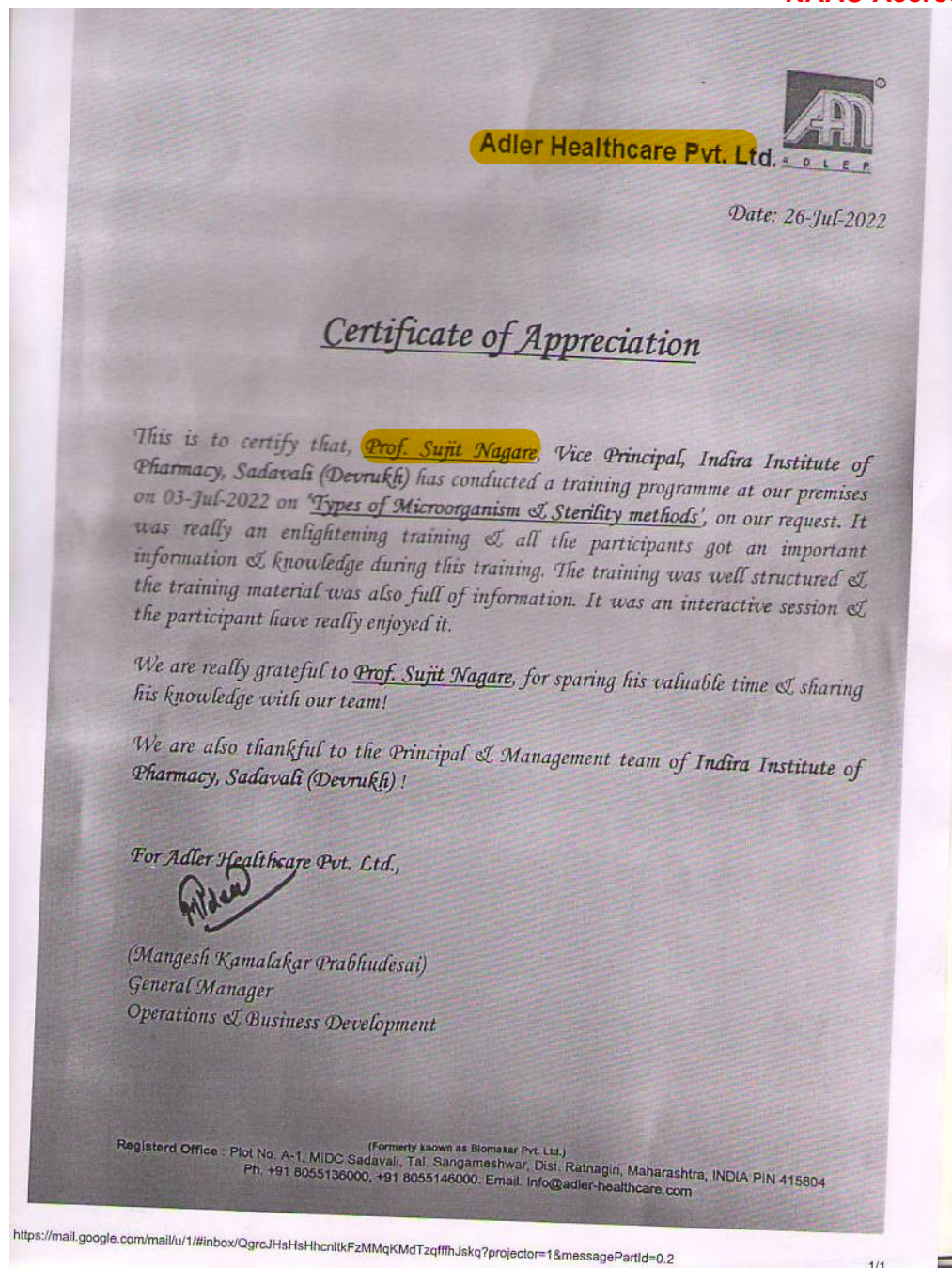



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Mr. Sujit K. Nagare (Asst. Professor and HOD of Pharmacognosy) delivered invited talk at Adler Mediequipment Pvt. Ltd. Sadavali, Devrukh.



