



3.5.1

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



K. K. WAGH COLLEGE OF PHARMACY

(B. Pharmacy & D. Pharmacy)

Hirabai Haridas Vidyanagari, Amrutdham, Panchavati, Nashik - 422 003. (Maharashtra) India.

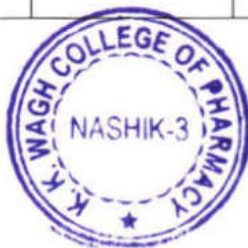
☎: 0253 - 2221121, 2517003, 2510262 Web : www.pharmacy.kkwagh.edu.in

Email: principal-bpharmacy@kkwagh.edu.in, disp-bpharmacy@kkwagh.edu.in

(Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, MSBTE, Mumbai & Approved by PCI)

3.5.1 Summary of the functional MoUs/linkage/collaboration indicating start date, end date, nature of collaboration etc.

Sr. No.	Name of Industry/ Hospital/Institute	Start Date	End Date	Nature of collaboration
A.Y. 2022-23				
a	K. K. Wagh Institute of Engineering Education & Research, Nashik	10/08/2022	09/08/2027	Certificate course, Training
b	Shree Yash Hospital	06/07/2022	05/07/2024	Health Check-up Camp
c	Apollo Hospital, Nashik	10/10/2022	10/09/2024	Field Visit
A.Y. 2021-2022				
a	Talent Management Zone	20/04/2022	19/04/2027	Personality development
b	ASG Eye Hospital, Nashik	05/05/2022	04/05/2024	Health check-up
c	The Yellow Monk	01/02/2022	31/01/2024	Health & Finance Awareness
d	Gokhale's Advanced Training Institute, Jalgaon	12/01/2022	11/01/2025	Skill Development
A.Y. 2020-2021				
a	Ingenious Healthcare, Pune	21/01/2021	20/01/2026	Awareness about Career opportunities
b	RAP Analytics, Nashik	08/01/2021	07/01/2026	Training, Projects, Certificate course
c	Board for upskill growth of E-India, Pune	09/07/2020	09/07/2025	Skill Development, Training, Career guidance
A.Y. 2019-2020				
a	Gokhale's Advanced Training Institute, Jalgaon	21/12/2019	20/12/2020	Skill development
b	Institute of Pharmaceuticals Education & Research, Pune	16/12/2019	15/12/2020	Awareness about Career opportunities
c	Mahidhar Wealth Creators, Ahmedabad	09/12/2019	08/12/2020	Finance awareness
d	PharmAlliance, Ahmedabad	09/12/2019	08/12/2020	Career awareness
Research work collaborated with other institute				
A.Y. 2022-23				
a	Northwestern University School of Professional Studies, Chicago, IL, USA	22/08/2022	07/02/2023	Research work





K. K. WAGH COLLEGE OF PHARMACY

(B. Pharmacy & D. Pharmacy)

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☎ : 0253 - 2221121, 2517003, 2510262 Web : www.pharmacy.kkwagh.edu.in

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b	Dept. Pharm. Chem., Matoshri College of Pharmacy, Nashik, Maharashtra, Dept. Pharm. Chem., SNJBs Shriman Sureshdada Jain College of Pharmacy, Chandwad, Nashik, Maharashtra	15/11/2021	05/2022	Research work
c	Jayawantrao Sawant College of Pharmacy and Research, Hadapsar, Pune- 411028, Maharashtra R.C.Patel Institute of Pharmaceutical Education and Research Shirpur.	11/09/2021	28/03/2022	Research work
A.Y. 2021-2022				
a	Jayawantrao Sawant College of Pharmacy and Research, Hadapsar, Pune- 411028, Maharashtra	14/08/2021	28/02/2022	Research work
b	Cognizant Technology Solution, Pune, Maharashtra, India Dept. of Pharmaceutical Chemistry, K. K. Wagh College of Pharmacy, Nashik, Maharashtra, India Dept. of Pharmacology, S.P. H college of Pharmacy, Malegaon, Maharashtra, India	10/08/2021	17/02/2022	Research work
c	Bhupal Nobles' College of Pharmacy, Udaipur, Rajasthan, India	04/08/2021	15/02/2022	Research work
d	Bhupal Nobles' College of Pharmacy, Udaipur, Rajasthan, India	09/07/2021	26/01/2022	Research work
A.Y. 2020-2021				
a	MGV's Institute of Pharmacy, Malegaon Camp Tal: Malegaon Dist: Nashik, Maharashtra. SVS Institute of Pharmacy, Mungase, Tal: Malegaon Dist: Nashik, Maharashtra.	03/05/2021	03/11/2021	Research work




PRINCIPAL
K.K. Wagh College of Pharmacy
Nashik-422 003

**MEMORANDUM OF
UNDERSTANDING**

Between

K. K. Wagh College of Pharmacy, Nashik

&

**K. K. Wagh Institute of Engineering Education
& Research, Pune**

Memorandum of Understanding

between

K. K. Wagh College of Pharmacy, Nashik and AICTE IDEA Lab, K. K. Wagh Institute of Engineering Education and Research (KKWIEER), Nashik

This Memorandum of Understanding was signed on the 10th day of August 2022 between K. K. Wagh College of Pharmacy, Nashik, and the AICTE-IDEA Lab, K. K. Wagh Institute of Engineering Education and Research (KKWIEER), Nashik India on the mutual consent of common agenda.

This **Memorandum of Understanding (MOU)** concerning K. K. Wagh College of Pharmacy, Nashik, and the AICTE-IDEA Lab, K. K. Wagh Institute of Engineering Education and Research (KKWIEER), wishing to establish relations between the two institutions, agree to co-operate with each other is formalized by the two parties, represented by the signatories of both the parties, who have affixed their signature at the end of this MOU.

Subject to mutual consent, this MOU represents an understanding of the Roles and Responsibilities of both the Parties and provides an understanding by both the parties to work together to meet the common objectives.

Co-operation shall be carried out through below activities such as:

1. K. K. Wagh College of Pharmacy, Nashik, agreed to collaborate/cooperate for below mentioned activities:

- K. K. Wagh College of Pharmacy shall depute students for the skilling programs to be completed under the AICTE IDEA lab.
- K. K. Wagh College of Pharmacy shall provide faculty members for the FDPs and events conducted under the AICTE-IDEA lab.
- K. K. Wagh College of Pharmacy will utilize AICTE-IDEA lab resources with proper care and responsibility for project purposes. The resources include Lab facilities for the R&D work, material/ resources for product development and use of some licensed software. The applicable charges (if any) for the same will be decided and paid on mutual consent.

2. AICTE-IDEA Lab of KKWIEER agreed to collaborate/cooperate for below mentioned activities:

- AICTE-IDEA Lab, KKWIEER shall permit to conduct events like Skilling programs, faculty development programs, student visits, etc. under AICTE-IDEA lab
- Upon request from K. K. Wagh College of Pharmacy, AICTE-IDEA Lab, KKWIEER shall provide an available slot for skill development and training to K. K. Wagh College of Pharmacy.
- AICTE IDEA Lab, KKWIEER shall provide the necessary support and permission to use IDEA lab for Project work or research purpose to students as well as faculty/staff of K. K. Wagh College of Pharmacy, Nashik. for the betterment of student and research activities.

Any matter not mentioned in the MoU shall be considered by mutual discussion and consent. Planning of all activities related to the KKWIEER Idea Lab shall be finalized mutually.


Any divergence or difference derived from the interpretation or application or during the execution of agreed activities in the MoU shall be mutually resolved.

Duration of MOU:

The MOU shall be valid for a period of five years from the date of signing 10th August 2022. After which the parties shall extend the MOU based on the mutual decision. This MOU shall be in force from date of signing MOU.


In witness whereof, both parties above mentioned have set their hands to this MOU on the day and year herein above mentioned.

On Behalf of
K. K. Wagh College of Pharmacy


Dr. R. D. Amrutkar
Incharge Principal
K. K. Wagh College of Pharmacy,
Nashik



On Behalf of AICTE-IDEA Lab
KKWIEER


Dr. K. N. Nandurkar
Principal and Chief Mentor
K. K. Wagh Institute of
Engineering Education and Research,
Nashik



Witness 1: Dr. Anjali P. Bedse, Associate Professor, KKWCOP, Nashik

Witness 2: Dr. Ajinkya Joshi, I/C Registrar, KKWIEER, Nashik

Place: Nashik
Date: 10.08.2022

**MEMORANDUM OF
UNDERSTANDING**

Between

K. K. Wagh College of Pharmacy, Nashik

&

Shree Yash Hospital, Nashik



K. K. Wagh Education Society's
K. K. WAGH COLLEGE OF PHARMACY
 (B. Pharmacy and D. Pharmacy)



Hirabai Haridas Vidynagari, Amrutdham, Panchavati, Nashik - 422 003.

(Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, MSBTE, Mumbai & Approved by PCI, New Delhi)

DATE -06/07/2022

K.K WAGH COLLEGE OF PHARMACY, NASHIK
AND
SHREE YASH HOSPITAL NASHIK

Memorandum of Understanding (MoU) outlines the basis upon which **K.K WAGH COLLEGE OF PHARMACY, NASHIK** have agreed to get empaneled with **SHREE YASH HOSPITAL NASHIK**.

This Empanelment MoU is intended to describe, the Terms and Conditions of the parties' relationship for the mentioned benefits to the extent that **SHREE YASH HOSPITAL NASHIK** shall be providing world class eye care services and facilities.

K.K WAGH COLLEGE OF PHARMACY, NASHIK members and their families will get following benefits.

Employees and their families would be treated in following **THREE** categories in hospital.

Corporate benefits to Employees and their families (Only for Self-cash paying)

- 1) Discount on OPD doctor consultations on hospital tariff
- 2) Discounts on OPD Routine Minor investigations on hospital tariff.
- 3) Discount on Surgeries on hospital tariff.

Additional Corporate Benefits

- 1) Complimentary Health Awareness Sessions by our Specialist Doctors in a year into association premises.
- 2) Complimentary Basic Checkups in association premises.
- 3) Hospital visit for students.

MoU - TERMS, CONDITIONS & BENEFITS

- 1) For availing any services in the hospital or hospitalization, the employee must have to produce his companies Identity Card for the verification purpose to the reception or billing counter.
- 2) For hospitalization of dependents, the members must be accompanying with dependent and should have to produce his own Identity Card & submit the photo copy to the reception or billing counter.