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Fwd: Assistance to prepare SOP for handling storage & disposal of chemicals

Dr. Amol B Khade <abkhade@gmail.com>
To: Vipul Sansare <avipulsansare@gmail.com>

Thu, Nov 10, 2022 at 1:23 PM

Dr. Amol B. Khade, M.Pharm, Ph.D.
Principal (In-charge)
P.S.P.Sanstha's Indira Institute of Pharmacy, Sadavali
Devrukh, Ratnagiri, Maharashtra.
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Email: info@iip.ind.in
URL: <http://www.iip.ind.in>
ORCID Research Profile

----- Forwarded message -----
From: Prabhudesal, Mangesh <Mangesh.Prabhudesal@smith-nephew.com>
Date: Wed, Jan 27, 2021 at 12:44 PM
Subject: Assistance to prepare SOP for handling storage & disposal of chemicals
To: info@iip.ind.in <info@iip.ind.in>
Cc: abkhade@gmail.com <abkhade@gmail.com>, KPS, Krishnan <Krishnan.KPS@smith-nephew.com>

To,
The Principal,
Indira Institute of Pharmacy,
Sadavali.

Dear Sir,

We at Adler Mediequip Pvt. Ltd. MIDC, Sadavali, intend to establish process of Titanium Anodizing. As per requirements, we are using below acids.

Considering the possibility of hazards during the handling of these acids, we request you to provide your expert advice / assistance to prepare SOP for Handling / Storage & Disposals as well as preparing guidelines in case of accidents etc.

Although we have the standard MSDS data available, we intend to correctly interpret & articulate the instructions with your faculty expertise, which will make it easier to understand & follow on the floor.

Request your co-operation as usual.

Please refer the below details of chemicals and ratio of mixing.

3.1.1. Anodizing Surface preparation Tank


1. Take Hydrofluoric acid and Nitric Acid, prepare solution 15ml HF and 4l Ni Acid

15ml HF for 4 L Nitric

3.1.3. Anodizing Bath Tank

1. Take chemical Ammonium Sulfate and prepare solution 280 Liter Water with 12 kg Ammonium Sulfate (500gm pack mix with 11.9-liter water (1:0428 ratio)).


Thanks & regards,


Mangesh Prabhudesal | Head-Unit Operations
mangesh.prabhudesal@smith-nephew.com
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 Gmail vipul sansare <avipulsansare@gmail.com>

Fwd: External: - Re: Adler Mediequip_Chemical

Dr. Amol B Khade <abkhade@gmail.com>
To: Vipul Sansare <avipulsansare@gmail.com>

Thu, Nov 10, 2022 at 1:24 PM

Dr. Amol B. Khade, M.Pharm, Ph.D.
Principal (In-charge)
P.S.P.Sanstha's Indra Institute of Pharmacy, Sadavali
Devrukh, Ratnagiri, Maharashtra.
Mobile No. 9482073920/9881675337
Email: info@iip.ind.in
URL: <http://www.iip.ind.in>
ORCID Research Profile


----- Forwarded message -----
From: Prabhudesal, Mangesh <Mangesh.Prabhudesal@smith-nephew.com>
Date: Wed, Jan 27, 2021 at 12:44 PM
Subject: RE: External: - Re: Adler Mediequip_Chemical
To: Dr. Amol B Khade <abkhade@gmail.com>
Cc: KPS, Krishnan <Krishnan.KPS@smith-nephew.com>

Dear Dr. Amol,

Thanks for valuable inputs. These are very important inputs that can be used to prepare our SOP for handling / storage & disposal of the acids.
I have already written a request mail to the Principal, copy to you. Sorry for being late in this regard.

We once again appreciate your support & helping us to make a safe work environment in our industry.