PRINCIPAL
 K. K. Wagh College of Pharmacy
 Nashik-422 003

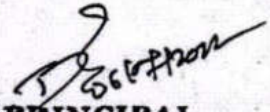
- 3) The discounts offered to **K.K WAGH COLLEGE OF PHARMACY, NASHIK** cannot be clubbed with any other schemes or packages offered by **SHREE YASH HOSPITAL NASHIK**.
- 4) The Above-Mentioned benefits shall not be valid for TPA's, Mediclaim Policy and Insurance.
- 5) MoU is valid for Two year from the day of commencement.

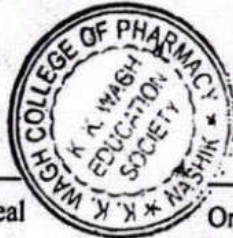
Name -K K Wagh College of Pharmacy Name -Shree Yash Hospital Nashik
Mob - 02532510262 Mob -9420948994
Mail id -principal-bpharmacy@kkwagh.edu.in

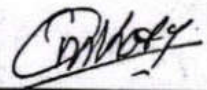
We mutually agree for the following Terms and Benefits. This MoU made on 06/07/2022 (Wednesday).

K.K WAGH COLLEGE OF PHARMACY, NASHIK

SHREE YASH HOSPITAL NASHIK


PRINCIPAL
K.K. Wagh College of Pharmacy
Nashik-422 003
Organization Official Signatory & Seal
Dated = 06/07/2022.




Organization Official Signatory and Seal
Dated 06/07/2022




PRINCIPAL
K.K. Wagh College of Pharmacy
Nashik-422 003



**Memorandum of Understanding between
Apollo Hospitals, Nashik & K.K. Wagh Educational Institute, Nashik**

15.09.22

Exclusive Health Privileges for K.K. Wagh Educational Institute, Nashik - members and their dependents (spouse, parents, 2 children) & students of KKWEI

- ✓ 25% Discount on OPD - Consultation (Full time consultants only), In-house Lab Investigations and Diagnostics.
- ✓ 10% Discount on Apollo Hospitals Standard Health Checks excluding Apollo Personalised Health Checks.
- ✓ 10% Discount on total IP bill (excluding medicines, consumables, stents, implants and professional fees). Additional 5% discount for 55 years and above.
- ✓ In case of packages; e.g.: Angiography, Angioplasty, 5% Discount on package. Additional 5% discount for 55 years and above.



Eligibility:

- ✓ FOR CASH / CREDIT CARD / DEBIT CARD PAYING PATIENTS ONLY and NOT FOR MEDICAL INSURANCE POLICY COVERAGE.
- ✓ THE DISCOUNT IS APPLICABLE ON CURRENT PREVAILING TARIFF OF THE HOSPITAL.

Validity:

- ✓ Valid Only at Apollo Hospitals, Nashik & cannot be combined with any other offer of Apollo Hospitals, Nashik or any other Apollo Hospitals Group.
- ✓ On showing K.K. Wagh Educational Institute, Nashik I card Or Valid letter from K.K. Wagh Educational Institute, Nashik at the OP or IP billing counter.
- ✓ For 2 years from date of signing the MOU.

Additionally, Health Awareness Programmes:

- ✓ Health Talks on matters related to the Heart, Brain, GI System, Emergency, Orthopaedics etc.
- ✓ Basic Health Screening Onsite.
- ✓ Adult Basic Life Support Training.

Privileges by K.K. Wagh Educational Institute, Nashik to Apollo Hospitals, Nashik

- ✓ Visibility to Apollo Hospitals through internal communication medium - SMS, email, whats app, mailer, newsletter etc.
- ✓ Visibility to Apollo Hospitals as their 'exclusive Healthcare Partner' at all events, programmes, functions through stall, standee, branding, kiosk at minimal cost, sponsorship.

For Apollo Hospitals, Nashik

For K.K. Wagh Educational Institute, Nashik

Mr. Ajit Jha	Dr. Mangesh Jadhav	Mr. (Prof. K. S. Bandi)
Unit Head - Apollo Hospitals Nashik	GM - Corporate Relations, Apollo Hospitals Nashik	Secretary

Contact Person for Apollo Hospitals Nashik - Mr. Kaivalya Sohani - 9561397111

K.K. Wagh Education Society
Amrutdham, Panchavati,
Nashik - 422 003

APOLLO HOSPITALS ENTERPRISE LIMITED

Regd. Office : Apollo Hospitals Enterprise Limited,
No. 19, Bishop Gardens, Raja Annamalaipuram,
Chennai - 600 028.
CIN : L85110TN1979PLC008035

Regional Office : No. 287, Swaminarayan Nagar,
Off Mumbai-Agra Highway, Panchvati, Nashik - 422 003.
Phone : 91 - 253 - 2510250 / 350 / 450 / 550 / 750
Email : apollonashik@apollohospitals.com
Web.: www.apollohospitals.com

Institutions run by K.K. Wagh Education Society, Nashik

Engineering College	
1.	K. K. Wagh Institute of Engineering Education & Research, Nashik
Polytechnic	
2.	K. K. Wagh Polytechnic, Nashik
Pharmacy	
3.	K. K. Wagh College of Pharmacy, Nashik
4.	K. K. Wagh Institute of Pharmacy, Chandori, Tal:Niphad, Dist:Nashik
Agriculture & Agricultural Allied Colleges	
5.	K. K. Wagh College of Agricultural Engineering and Technology, Nashik
6.	K. K. Wagh College of Agriculture, Nashik
7.	K. K. Wagh College of Agricultural Bio-technology, Nashik
8.	K. K. Wagh College of Food Technology, Nashik
9.	K. K. Wagh College of Agriculture Business Management, Nashik
10.	K. K. Wagh College of Horticulture, Nashik
Senior Colleges	
11.	K. K. Wagh Arts, Commerce, Science & Computer Science College, Nashik
12.	K. K. Wagh Arts, Commerce, Science & Computer Science College, Chandori, Tal:Niphad, Dist:Nashik
13.	K. K. Wagh Arts, Commerce, Science & Computer Science College, Kakasaheb Nagar, Tal:Niphad, Dist:Nashik
14.	K. K. Wagh Arts, Commerce, Science & Computer Science College, Pimplas (Ramache), Tal:Niphad, Dist:Nashik
B. Ed. / Performing Arts/ Fine Arts	
15.	K. K. Wagh College of Education, Nashik
16.	K. K. Wagh College of Performing Arts, Nashik
17.	K. K. Wagh College of Fine Arts, Nashik
Schools (Marathi Medium)	
18.	K. K. Wagh Vidyabhavan & Junior College, Bhausaheb Nagar, Tal:Niphad, Dist:Nashik (Aided)
19.	Gitai Wagh Kanya Vidyalaya, Bhausaheb Nagar, Tal:Niphad, Dist:Nashik (Aided)
20.	K.K. Wagh Secondary School, Pimplas (Ramache), Tal:Niphad, Dist:Nashik (Aided)
21.	K. K. Wagh Prathamik Vidyabhavan, Pimpri, B'bnagar, Tal:Niphad, Dist:Nashik. (Un-Aided)
Schools + Junior Colleges (English Medium)	
21.	K. K. Wagh Junior College, Chandori, Tal:Niphad, Dist:Nashik
22.	K. K. Wagh Junior College, Kakasaheb Nagar, Tal:Niphad, Dist:Nashik
23.	K.K. Wagh English School (Primary + Secondary & Jr. College), Saraswatinagar, Nashik
24.	K.K. Wagh English School (Primary + Secondary), D.G.P. Nagar, Nashik
25.	K.K. Wagh English School, Gangapur, Nashik
26.	K.K. Wagh English School, Chandori, Tal:Niphad, Dist:Nashik
27.	K.K. Wagh English School, Kakasaheb Nagar, Tal:Niphad, Dist:Nashik
Schools (CBSE)	
28.	K. K. Wagh Universal School, Saraswatinagar, Panchavati, Nashik
29.	K. K. Wagh Universal School, D.G.P. Nagar, Nashik
30.	K. K. Wagh Universal School, Bhausaheb Nagar, Tal:Niphad, Dist:Nashik
Pre-Primary Schools	
1.	K.K.Wagh Mukangan, Saraswatinagar, Nashik
2.	K.K.Wagh Mukangan, DGP Nagar, Nashik
3.	K.K.Wagh Mukangan, Gangapur, Nashik
4.	K.K.Wagh Mukangan, Chandori, Tal:Niphad, Dist:Nashik
5.	K.K.Wagh Mukangan, Kakasaheb Nagar, Tal:Niphad, Dist:Nashik
Hostels	
1.	Gurukul Boys & Girls Hostel, Bhausaheb Nagar, Tal:Niphad, Dist:Nashik
2.	K. K. Wagh Engineering College & Polytechnic Boys & Girl Hostel, Panchavati, Nashik
3.	K. K. Wagh Agriculture and Allied Colleges (Boys & Girls) Hostel, Nashik



**MEMORANDUM OF
UNDERSTANDING**

Between

K. K. Wagh College of Pharmacy, Nashik

&

Talent Management Zone, Nashik

Memorandum of Understanding

between

K. K. Wagh College of Pharmacy, Nashik and Talent Management Zone, Nashik

This Memorandum of Understanding was signed on the 20th day of April 2022 between K. K. Wagh College of Pharmacy, Nashik, and Talent Management Zone, Nashik India on the mutual consent of common agenda.

This **Memorandum of Understanding (MOU)** concerning K. K. Wagh College of Pharmacy, Nashik, and Talent Management Zone, Nashik, wishing to establish relations between the two institutions, agree to co-operate with each other is formalized by the two parties, represented by the signatories of both the parties, who have affixed their signature at the end of this MOU.

Subject to mutual consent, this MOU represents an understanding of the Roles and Responsibilities of both the Parties and provides an understanding by both the parties to work together to meet the common objectives.

Co-operation shall be carried out through below activities such as:

1. K. K. Wagh College of Pharmacy, Nashik, agreed to collaborate/cooperate for below mentioned activities:

- K. K. Wagh College of Pharmacy shall depute students for the skilling programs to be completed under the Talent Management Zone, Nashik.
- K. K. Wagh College of Pharmacy shall provide faculty members for the trainings and events conducted under the Talent Management Zone, Nashik.
- K. K. Wagh College of Pharmacy will utilize the Talent Management Zone, Nashik India resources with proper care and responsibility for skill development purposes. The applicable charges (if any) for the same will be decided and paid on mutual consent.