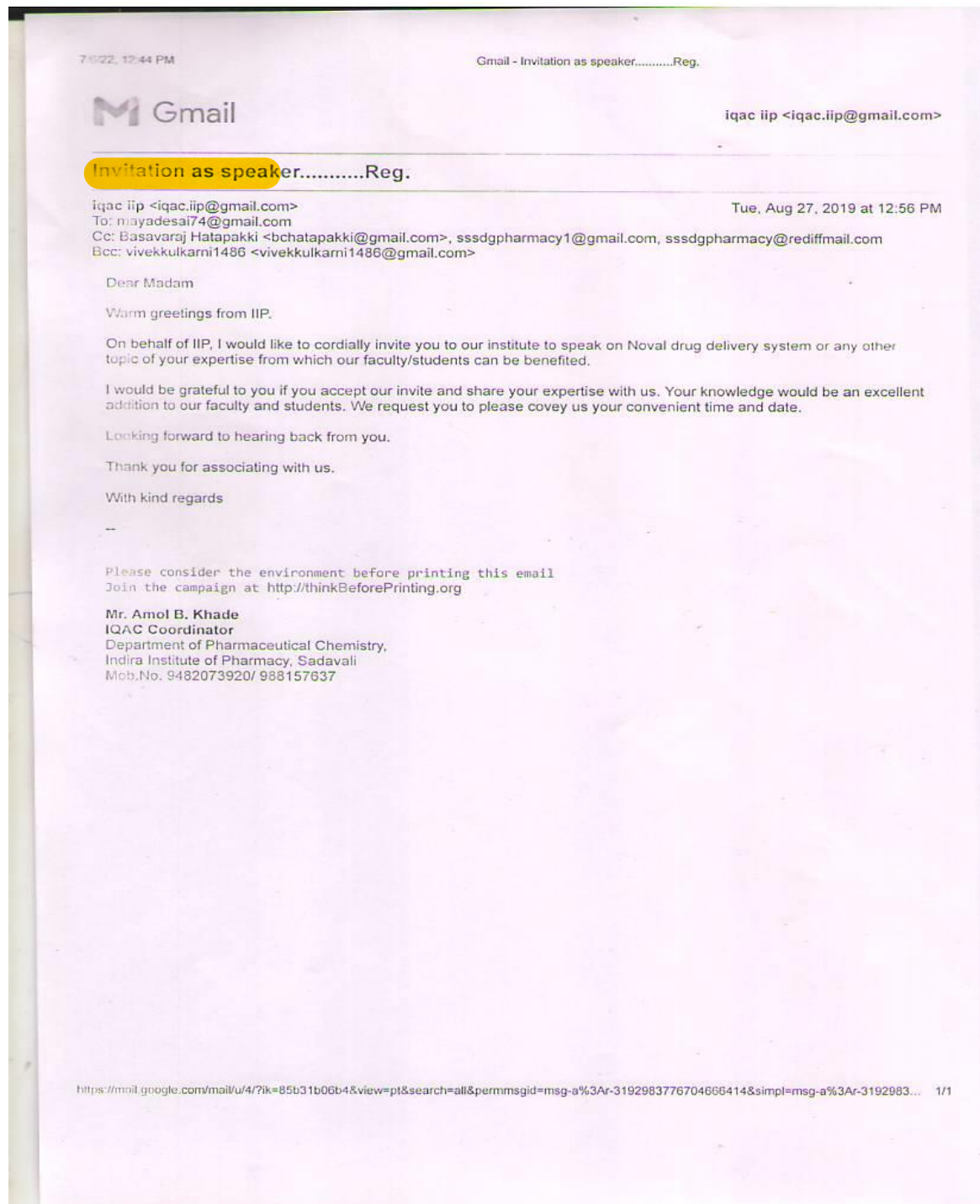
Regards,
Mangesh Prabhudesal

Adler - India, a  company
+919422431425



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PSPS's
INDIRA INSTITUTE OF PHARMACY
A Report on guest lecture 'Novel Drug Delivery System'
Date: 29/08/2019

Department of Pharmaceutics of Indra Institute of Pharmacy has organized guest lecture on 'Novel Drug Delivery System' on 29th August 2019. Mrs Maya T. Desai, Associate professor, department of pharmaceutics, GNCOP, Sawarde was resource person for lecture.

It was an intriguing and informative session wherein she explained the importance of 'Novel Drug Delivery System' in drug delivery. The objective of the lecture was to focus on the NDDS in drug delivery.

Event Photographs



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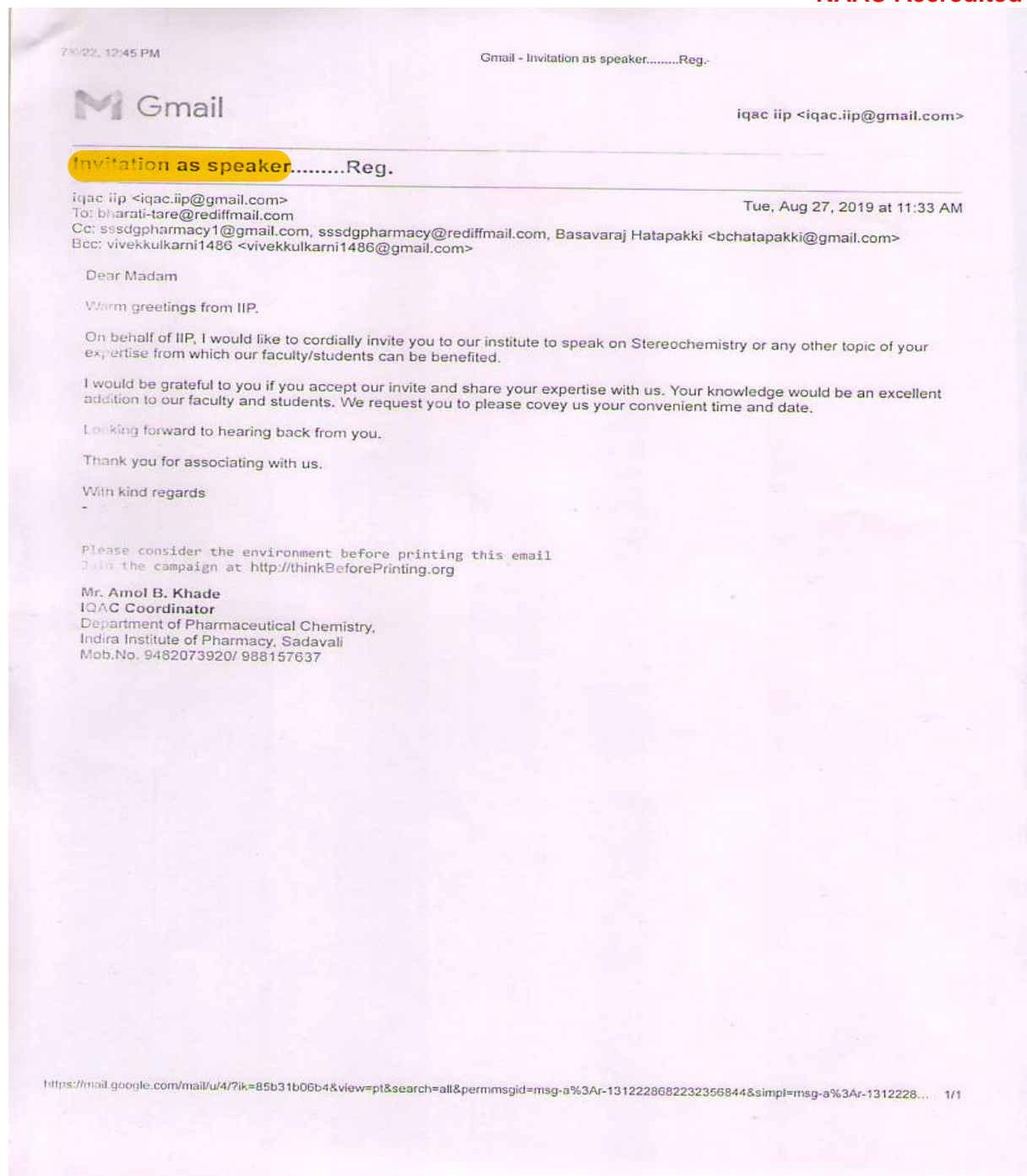


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PSPS's
INDIRA INSTITUTE OF PHARMACY
A Report on guest lecture 'stereochemistry'
Date: 29/08/2019

Department of Pharmaceutical Chemistry of Indira Institute of Pharmacy, Sadavali has organized guest lecture on stereochemistry on 29/08/2019. Mrs B. S. Tare, Assistant Professor, department of pharmaceutical chemistry, **GNCOP, Sawarde** was resource person for lecture.

It was very informative and interactive session on stereochemistry.