2. Talent Management Zone, Nashik agreed to collaborate/cooperate for below mentioned activities:

- Talent Management Zone, Nashik shall permit to conduct events like Skilling programs, faculty development programs, student visits, etc.
- Upon request from K. K. Wagh College of Pharmacy, Talent Management Zone, Nashik shall provide an available slot for skill development and training to K. K. Wagh College of Pharmacy.
- Talent Management Zone, Nashik shall provide the necessary support to students as well as faculty/staff of K. K. Wagh College of Pharmacy, Nashik for the betterment of student and research activities.

Any matter not mentioned in the MoU shall be considered by mutual discussion and consent. Planning of all activities related to the Talent Management Zone, Nashik shall be finalized mutually.


Any divergence or difference derived from the interpretation or application or during the execution of agreed activities in the MoU shall be mutually resolved.

Duration of MOU:

The MOU shall be valid for a period of five years from the date of signing 20th April 2022. After which the parties shall extend the MOU based on the mutual decision. This MOU shall be in force from date of signing MOU.


In witness whereof, both parties above mentioned have set their hands to this MOU on the day and year herein above mentioned.

On Behalf of
K. K. Wagh College of Pharmacy


Dr. R. D. Amrutkar
I/C Principal
K. K. Wagh College of Pharmacy, Nashik



On Behalf of
Talent Management Zone, Nashik


Ms. Laxmi Sharma
Talent Management Zone, 1st Floor,
Unity Campus, Old Pandit Colony, Nashik



Place: Nashik
Date: 20.04.2022

**MEMORANDUM OF
UNDERSTANDING**

Between

K. K. Wagh College of Pharmacy, Nashik

(B. Pharmacy)

&

ASG Eye Hospital, Nashik

DATE – 21/04/2022

**K.K WAGH COLLEGE OF PHARMACY, NASHIK
AND
ASG EYE HOSPITAL, NASHIK**

Memorandum of Understanding (MoU) outlines the basis upon which **K.K WAGH COLLEGE OF PHARMACY, NASHIK** have agreed to get empaneled with **ASG HOSPITAL PVT LTD, NASHIK**. This Empanelment MoU is intended to describe, the Terms and Conditions of the parties' relationship for the mentioned benefits to the extent that **ASG EYE HOSPITALS, NASHIK** shall be providing world class eye care services and facilities.

K.K WAGH COLLEGE OF PHARMACY, NASHIK members and their families will get following benefits.

Employees and their families would be treated in following **THREE** categories in hospital.

Corporate benefits to Employees and their families (Only for Self-cash paying)

- 1) **100% Discount on OPD doctor consultations on hospital tariff (Cataract, Retina, Glaucoma)**
- 2) **10% Discounts on OPD Routine Minor investigations (OPTH.) on hospital tariff.**
- 3) **10% Discount on Eye Surgeries on hospital tariff.**
- 4) **10% Discount on Optical.**

Additional Corporate Benefits

- 1) Complimentary Eye Health Awareness Sessions by our Specialist Doctors in a year into association premises.
- 2) Complimentary Basic Eye Checkups in association premises.
- 3) Hospital visit for students.

MoU – TERMS, CONDITIONS & BENEFITS

- 1) For availing any services in the hospital or hospitalization, the employee must have to produce his companies Identity Card for the verification purpose to the reception or billing counter.
- 2) For hospitalization of dependents, the members must be accompanying with dependent and should have to produce his own Identity Card & submit the photo copy to the reception or billing counter.



PRINCIPAL
K. K. Wagh College of Pharmacy
Nashik-422 003

- 3) The discounts offered to **K.K WAGH COLLEGE OF PHARMACY, NASHIK** cannot be clubbed with any other schemes or packages offered by **ASG EYE HOSPITALS, NASHIK**.
- 4) The Above-Mentioned benefits shall not be valid for TPA's, Mediclaim Policy and Insurance.
- 5) MoU is valid for **Two year** from the day of commencement.

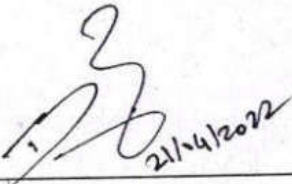
Name -K K Wagh College of Pharmacy
Mob - 02532510262
Mail id - principal-bpharmacy@kkwagh.edu.in

Name -ASG Eye Hospital
Mob -9420948994
Mail id - mayurwankhede286@gmail.com

We mutually agree for the following Terms and Benefits. This MoU made on 21/04/2022 (Thursday).

K.K WAGH COLLEGE OF PHARMACY, NASHIK

ASG EYE HOSPITALS, NASHIK



Organization Official Signatory & Seal

Dated 21/04/2022



Organization Official Signatory and Seal

Dated 05-05-2022

Mayur Pramod Wankhede
9420948994
ASG EYE HOSPITAL



PRINCIPAL
K.K. Wagh College of Pharmacy
Nashik-422 003

**MEMORANDUM OF
UNDERSTANDING**

Between

K. K. Wagh College of Pharmacy, Nashik

(B. Pharmacy)

&

The Yellow Monk

Yellow Monk Technologies LLP | AAY - 1244
 Kishor Suryawanshi Marg, MERI, Nashik - 422004
 hello@theyellowmonk.com | support@100Ascent.com
 +918668462386 | +917558441187



THE YELLOW MONK

Ref No.: 002

Date: 1/2/22

Memorandum of Understanding (MoU) between Yellow Monk Technologies LLP AND

K.K. Wagh College of Pharmacy, Nashik

This Memorandum of Understanding (MoU), is made by and amongst Yellow Monk Technologies hereinafter referred to as "Company" having its registered office at Office 03, Kalpataru, Kishor Suryawanshi Marg, MERI, Nashik 422004 and K.K. Wagh College of Pharmacy, Nashik - 422003 hereinafter referred to as "Institute".

1. Introduction

- Organization/Company Profile –

Yellow Monk Technologies is a software development company located in Nashik and Pune working in the domain of fitness and technology under the banner of 100Ascent.

2. Objectives of Cooperation

The main objective of this MoU is to develop an ecosystem of fitness within the college by providing a platform to promote fitness and health education and consultancy among the students and staff of the Institute by establishing a fitness club by the name of **Ascender Fitness Club**. The company will operate by the name of **100Ascent** within the institute.

The primary goals of Ascender Fitness club are –

- 2.1 To promote fitness among students and staff in college
- 2.2 To organize fitness and health events and meetups
- 2.3 To organize fitness competitions and challenges
- 2.4 To connect with other ambassadors, share resources and get to know about fellow experts and fitness enthusiasts around the globe.
- 2.5 To promote leadership and management qualities among students.
- 2.6 To promote top college athletes on a global platform.
- 2.7 To create a community of fitness enthusiasts and conscious individuals and encourage them.
- 2.8 To help students learn skills other than colleges and help them thrive in the real world.
- 2.9 Rewarding the top performers with goodies and swag packs upon assessment.
- 2.10 Provide a platform for the students to learn new skills like marketing, leadership, soft skills and receive mentorship and training for the same.
- 2.11 Opportunities to intern with the company and build a skillset to thrive in the real world.



PRINCIPAL

K.K. Wagh College of Pharmacy
 Nashik-422 003

Yellow Monk Technologies LLP | AAY - 1244
 Shor Suryawanshi Marg, MERI, Nashik - 422004
info@theyellowmonk.com | support@100ascent.com
 018668462386 | +917558441187



THE YELLOW MONK

Coordination

Both parties Yellow Monk Technologies LLP and Institute shall take all reasonable steps to cooperate and ensure successful implementation of all the measures mentioned in this MoU.

Areas for Cooperation

1.1 Participation in sessions and events.

Yellow Monk Technologies will select and conduct Fitness and Health-related sessions and talks on various topics as shall be jointly decided by the Institute and Company. Talk and sessions shall be conducted by the organizing team of the Ascender fitness club. These talks will be oriented toward creating awareness and sharing knowledge for the Institute students and staff members.

1.2 Promotion and conducting fitness activities within Institute

Yellow Monk Technologies shall help the organizing team conduct physical fitness events and activities within the college to promote fitness during the year. The Institute shall help in guiding the students and staff for the activities.

1.3 Recruitment and Training for students

Yellow Monk Technologies will recruit an organizing team for the Institute. The organizing team consisting of students would be responsible for conducting the mentioned events and activities within the college. The company will conduct training programs, workshops either by the company itself or by the experts as and when necessary to help the students enhance their technical and soft skills. Institute shall coordinate the Training/Workshop activities at the premises using their infrastructure. The company shall recruit potential and competent students as interns or full-time employees depending on their annual needs and growth plan.

1.4 Deployment of Ascender Fitness club and related activities

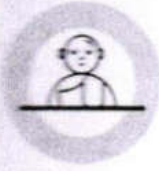
Yellow Monk Technologies will deploy and promote the "100Ascent" application within the institute to conduct various fitness competitions and activities on the platform. The organizing team will be responsible for conducting the activities. The company will guide and mentor the team on regular basis. Monthly reports of the activities will be submitted to the company to ensure the smooth working of the fitness clubs within the Institute. Intercollege and Intra college competitions will be conducted on the 100Ascent application and the company will handle the execution of all the activities. The Institute shall provide the help required of the execution and ensure the participation by the students and staff members within the institute.



PRINCIPAL

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THE YELLOW MONK

5. Confidentiality

Either party guarantees and acknowledges that all information whether in writing or oral or otherwise obtained from other parties under this MOU would be kept strictly confidential during the MOU or after cessation, either party shall not divulge or disclose to any third person/organization. The provision of this clause shall survive the termination of this MOU.

6. Miscellaneous

6.1 This MOU shall be valid for a period of 2 years from 15 Feb 2022 to 15 Feb 2024 and will be signed by Institute & Yellow Monk Technologies

This MOU shall be renewed for a further term with the mutual consent of the two parties. Either party may terminate this MOU by giving 30 days prior written notice to the other.

6.2 Neither party hereunder shall be liable for any consequential loss or damages arising out of the performance of obligations under the terms of this MoU.

Agreed to:

For Yellow Monk Technologies

By: Param Thade

(Sign) Param

Designation
Partner, Co-founder

Date: February 1st, 2022

For K.K. Wagh College of Pharmacy

By: Dr. B.D. Amrutkar

(Sign) [Signature]

Designation
Incharge Principal

Date: February 1st, 2022



[Signature]
PRINCIPAL
K.K. Wagh College of Pharmacy
Nashik-422 003

**MEMORANDUM OF
UNDERSTANDING**

Between

K. K. Wagh College of Pharmacy, Nashik

(B. Pharmacy)

&

Gokhale Advanced Training Institute,

Jalgaon

Memorandum of Understanding

This Memorandum of Understanding ("MoU") is signed on the 12th January Wednesday of 2022

BY AND BETWEEN:

K. K. WAGH COLLEGE OF PHARMACY, NASHIK

(An institute which runs B. Pharmacy course in Nashik, which is affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere)

AND

GOKHALE'S ADVANCED TRAINING INSTITUTE, JALGAON

(A training service provider in the field of Employability Skills, Soft skills, Business English Communication, Entrepreneurship Development and Stress management; hereinafter referred to as "GATI")

This Memorandum of Understanding is proposed in order to bridge the gap between the academia and industries. The MoU aims at skills development by providing various trainings to the students and faculty members of K. K. Wagh College of Pharmacy, Nashik

Through this Memorandum of Understanding, the two parties agree to the following:

- (a) A **steering committee** will be set up to monitor the activities of the MoU. The committee will consist of **Devdatta C. Gokhale (Director, GATI, Jalgaon)** and **Dr. R. D. Amrutkar (I/C Principal, K. K. Wagh College of Pharmacy, Nashik)**
- (b) With mutual consent, the steering committee can be expanded to include more members from the two institutions. The steering committee will be the supreme body as far the implementation of the activities of the MoU, the continuation of the MoU, and termination of the MoU are concerned.
- (c) **K. K. Wagh College of Pharmacy, Nashik and GATI** will jointly conduct short-term training programs and workshops in following areas:
 - i. **Employability Enhancement and Assessment trainings**
 - ii. **Business English Communication**
 - iii. **Stress Management**
 - iv. **Soft skills, Personality Development, and Forts Culture Worokshops**
 - v. **Entrepreneurship Motivation & Development**
 - vi. **Any other training areas, as may be deemed fit for both the parties.**
- (a) **K. K. Wagh College of Pharmacy, Nashik** will organize training programs for its students and faculties, on the above-mentioned areas [b(i) to b(vi)] and **GATI** will conduct / co-ordinate these trainings.
- (b) **K. K. Wagh College of Pharmacy, Nashik and GATI** will jointly conduct the **Employability Assessment** activity for students. The objective of this activity is to analyse the behavioral skills of the students w.r.t. communication, presentation, body language, confidence and overall impact, the students are able to create during the interview. Batch size, payment terms, assessment parameters and all other relevant



PRINCIPAL
K. K. Wagh College of Pharmacy
Nashik-422 003

details will be as per the proposal of GATI submitted with K. K. Wagh College of Pharmacy, Nashik from time to time.

- (c) **K. K. Wagh College of Pharmacy, Nashik** will provide all necessary infrastructure such as training hall, projector, PA system, computer lab, etc as will be required for training workshops and assessment from time to time.
- (d) **GATI** will provide all necessary training material as applicable, which will be mentioned in the training and assessment proposals submitted with **K. K. Wagh College of Pharmacy, Nashik** from time to time.
- (e) Batch size, payment terms, award of certification and all other relevant details will be as per the training proposals of **GATI** submitted with **K. K. Wagh College of Pharmacy, Nashik** from time to time.
- (f) Course dates and timings will be decided on the mutual convenience of both the parties.
- (g) **Expert lectures / Workshops / Events:** If **K. K. Wagh College of Pharmacy, Nashik** wishes to organize lecture series / national events, **GATI** will assist in providing speakers.
- (h) **Industrial Visits:** **GATI** will assist **K. K. Wagh College of Pharmacy, Nashik** in arranging industrial visits of its final year students.
- (i) **Validity:** This MoU is valid for a term of three year(s) from the date of signing, unless terminated earlier or extended by mutual agreement of both the parties at latest thirty days prior to the expiry.
- (j) **Miscellaneous:**
- All conditions, changes, erasures, amendments, waivers, etc. shall only be in writing, duly executed by both the parties.
 - This MoU and any amendment thereof are limited to the purpose of MoU only.
 - This MoU sets forth the entire agreement and understanding between the parties with respect to the subject matter hereof and merges all discussions and negotiations between them, prior to such execution.
 - This MoU shall be governed by the laws of Republic of India.

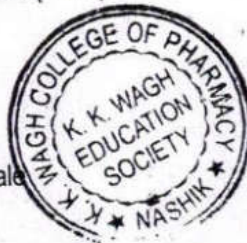
IN WITNESS WHEREOF the parties have executed this Memorandum of Understanding (MoU) on the date and the year first hereinabove written.

For and on behalf of
Gokhale's Advanced Training Institute (GATI)
Jalgaon

Name: Devdatta Charudatta Gokhale
Designation: Director, GATI

Date: 08/04/2022

Place: Nashik



For and on behalf of
K. K. Wagh College of Pharmacy, Nashik

PRINCIPAL

K. K. Wagh College of Pharmacy
Nashik-422 003.

Name: Dr. R. D. Amrutkar
Designation: Incharge Principal

PRINCIPAL

K. K. Wagh College of Pharmacy
Nashik-422 003

**MEMORANDUM OF
UNDERSTANDING**

Between

K. K. Wagh College of Pharmacy, Nashik

(B. Pharmacy)

&

Ingenious Healthcare,

Hadapsar, Pune, Maharashtra

This agreement is executed on this date **21/01/2021** between **Ingenious Healthcare, Hadapsar, Pune** (Henceforth mentioned as company) and **K. K. Wagh College of Pharmacy, Nashik** (Henceforth mentioned as Institute).

This agreement is made by and between **Ingenious Healthcare, Hadapsar, Pune** and

K. K. Wagh College of Pharmacy, Nashik

Recitals

- Whereas, Ingenious Healthcare Hadapsar, Pune is a Site management organization and clinical research institute, engaged in manufacturing of quality pharmaceuticals for the benefit of the society.
- Whereas K. K. Wagh College of Pharmacy, Nashik, is a premier pharmacy Institute conducting degree course in Pharmacy.

Scope of MOU:

- To improve knowledge & skill base of students by exposing them with practical aspects of their professional career.
- To utilize technical manpower & thereby improve the quality of education-knowledge & skills in the students.

Aims and objectives of MoU:

- Opportunity for students & faculty to undergo industrial training.
- Opportunity for students & faculty to undergo industrial projects.
- Opportunity for students & faculty to visit industry & observe quality in services.
- To avail human resources as guest lecturers from the industry.
- Opportunity for training & placement of student in industry.
- Both the company & the institution shall evolve a mutually acceptable schedule to develop programs, hold seminars and exchange visits.




PRINCIPAL
K. K. Wagh College of Pharmacy
Nashik-422 003

- Collaborations in the sharing of academic data, scientific information, intellectual property, articles and publications.

Liability:

- No party is liable for any claim of personal loss arising out of any such activity/accident during the course of execution of the work covered under this MOU.
- The parties to this MOU undertake to treat as CONFIDENTIAL AND PRIVILEGED information of each other/ Company & institution, which is so classified in advance. The terms of confidentiality and mode of disclosure shall be as per mutually acceptable terms.

Termination:

Company and Institute can terminate this agreement under the following circumstances:

- Both the parties do not adhere to responsibilities of mutual participation.
- Both the parties contravene any of the provision of this agreement.
- Both the parties can terminate the agreement after giving a prior notice.

Duration of MOU:

The duration of MOU shall be for a period of five years from the date of signing 21/01/2027.

Seal of the parties:

In witness were of the parties here to sign this agreement on the day, month & year mentioned here in before.



Director
Ingenious Healthcare

Place: Nashik
Date: 21/01/2022



Principal

K. K. Wagh College of Pharmacy, Nashik

PRINCIPAL
K. K. Wagh College of Pharmacy
Nashik-422 003.



PRINCIPAL
K. K. Wagh College of Pharmacy
Nashik-422 003

**MEMORANDUM OF
UNDERSTANDING**

Between

K. K. Wagh College of Pharmacy, Nashik

&

RAP Analytical Research & Training Center,

Nashik

Memorandum of Understanding

AY 2020-21

between

K. K. Wagh College of Pharmacy, Nashik and RAP Analytical Research & Training Center, Nashik

This Memorandum of Understanding was signed on the 04th day of February 2021 between K. K. Wagh College of Pharmacy, Nashik, and RAP Analytical Research & Training Center, Nashik India on the mutual consent of common agenda.

This **Memorandum of Understanding (MOU)** concerning K. K. Wagh College of Pharmacy, Nashik, and the RAP Analytical Research & Training Center, Nashik India) wishing to establish relations between the two institutions, agree to co-operate with each other is formalized by the two parties, represented by the signatories of both the parties, who have affixed their signature at the end of this MOU.

Subject to mutual consent, this MOU represents an understanding of the Roles and Responsibilities of both the Parties and provides an understanding by both the parties to work together to meet the common objectives.

Co-operation shall be carried out through below activities such as:

1. K. K. Wagh College of Pharmacy, Nashik, agreed to collaborate/cooperate for below mentioned activities:

- K. K. Wagh College of Pharmacy shall depute students for the skilling programs to be completed under the RAP Analytical Research & Training Center, Nashik India.
- K. K. Wagh College of Pharmacy shall provide faculty members for the trainings and events conducted under the RAP Analytical Research & Training Center, Nashik India.
- K. K. Wagh College of Pharmacy will utilize the RAP Analytical Research & Training Center, Nashik India resources with proper care and responsibility for project purposes. The resources include Lab facilities for the R&D work, material/ resources for product development. The applicable charges (if any) for the same will be decided and paid on mutual consent.

2. RAP Analytical Research & Training Center, Nashik India agreed to collaborate/cooperate for below mentioned activities:

- RAP Analytical Research & Training Center, Nashik India shall permit to conduct events like Skilling programs, faculty development programs, student visits, etc.

- Upon request from K. K. Wagh College of Pharmacy, RAP Analytical Research & Training Center, shall provide an available slot for skill development and training to K. K. Wagh College of Pharmacy.

- RAP Analytical Research & Training Center, Nashik shall provide the necessary support and permission to use RAP Analytical Research & Training Center for Project work or research purpose to students as well as faculty/staff of K. K. Wagh College of Pharmacy, Nashik for the betterment of student and research activities.