Event Photographs



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**LIQUISOLID COMPACT: AN APPROACH TO ENHANCE
DISSOLUTION RATE OF DRUGS**

**Sumedha Bane *Maya T. Desai **Vipul Sansare*

*Department of Pharmaceutics, Govindrao Nikam College of Pharmacy, Sawarde,
Maharashtra, India.*

***Department of Pharmaceutics, Indira Institute of Pharmacy, Sadavali, Devrukh,
Maharashtra, India.*

ABSTRACT

The dissolution rate improvements of poorly water-soluble drugs is a major challenge for the pharmaceutical industry because of their low solubility. Due to different novel technologies, the number of candidate drugs increased. In that most of the drugs have highly lipophilic nature. These drugs belong to BCS (Biopharmaceutical classification system) class II and class IV. Bioavailability of poorly water-soluble drugs is limited by their solubility and dissolution rate. To counter these problems different technologies come in the market but they also have many disadvantages. The liquisolid technology as described by Spireas is a liquid which is transformed into a free-flowing, readily compressible and apparently dry powder by simple physical blending with selected excipients like the carrier and coating material. This review is mainly based on the history, advantages, disadvantages, theory, mechanism, evaluation and materials used in the liquisolid system. According to literature review the liquisolid compact has greater applicability in the pharmaceutical formulation. The liquisolid compact approaches the great improvement in the solubility of chemical entity.

Keywords: Liquisolid compacts, Solubility, Bioavailability, Carrier material, Coating material

INTRODUCTION

In the pharmaceutical industry oral dosage form is very easy as compared to other dosage forms. The oral dosage forms are convenient for patients also it does not require sophisticated machinery and complex manufacturing procedure, but the major problem of oral dosage form is that they should have high solubility. The characteristics of new chemical entities shifted toward higher molecular weight, this increases the lipophilicity therefore it decreases their aqueous solubility. It has been reported that about 40% of the drugs in the development stage and 60% of synthesized drugs have poor water solubility.¹ The BCS class II and IV drug i.e. low soluble or insoluble drug in aqueous medium are very challenging to the pharmaceutical industry. Solubility is one of the major factors to achieve desired concentration of drug in the blood stream for pharmacological response.² The aqueous solubility of poorly water-soluble drugs is usually less than 100 µg/ml.³ The low solubility of drugs causes different problems like low bioavailability, alter the release of dosage form. There are different modifications to tackle this issue i.e. chemical modification, physical modification but they are not cost-effective due to the involvement of sophisticated machinery, advanced manufacturing techniques and more complex technology also sometimes leads to unsatisfactory results and lack of stability. In past few years different new techniques have been developed such as drug microionization, solid dispersion, co-precipitation, lyophilization, liposomes, niosomes, microencapsulation, use of prodrug and derivatization process and inclusion of drug solution into soft gelatin capsules.⁴

The most promising technique for the enhancement of water-insoluble drugs is "liquisolid technique". It was developed by Spireas et al. in 2002 which improves dissolution properties of water-insoluble or poorly soluble drugs by increasing surface area and wetting area. The liquisolid technique is based upon the dissolving insoluble drug in the non-volatile solvent and admixture of drug-loaded solutions with appropriate carrier and coating material to convert into acceptably flowable and compressible powder.⁵ The liquisolid technique is a liquid medication converted into a dry-looking non-adherent free-flowing and readily compressible powder by a simple blending with selected powder excipients referred to as the carrier and coating material.⁶ Apart from dissolution enhancement, liquisolid technique has recently been investigated as a tool to retard drug



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Outward No.: GNCOP/Guest Lect./2021-22/257 Date: 21/02/2022

To,
Mr. Vipul Sansare
Dept. of Pharmaceutics,
Indra Institute of Pharmacy,
Sadavali,
Devrukh.

Dear Sir,

We are grateful to you for conduction of Seminar on "Publication of Research Article" for our Final B. Pharm and M. Pharm students on 21st February, 2022 from 10.30 to 4.30. Knowing the drafting of manuscript, quality research publishers and journals, selection of appropriate journal, communication of the manuscript are very essential for the students to publish their research work. Through effective explanation and hands on training you helped the students to understand the concept and improve their skill.

Thanking you,

Yours faithfully
Battre
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