PRINCIPAL
K. K. Wagh College of Pharmacy
Nashik-22 003

Any matter not mentioned in the MoU shall be considered by mutual discussion and consent.

Any divergence or difference derived from the interpretation or application or during the execution of agreed activities in the MoU shall be mutually resolved.


Duration of MOU:

The MOU shall be valid for a period of Five years from the date of signing 04th February 2021. After which the parties shall extend the MOU based on the mutual decision. This MOU shall be in force from date of signing MOU.

In witness whereof, both parties above mentioned have set their hands to this MOU on the day and year herein above mentioned.

On Behalf of

K. K. Wagh College of Pharmacy


04/02/2021

Dr. Rakesh D. Amrutkar
Associate Professor
K. K. Wagh College of Pharmacy,
Nashik



Place: Nashik
Date: 04.02.2021



On Behalf of

RAP Analytical Research & Training Center


4/2/21

Mr. Rohan Pawar
RAP Analytical Research & Training Center
Nashik


PRINCIPAL
K. K. Wagh College of Pharmacy
Nashik-422 003

**MEMORANDUM OF
UNDERSTANDING**

Between

K. K. Wagh College of Pharmacy, Nashik

&

Board for Upskill Growth of E-India, Pune

Memorandum of Understanding

between

K. K. Wagh College of Pharmacy, Nashik
and
Board for Upskill Growth of E-India, Pune

This Memorandum of Understanding was signed on the 09th day of July 2020 between K. K. Wagh College of Pharmacy, Nashik, and Board for Upskill Growth of E-India, Pune, India on the mutual consent of common agenda.

This **Memorandum of Understanding (MOU)** concerning K. K. Wagh College of Pharmacy, Nashik, and Board for Upskill Growth of E-India, Pune, wishing to establish relations between the two institutions, agree to co-operate with each other is formalized by the two parties, represented by the signatories of both the parties, who have affixed their signature at the end of this MOU.

Subject to mutual consent, this MOU represents an understanding of the Roles and Responsibilities of both the Parties and provides an understanding by both the parties to work together to meet the common objectives.

Co-operation shall be carried out through below activities such as:

1. K. K. Wagh College of Pharmacy, Nashik, agreed to collaborate/cooperate for below mentioned activities:

- K. K. Wagh College of Pharmacy shall depute students for the skilling programs to be completed under the Board for Upskill Growth of E-India, Pune.
- K. K. Wagh College of Pharmacy shall provide faculty members for the trainings and events conducted under the Board for Upskill Growth of E-India, Pune.
- K. K. Wagh College of Pharmacy will utilize the Board for Upskill Growth of E-India, Pune, resources with proper care and responsibility for skill development purposes. The applicable charges (if any) for the same will be decided and paid on mutual consent.

2. Board for Upskill Growth of E-India, Pune agreed to collaborate/cooperate for below mentioned activities:

- Board for Upskill Growth of E-India, Pune shall permit to conduct events like Skilling programs, faculty development programs etc.
- Upon request from K. K. Wagh College of Pharmacy, Board for Upskill Growth of E-India, Pune shall provide an available slot for skill development and training to K. K. Wagh College of Pharmacy.
- Board for Upskill Growth of E-India, Pune shall provide the necessary support to students as well as faculty/staff of K. K. Wagh College of Pharmacy, Nashik for the betterment of student and research activities.



PRINCIPAL
K. K. Wagh College of Pharmacy
Nashik-422 003

Any matter not mentioned in the MoU shall be considered by mutual discussion and consent. Planning of all activities related to the Board for Upskill Growth of E-India, Pune shall be finalized mutually.

Any divergence or difference derived from the interpretation or application or during the execution of agreed activities in the MoU shall be mutually resolved.

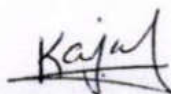
Duration of MOU:

The MOU shall be valid for a period of five years from the date of signing 09th July 2020. After which the parties shall extend the MOU based on the mutual decision. This MOU shall be in force from date of signing MOU.

In witness whereof, both parties above mentioned have set their hands to this MOU on the day and year herein above mentioned.

On Behalf of

K. K. Wagh College of Pharmacy

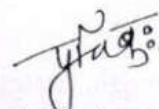


Ms. K. P. Baviskar
Assistant Professor

K. K. Wagh College of Pharmacy, Nashik

On Behalf of

**Board for Upskill Growth of E-India,
Pune**



Prof. Pravin V. Buge
Founder & Director

Board for Upskill Growth of E-India, Pune



Place: Nashik
Date: 09.07.2020




PRINCIPAL
K. K. Wagh College of Pharmacy
Nashik-422 003



**MEMORANDUM OF
UNDERSTANDING**

Between

K. K. Wagh College of Pharmacy, Nashik

(B. Pharmacy)

&

Gokhale Advanced Training Institute,

Jalgaon

**Memorandum of Understanding between
Gokhale's Advanced Training Institute, Jalgaon
and
K.K.Wagh College of Pharmacy-Nashik**

This Memorandum of Understanding (MOU) is made on Saturday 21st December 2019 between Gokhale's Advanced Training Institute having its office at Jalgaon. Henceforth, called as "GATI" and K. K. Wagh College of Pharmacy, Nashik having its office at Hirabai Haridas Vidyanagari, Panchavati-Nashik. Henceforth called as "KKWCOP".

1. Introduction about Training Institute and KKWCOP

About GATI- Gokhale's Advanced Training Institute (GATI) has successfully completed seven years. The institute offers several training programmes to students, faculty, corporate, etc. The head office is located at Jalgaon (Maharashtra). The institute's focus is on capacity building of individuals through behavioral and technical skills development.

Till date, GATI has been successful in training more than 21,000 individuals. The training programmes are activity-based offering hands-on experiences and readymade platforms to develop skills. The core training areas include Industrial Automation, Stress Management, Business English, Communication Skills, Attitude, Behavioral and Management Development. The trainers are certified in Soft Skills and Business English Communication from Symbiosis International University through its department English Language Teaching Institute of Symbiosis (ELTIS), Pune.

About KKWCOP -It was established at K. K. Wagh Engineering campus, Nashik from the academic year 2017-18 and is managed by K. K. Wagh Education Society, Nashik, a leading name in the field of education. It has well furnished class rooms, seminar hall, spacious laboratories with modern equipment as well as computational facilities and state of the art campus and amenities.

The College is affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad Maharashtra, and approved by All India Council for Technical Education, New Delhi; Pharmaceutical Council of India, New Delhi and State Government of Maharashtra.

Whereas both the parties have decided to enter into a strategic alliance on terms mutually beneficial to them.

2. Objectives of Cooperation

The main objective of this MOU is to provide a platform to build a strong and on-going relationship between GATI and KKWCOP, Nashik.

3. Areas for Cooperation

3.1 GATI may participate in Soft skill Development, Personality Development, Confidence Building of the students of KKWCOP by providing short-term training programs & workshops for its students and faculties.

GATI will conduct short-term training programs & workshops in following areas:

- i. Employability Enhancement and Assessment.
- ii. Soft skills & Personality Development.
- iii. Entrepreneurship Motivation.
- iv. Confidence Building, examination skills, positive attitude.
- v. Any other training areas, as may be deemed fit for both the parties.

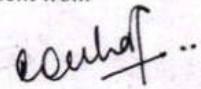
3.2 K.K Wagh College of Pharmacy will extend :

- i) KKWCOP will provide all necessary infrastructures such as training hall, projector, PA system, computer lab, etc as will be required for training workshops and assessment from time to time.




PRINCIPAL
K. K. Wagh College of Pharmacy
Nashik-422 003





- ii) KKW COP may promote activities of Gokhale's Advanced Training Institute, Jalgaon at its own cost and expenses by advertisements in newspapers, journals, magazines, Internet or by any other means.
- iii) KKW COP and GATI will jointly conduct the Employability Assessment activity for students. The objective of this activity is to analyze the behavioral skills of the students with respect to communication, presentation, body language, confidence and overall impact; the students are able to create during the interview.

4. Commercial aspects: The commercial aspects for the implementation of above mutual facilities / coordination / trainings, etc will be decided as and when need arise and will be finalized accordingly. Cost or profit (if any) can be decided mutually and will be shared on a mutually agreed basis.

5. Confidentiality: Either party guarantees and acknowledges that all information whether in writing or oral or otherwise obtained from other party under this MoU would be kept strictly confidential during the MoU or after cessation, either party shall not divulge, disclose or impart to any third person/organization. The provision of this clause shall survive the termination of this MoU.

6. Validity of MoU: This MoU shall be valid for a period of 12 months from the date of signing by KKW COP & GATI. This MoU shall be renewed for further term with mutual consent. Either party may terminate this MoU by giving 30 days prior written notice to the other. Neither party hereunder shall be liable for any consequential loss or damages arising out of the performance of obligations under the terms of this MoU.

Agreed to:

For KKW COP, Nashik

(Dr. Kishor S. Jain)

PRINCIPAL

K. K. Wagh College of Pharmacy

Nashik-422 003.

Date:- 21/12/2019

Place:- Nashik



For: GATI, Jalgaon

(Devdatta C. Gokhale)



Date:- 21/12/2019

Place:- Nashik



PRINCIPAL
K. K. Wagh College of Pharmacy
Nashik-422 003

**MEMORANDUM OF
UNDERSTANDING**

Between

K. K. Wagh College of Pharmacy, Nashik

(B. Pharmacy)

&

Institute of Pharmaceutical Education and

Research, Pune



**Memorandum of Understanding between
Institute of Pharmaceutical Education and Research, Pune
and
K. K. Wagh College of Pharmacy, Nashik**

This Memorandum of Understanding (MoU), is made on Monday, 16th December 2019 between Institute of Pharmaceutical Education and Research (Pune) Pvt Ltd, (Registered Pvt. Ltd. Company) and having its administrative office at 15, Ideal Chambers, Paud Road, Pune 411038. Henceforth, called as "IPER" and K. K. Wagh College of Pharmacy having its office at Hirabai Haridas Vidyanagari, Panchavati- Nashik 422003. Henceforth called as "KKWCOP".

1. Introduction about IPER and KKWCOP

About – IPER: It is a reputed company in its respective professional field of Pharma training and runs Professional Pharma Management Diplomas and One day certificate programmes.

About – KKWCOP: It was established at K. K. Wagh Engineering campus, Nashik from the academic year 2017-18 and managed by K.K.Wagh Education Society, Nashik, a leading name in the field of education. It has well furnished class rooms, seminar hall, spacious laboratories with modern equipment as well as computational facilities and state of the art campus and amenities. The College is affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad Maharashtra, and approved by All India Council for Technical Education, New Delhi, Pharmaceutical Council of India, New Delhi and State Government of Maharashtra.

Whereas, both the above parties have decided to enter into a strategic alliance on terms mutually beneficial to them.

2. Objectives of Cooperation

The main objective of this MoU is to provide a platform for a strong and on-going relationship between IPER and KKWCOP.

KKWCOP, Nashik has joined hands with the IPER for enhancing its Industry relevance and exposure to Pharma Industry Practices through various Pharma Management Programmes and One Day Certificate Programmes to be conducted by IPER for the pharmacy students of KKWCOP.

3. Areas for Cooperation

3.1. Programme/ workshop

Minimum 30 students of KKWCOP should register for IPERs any Pharma Management Diplomas and around 4 (four) one day certificate programmes could be conducted by KKWCOP in a year.

For Correspondence Registration IPER shall conduct 2(two) One Day Professional certificate Programmes. While, for Online Registration, 4 programmes and Part Time Registration, 6 programmes shall be conducted to cover the content of the programmes.

3.2 Fee structure

The charges for programmes by IPER shall be per student and as mutually agreed and negotiated by IPER and KKWCOP.



PRINCIPAL

**K. K. Wagh College of Pharmacy
Nashik-422 003**

KKWCOP will receive 10 % of IPER fees charged to students for Pharma Management Diplomas after students enroll for the programme. Co-ordinator of K. K. Wagh College of Pharmacy, Nashik will get suitable honorarium from IPER as is decided mutually by both the parties.

3.3. Sharing of facilities

KKWCOP and IPER hereby agree to use each other's Business Collaterals like Logos, photos, website, URL, etc in their individual Business Collaterals after mutual consent.

3.4. KKWCOP will extend following;

- KKWCOP may advertise the IPER at its own cost and expenses by advertisements in newspapers, journals, magazines, Internet or by any other means.
 - KKWCOP agrees to conduct One Day Programmes of IPER and for that inspire its students to enroll for IPERs Pharma Management Diplomas.
4. **Commercial aspects:** The commercial aspects for the implementation of above mutual facilities/coordination/trainings etc will be decided as and when need arise and will be finalized accordingly.
 5. **Confidentiality:** Either party guarantees and acknowledges that all information whether in writing or oral or otherwise obtained from other party under this MoU would be kept strictly confidential during the MoU or after cessation, either party shall not divulge, disclose or impart to any third person/organization. The provision of this clause shall survive the termination of this MoU.
 6. **Validity of MoU:** This MoU shall be valid for a period of 12 months from the date of signing by KKWCOP & IPER. This MoU shall be renewed for further term with mutual consent. Either party may terminate this MoU by giving 30 days prior written notice to the other. Neither party hereunder shall be liable for any consequential loss or damages arising out of the performance of obligations under the terms of this MoU.

Agreed to:

For KKWCOP, Nashik

For: For IPER, Pune.



Name: (Dr. Kishor S. Jain)

PRINCIPAL
K. K. Wagh College of Pharmacy
Nashik-422 003.
Stamp and seal



Date: 17-12-2019

Place PUNE

(Dr Mahesh D. Burande)

Stamp and seal



PRINCIPAL
K. K. Wagh College of Pharmacy
Nashik-422 003

**MEMORANDUM OF
UNDERSTANDING**

Between

K. K. Wagh College of Pharmacy, Nashik

(B. Pharmacy)

&

Mahidhar Wealth Creators,

Ahmedabad

**Memorandum of Understanding between
Mahidhar Wealth Creators Ahmedabad
&
K. K. Wagh College of Pharmacy, Nashik**

This Memorandum of Understanding (MoU), is made on Monday, 9th December-2019 **Mahidhar Wealth Creators Ahmedabad** having its Administrative office at, 301 AnandMangal-II, B/h Omkar house, Nr Swastik Cross Road, C.G. Road, Ahmedabad, Gujarat- 380009 and K.K.Wagh College of Pharmacy (KKWCOP) having its office at HirabaiHaridasVidyanagari, Panchavati-Nashik, Maharashtra, and here after to be referred as KKWCOP.

Introduction about Mahidhar Wealth Creators and KKWCOP

About - Established in 2007 by name Mahidhar Investment Advisors Private Ltd, now known as Mahidhar Wealth Creators with an objective of providing Comprehensive Financial Planning, and Wealth Management Services, providing indepth knowledge on insurance to Investors as well as Clients to achieve their desired Financial Goals. Specialist independent investment & Insurance Advisors for "Building and Protecting Wealth& covering life" through proper guidance and service.

About - The KKWCOP was established at K. K. Wagh Engineering campus from academic year 2017-18. It has well-furnished spacious laboratories with modern equipment and highly experienced and qualified teaching faculty.

KKWCOP is affiliated to Dr. BabasahebAmbedkar Technological University, Lonere, Raigad, Maharashtra, and approved by All India Council for Technical Education, New Delhi, Pharmaceutical Council of India, New Delhi and State Government of Maharashtra.

Whereas the parties have decided to enter into a strategic alliance on terms mutually beneficial to them.

Objectives of Cooperation

The main objective of this MoU is to provide a platform for a strong and on-going Industry Institute relationship between Mahidhar Wealth Creators and KKWCOP.

KKWCOP has joined hands with the Mahidhar Wealth Creators for onsite training to their students and staff in insurance and financial matters which are equally important in their career. In return KKWCOP can offer onsite facilities to conduct training, workshop, and clients for insurance and financial services to Mahidhar Wealth Creators.

1. Areas for Cooperation

Part of academic curriculum planning

Participation of experts from Mahidhar Wealth Creators, Insurance and financial need based curriculum development, which can be add on subject area of skill development.



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Participation in knowledge sharing at KKWOP

Organizing guest lectures, Workshops, conferences, seminars and symposia with joint participation of the faculty and the industrial experts for the upliftment of pharmacy professionals.

Projects/ Training for Staff/ Students

The KKWOP agrees to arrange student and faculty visits at Mahidhar Wealth Creators to make the students aware of the importance of insurance, finance and wealth management training / internship, as well as, to provide them the exposure to various policies, financial investments etc. and to enroll for training program and projects. Training for suitable number of participants will be conducted. Training programs could be conducted by Mahidhar Wealth Creators for four weeks (150 hours) in a year.

No charges are taken by Mahidhar Wealth Creators for training programme, nor have they to pay any stipend for the interns, but except honorarium and TA/DA.

Mahidhar Wealth Creators may arrange training programmes / Short term assignments to the faculty members of KKWOP at Nashik.

Placement and Internship to students

KKWOP will also invite Mahidhar Wealth Creators for campus recruitment & provide the manpower & will also offer the opportunity to hire the students of KKWOP, who wish to make career in insurance and finance field if Mahidhar Wealth Creators find them suitable. Mahidhar Wealth Creators, may showcase its business activities at the seminar/workshop/conference, etc. at KKWOP.

Sharing of facilities

The KKWOP and the Mahidhar Wealth Creators hereby agree to use each other's Business Collaterals like Logos, photos, website, URL, etc in their individual Business Collaterals after mutual consent.

Mahidhar Wealth Creators shall make provisions to share their respective facilities available with them if needed, in order to promote academic and research interaction in the areas of financial planning and insurance.

KKWOP will extend

- The KKWOP may advertise its collaboration with Mahidhar Wealth Creators at its own cost and expenses by advertisements in newspapers, journals, magazines, Internet or by any other means.
- The KKWOP may provide to Mahidhar Wealth Creators promotional data/ literature for its product management.
- Mahidhar Wealth Creators may avail library, Internet, computational facilities at KKWOP.




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- Mahidhar Wealth Creators may request to design and teach a technical Course or Courses in the field of Pharmaceuticals which it deems fit to enhance quality and performance of its employees. Such Courses maybe run at any mutually convenient premises.
 - Playground for conducting sports activities for Mahidhar Wealth Creators Employees at minimal rate.
 - Class rooms and seminar halls will be provided for conducting organizational and recruitment activities at minimal rate.
2. **Commercial aspects:** The commercial aspects for the implementation of above mutual facilities/coordination/trainings etc will be decided as and when need arise and will be finalized accordingly. Cost or profit (if any) can be decided mutually and will be shared on a mutually agreed basis.
 3. **Confidentiality:** Either party guarantees and acknowledges that all information whether in writing or oral or otherwise obtained from other party under this MoU would be kept strictly confidential during the MoU or after cessation, either party shall not divulge, disclose or impart to any third person/organization. The provision of this clause shall survive the termination of this MoU.
 4. **Validity of MoU:** This MoU shall be valid for a period of 12 months from the date of signing by KKWOP & Mahidhar Wealth Creators. This MoU shall be renewed for further term with mutual consent. Either party may terminate this MoU by giving 30 days prior written notice to the other. Neither party hereunder shall be liable for any consequential loss or damages arising out of the performance of obligations under the terms of this MoU.

5. **Agreed to:**

For K. K. Wagh College of Pharmacy, Nashik

For: Mahidhar Wealth Creators, Ahmedabad.

Name: (Dr. Kishor S. Jais) 9/12/19

(Mr. Prakash V Mahidhar) 9/12/19

PRINCIPAL

Stamp and seal K. K. Wagh College of Pharmacy
Nashik-422 003.

Stamp and seal



[Signature]

PRINCIPAL

K. K. Wagh College of Pharmacy
Nashik-422 003

**MEMORANDUM OF
UNDERSTANDING**

Between

K. K. Wagh College of Pharmacy, Nashik

(B. Pharmacy)

&

Pharm Alliance,

Ahmedabad

**Memorandum of Understanding between
PharmAlliance, Ahmedabad
and
K.K.Wagh College of Pharmacy, Nashik**

This Memorandum of Understanding (MoU), is made on 9/12/2019 between **PharmAlliance** having its office at Unit 401, Ashirwad Complex Opp. Sardar Patel Sewa Samaj Hall, Mithakhali, Ellis Bridge, Ahmedabad, Gujarat, India and **K. K. Wagh College of Pharmacy (KKWCoP)** and having its office at Hirabai Haridas Vidyanagari, Panchwati, Nashik, Maharashtra, India.

Hereafter **K. K. Wagh College of Pharmacy** to be referred as **KKWCoP**.

Introduction about PharmAlliance and K. K. Wagh College of Pharmacy

About- PharmAlliance, Ahmedabad.

It is a knowledge driven, independent, professional consultancy firm, dedicated to serving the pharmaceutical, biopharmaceutical, API (active pharmaceutical ingredient), excipient, medical device and allied industries in the "regulated", and other emerging markets around the rest of the world. **PharmAlliance** has decided to collaborate with **K. K. Wagh College of Pharmacy, Nashik**.

About – K. K. Wagh College of Pharmacy, Nashik.

It is a professional pharmacy college imparting Quality Pharmacy Education. The college is affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, Maharashtra and approved by AICTE, PCI, New Delhi and State government of Maharashtra. The college offers four years B. Pharmacy degree course with an annual intake of 100.

Whereas the parties have decided to enter into a strategic alliance on terms mutually beneficial to them.

Objectives of Cooperation

The main objective of this MoU is to provide a platform to build a strong and on-going relationship between **PharmAlliance** and **KKWCoP**.

1. Areas for Cooperation

1.1 Part of academic curriculum planning

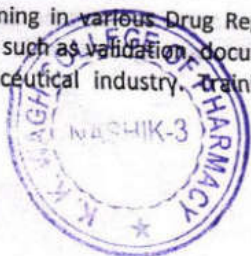
PharmAlliance may participate in revising and planning the academic curriculum by providing the industrial inputs to **KKWCoP** for enhancing the curriculum in certain subjects/disciplines of its expertise.

1.2 Participation in knowledge sharing at KKWCoP

PharmAlliance may provide its employees to participate and deliver technical presentations and talks on topics based on mutual discussions and interest. Such lectures shall either be a part of the curriculum or a value-added knowledge sharing for the students.

1.3 Training for Undergraduates

PharmAlliance may offer training in various Drug Regulatory Affairs aspects, as well as, Quality Assurance Techniques aspects such as validation, documentation, cGMP and also in field of Quality Audits of drugs and Pharmaceutical industry. Training for minimum 50 participants shall be conducted.




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1.4 Placement and Internship to Students

PharmAlliance may offer job opportunities and internship to students of KKWCoP as and when they have openings and suitability.

1.5 Training for staff

PharmAlliance may arrange training programmes / workshops for the faculty members.

1.6 K. K. Wagh College of Pharmacy, Nashik (KKWCoP) shall offer

- Its library facilities to PharmAlliance Pharmaceuticals employees.
- Manpower facilities for the conducts of surveys (like market, manpower survey etc) of mutual interests.
- Playground for conducting sports activities for PharmAlliance Employees.
- Class rooms and seminar halls for conducting organizational and recruitment activities.
- A platform through seminar/workshop/conference etc. to PharmAlliance Pharmaceuticals to showcase its business activities.
- To organize guest lectures, workshops, conferences, seminars and symposia with joint participation of the faculty and the experts from PharmAlliance for the upliftment of pharmacy professionals.

1.7 Training Programs / Seminars / Workshops for Pharmaceutical Industry Professionals

PharmAlliance and KKWCoP will work together for designing and conducting customized training programs, workshops, and seminars for Pharmaceutical and Allied Companies and Pharmaceutical Industry Professionals which are unique to their specific needs. These programs could cover any area of Operations, Regulatory Affairs and Compliance Management. Training can be conducted in-house in individual Companies or at KKWCoP for all levels of industry personnel who are responsible for regulatory affairs, product development, manufacturing operations and in-process controls, quality control, quality assurance, and preclinical or clinical testing and research.

The cost and / or fee structure for services offered mutually by both parties to each other and / or to third parties (such as industry) will be mutually agreed upon between PharmAlliance and KKWCoP.

2. **Commercial aspects:** The commercial aspects for the implementation of above mutual facilities / coordination / trainings etc. will be decided as and when need arise and will be finalized accordingly. Cost / Revenue / Profit (if any) can be decided mutually and will be shared on a mutually agreed basis.
3. **Confidentiality:** Either party guarantees and acknowledges that all information whether in writing or oral or otherwise obtained from other party under this MoU would be kept strictly confidential during the MoU or after cessation, either party shall not divulge, disclose or impart to any third person/organization. The provision of this clause shall survive the termination of this MoU.
4. **Validity of the MoU:** This MoU shall be valid for a period of 12 months from the date of signing by KKWCOP & PharmAlliance. Thereafter this MoU shall be renewed for further additional term with mutual consent. Either party may terminate this MoU by giving 30 days prior written notice to the other. Neither party hereunder shall be liable for any consequential loss or damages arising out of the performance of obligations under the terms of this MoU.




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Agreed to:

For PharmAlliance,
Ahmedabad

By: Mr. Asaf Sharifi

(Signature)

Seal and stamp

Date: Dec 9, 2019



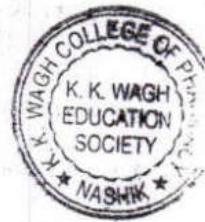
For K. K. Wagh College of Pharmacy,
Nashik

By: Dr. K. S. Jain

(Signature)

Seal and stamp **PRINCIPAL**
K. K. Wagh College of Pharmacy
Nashik-422 003.

Date: Dec 9th 2019



PRINCIPAL
K. K. Wagh College
Nashik-422 003



K. K. WAGH COLLEGE OF PHARMACY

(B. Pharmacy & D. Pharmacy)

Hirabai Haridas Vidyanagari, Amrutdham, Panchavati, Nashik - 422 003. (Maharashtra) India.

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(Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, MSBTE, Mumbai & Approved by PCI)

**Research work collaborated
with other institute**



Title of the book/chapters published- Artificial Intelligence and Machine Learning-Based Manufacturing and Drug Product Marketing

Name of the faculty- Kajal Baviskar, Anjali Bedse, Shilpa Raut, Narayana Darapaneni

Name of the publisher- Scrivener Publishing LLC, Wiley Online Library

Wiley Online Library

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Chapter 10

Artificial Intelligence and Machine Learning-Based Manufacturing and Drug Product Marketing

Kajal Baviskar, Anjali Bedse, Shilpa Raut, Narayana Darapaneni

Book Editor(s): Vivek Chavda, Krishnan Anand, Vasso Apostolopoulos

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Summary

Artificial Intelligence (AI) and Machine Learning (ML) are the new drivers for the industry 4.0 revolution. Its use is becoming widespread across society. The dawn of AI and ML can also be witnessed in the pharmaceutical industry. The manufacturing sector has been significantly impacted by AI-ML. The ability of ML strategies to predict future events has allowed for the deciphering of complicated patterns in manufacturing patterns. This has opened the avenues for an intelligent decision support system in different manufacturing tasks like intuitive and continual inspection, fault detection, quality enhancement,

onlinelibrary.wiley.com/doi/10.1002/9781119865728.ch10#pane-pcw-details of supply chain, and much more. ML approaches



PRINCIPAL

K. K. Wagh College of Pharmacy
Panchavati, Nashik-422 003.

Title of Paper- Homology modeling and docking studies for Lanosterol 14 α -demethylase of *Candida albicans* and 1,2,4-triazole containing 1,3,4-oxadiazole derivatives.

Name of Author/s- Sachin N. Kapse, Hitesh V. Shahare, Gokul S. Talele, Rakesh D. Amrutkar, Prashant P. Chavan, Bhavesh B. Amrute, Yogesh V. Patil

Name of Journal- NeuroQuantology

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Sachin N. Kapse et al. Homology modeling and docking studies for Lanosterol 14 α -demethylase of *Candida albicans* and 1,2,4-triazole containing 1,3,4-oxadiazole derivatives



Homology modeling and docking studies for Lanosterol 14 α -demethylase of *Candida albicans* and 1,2,4-triazole containing 1,3,4-oxadiazole derivatives

Sachin N. Kapse^{1*}, Hitesh V. Shahare², Gokul S. Talele¹, Rakesh D. Amrutkar³, Prashant P. Chavan¹, Bhavesh B. Amrute², Yogesh V. Patil¹

Abstract

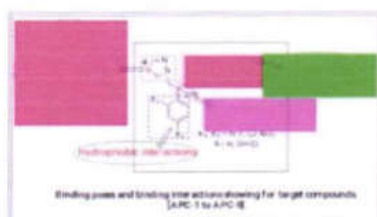
Newly synthesized 1,2,4-triazole containing 1,3,4-oxadiazole derivative acts as an antifungal agent which inhibits CYP51. Lanosterol 14 α -demethylase is the target for azole antifungal agents. This work emphasizes to build 3D model structure of cytochrome P450 lanosterol 14 α -demethylase of *Candida albicans* from *Saccharomyces cerevisiae* by using 3LD6 as a template. The reliability of the models was assessed by Ramachandran plots and Profile-3D analysis. Docking identified the binding mode of derivatives in modeled CYP51. In docking studies N-4 nitrogen of the 1,2,4-triazole interacts with the heme portion of the porphyrin ring of the target receptor along with hydrogen bonding, π -stacking, and hydrophobic bonding. Among all derivatives APC-1, APC-3, APC-7 were found to have significant interactions with the active site of the receptor by calculating dock scores and binding energies. So, it can be concluded that the structural model of CYP51 can be used for the optimization and designing of the newer antifungal agents.

Key Words: Homology modelling, Molecular Docking, Lanosterol 14 α -demethylase, *Candida albicans*, 1,2,4-triazole containing 1,3,4-oxadiazole derivatives

DOI Number: 10.14704/nq.2022.20.5.NQ22XXXX

NeuroQuantology 2022; 20(5): XXXX-XXXX

Graphical Abstract



Introduction

Over the past decade, fungal infections have become a major complication and cause of morbidity and mortality in immune compromised individuals such as those suffering from tuberculosis, cancer, acquired immune deficiency syndrome (AIDS), and in organ transplant cases. [1-3] Azoles are a large and relatively new group of synthetic compounds. Imidazole's and triazoles are two azole derivatives employed in the treatment of systemic fungal infections as well as in the agriculture. 4-6] Azole antifungal agents inhibit the cytochrome P450 sterol 14 α -demethylase (14DM, CYP51) by a mechanism in which the heterocyclic

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K.K.Wagh College of Pharmacy
Panchavati, Nashik-422 003.

Title of Paper- Formulation of oxybutynin chloride microparticle-loaded suppositories: in vitro characterization and in vivo pharmacokinetic study.

Name of Author/s- Bedse, A., Mahajan, H. & Dhamane, S.

Name of Journal- Future Journal of Pharmaceutical Sciences

Bedse et al.
Future Journal of Pharmaceutical Sciences (2022) 8:22
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Future Journal of
Pharmaceutical Sciences

RESEARCH**Open Access**

Formulation of oxybutynin chloride microparticle-loaded suppositories: in vitro characterization and in vivo pharmacokinetic study

Anjali Bedse^{1*}, Hitendra Mahajan² and Suchita Dhamane³

Abstract

Background: Oxybutynin chloride (OXC) is used to treat overactive urinary bladder. OXC is metabolized in the liver to N-desethyloxybutynin, which is mainly responsible for the anticholinergic side effects of OXC. Conventional oxybutynin suppositories formulated earlier have shown most common side effects, such as dry mouth, constipation and serious anticholinergic reaction. Hence the present research work deals with the formulation and characterization of OXC microparticle-loaded mucoadhesive suppositories which may remain adhered in the lower rectum and avoid first pass metabolism. The emulsification-ionic gelation method is employed to prepare OXC microparticles. Two formulation factors at three levels, i.e. polymer concentration and stirring speed, were selected. Sodium alginate (concentration 1–2%) and 1% w/v Carbopol 971P were used to prepare OXC microparticles. OXC microparticles were evaluated for various parameters such as production yield, entrapment efficiency, mucoadhesive strength, shape, size, zeta potential, Fourier Transform Infrared spectroscopy, differential scanning calorimetry, X-ray diffraction, in vitro dissolution studies and stability studies. Suppositories loaded with OXC microparticles were prepared by the fusion method using Poloxamer 188 and propylene glycol and evaluated for various parameters like weight variation, disintegration time, in vitro dissolution study, stability study and pharmacokinetic study.

Results: Results of in vitro characterization revealed that optimized batch of OXC loaded microparticles exhibited production yield 94.024%, entrapment efficiency 95.378% and mucoadhesion strength 95.544%, particle size range 764.04–894.13 µm, zeta potential – 14.5 mV, with 0.946 desirability. Consequences of DSC and XRPD evaluation shown that drug was effectively entrapped inside the microparticles. In vitro release studies revealed improvement in drug dissolution as a consequence of its entrapment into microparticles. SEM results showed that micelles were sphere-shaped. On rectal administration of OXC microparticles loaded suppository in male Sprague–Dawley Rats, the relative bioavailability was found 173.72%.

Conclusion: In vivo study elicits rapid increase in absorption of drug from microparticles loaded suppository when compared with the oral formulation and drug loaded suppository in rats. OXC microparticles loaded suppository is novel and promising drug delivery system for rectal administration and may avoid anticholinergic side effects of hepatic metabolite, N-desethyloxybutynin. These rectal drug delivery systems will be advantageous for efficient absorption of drugs and to avoid first pass metabolism.

Keywords: Oxybutynin chloride, Microparticles, Sodium alginate, Carbopol 971 P, Poloxamer, Suppository

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¹K. K. Wagh College of Pharmacy, Nashik, Maharashtra-422003, India

Full list of author information is available at the end of the article



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K. K. Wagh College of Pharmacy
Panchavati, Nashik-422 003.

Title of Paper- Development and Characterization of Topical Micro-Emulsion as Novel Drug Delivery System for Dapsone

Name of Author/s- Bedse A, Nikam A, Kulkarni A, Potnis V, Dhamane S.

Name of Journal- International Journal of Pharmaceutical Sciences and Nanotechnology



*International Journal of
Pharmaceutical Sciences and Nanotechnology*

www.ijpsnonline.com



RESEARCH PAPER

Development and Characterization of Topical Micro-Emulsion as Novel Drug Delivery System for Dapsone

Anjali Bedse¹ | Ajinath Nikam² | Aditi Kulkarni² | Vaishali Potnis² | Suchita Dhamane^{2*}

¹K.K.Wagh College of Pharmacy, Nashik-422003, Maharashtra.

²Jaywanttrao Sawant College of Pharmacy and Research, Hadapsar, Pune- 411028, Maharashtra

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<https://doi.org/10.37285/ijpsn.2022.15.1.8>

ABSTRACT

Dapsone is a Biopharmaceutical Classification System class II drug with anti-inflammatory, immunosuppressive, antibacterial, and antibiotic properties and is used as an antileprotic. The purpose of the present study was to investigate the potential of a microemulsion formulation for topical delivery of dapsone to enhance permeation and to avoid systemic side effects. When administered orally, dapsone undergoes hepatic metabolism. Its hepatic metabolite, dapsone hydroxylamine, shows systemic side effects such as hemolytic anaemia peripheral neuropathy, nausea, and headache. A novel drug delivery system in the form of a microemulsion was developed for dapsone. This is the first attempt that dapsone has been combined with chaulmoogra oil in a topical microemulsion. The primary drugs used for the treatment of leprosy are found in chaulmoogra seeds. Considering its good solubilizing capacity and its use in the treatment of leprosy, chaulmoogra oil was chosen as the oil phase. Based on emulsification ability, Cremophor RH40 and PEG 400 were selected as surfactant and co-surfactant, respectively. A pseudo-ternary phase diagram was constructed to identify the microemulsion region. Smix (Cremophor RH40: PEG-400 in the ratio of 1:2) was most effective in imparting stability to the formulation. The selected formulation exhibited appropriate diffusion behavior (in vitro). The developed dapsone containing microemulsion formulation exhibited the optimal homogeneity, clarity, pH, type of microemulsion, viscosity, percent drug content, and percent transmittance to qualify as a topical drug delivery system for local treatment of leprosy.

KEYWORDS

Microemulsion, Dapsone, Topical drug delivery system, Chaulmoogra oil, Anti mycobacterial activity, HET-CAM test.

INTRODUCTION

Leprosy, or Hansen's disease (HD), is a bacterial disease known from historic times, although curable, it continues to be a significant health problem worldwide. This disease affects mainly the peripheral nerves and skin, but may also affect sites such as the eyes, mucous

membranes, bones, and testes and produces a spectrum of clinical phenotypes (Saonere, 2011).

Dapsone is the principal drug in a multidrug regimen recommended by the World Health Organization for treating leprosy. Dapsone is a sulfone with anti-inflammatory, immunosuppressive, antibacterial and antibiotic properties. The water solubility of dapsone is





PRINCIPAL

K.K.Wagh College of Pharmacy
Panchavati, Nashik-422 003.

Title of Paper- Polyphenols: The interactions with CYP 450 isoenzymes and effect on pharmacokinetics of drugs

Name of Author/s- Bhamre Vaibhav G, Deore Pranjal D, Amrutkar Rakesh D³, Patil Vinod R.

Name of Journal- Current Trends in Pharmacy and Pharmaceutical Chemistry

Current Trends in Pharmacy and Pharmaceutical Chemistry 2022;4(1):13-23

Content available at: <https://www.ipinnovative.com/open-access-journals>

Current Trends in Pharmacy and Pharmaceutical Chemistry

Journal homepage: <https://www.ctppc.org/>



Review Article

Polyphenols: The interactions with CYP₄₅₀ isoenzymes and effect on pharmacokinetics of drugs

Bhamre Vaibhav G.^{1,*}, Deore Pranjal D.², Amrutkar Rakesh D.³, Patil Vinod R.⁴

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ABSTRACT

Recent clinical studies demonstrated that certain natural polyphenols like flavonoids present in dietary supplements modify the pharmacokinetics of some co-administered drugs. Number of herbal remedies interact selectively with different CYP₄₅₀ isoenzymes and hence alter CYP-mediated drug metabolism and pharmacokinetics. Drug-polyphenol interaction may alter drug bio availability through altered absorption, distribution and metabolism. There is need to collect clinical evidences to support whether the effect of drugs and polyphenols co-administration rather than relying on in-vitro experiments or animal studies. Herbal drugs containing variety of polyphenols interact with CYP₄₅₀ enzymes leading to either induction or inhibition of CYPs which alters the pharmacokinetic parameters of their respective substrate drugs. This information will be helpful for physicians and pharmacists to alleviate risks associated with polyphenolic remedies as well as to realize the benefits of alternative medicine.

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1. Introduction

More than 8000 polyphenolic compounds have been identified in various plant species, having several important functions. The phenolic groups in polyphenols can accept an electron to form relatively stable phenoxyl radicals, thereby disrupting chain oxidation reactions in cellular components.¹ In addition to fruits and vegetables, leaves, nuts, seeds, barks and flowers are also rich sources of polyphenols.² On the basis of in vivo or in vitro evidence, inhibition of the CYP forms responsible for the metabolism of co-administered drugs has been proposed as the mechanism responsible for the pharmacokinetic interactions caused by flavonoids.³ Flavonoids have high potencies and selectivities for inhibition of CYP1A

isoenzymes.⁴ Polyphenols may be classified into different groups as a function of the number of phenol rings that they contain and of the structural elements that bind these rings to one another. The main classes include phenolic acids, diferuloylmethanes, flavonoids, stilbenes and lignans. Phenolic acids are further classified as hydroxycinnamic acids (e.g. Caffeic acid, Caftaric acid) and hydroxybenzoic acids (e.g. Ellagic acid, Gallic acid, Corilagin). Diferuloylmethanes are phenolic compounds with two aromatic rings substituted with hydroxyls, and linked by aliphatic chain containing carbonyl groups (e.g. Curcumin).

The major and most abundant class within the dietary polyphenols is flavonoids and is further classified as: Anthocyanidins (e.g. Cyanidin, Delphinidin, Pelargonidin) and different Anthoxanthins including Flavonols (e.g. Myricetin, Quercetin, Kaempferol), Flavanones (e.g.

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**Title of Paper-** Modified Solubility of Etodolac through Solid Dispersion and Complexation**Name of Author/s-** Vaibhav Gulabrao Bhamare, Ravindra Keshavrao Kamble**Name of Journal-** Research Journal of Pharmacy and Technology*Research J. Pharm. and Tech. 15(2): February 2022*ISSN 0974-3618 (Print)
0974-360X (Online)www.rjptonline.org**RESEARCH ARTICLE****Modified Solubility of Etodolac through Solid Dispersion and Complexation****Vaibhav Gulabrao Bhamare^{1*}, Ravindra Keshavrao Kamble²**¹Department of Pharmaceutics, K. K. Wagh College of Pharmacy,
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Old Station Road, Udaipur- 313001, Rajasthan, India.^{*}Corresponding Author E-mail: vaibhav.bhamare@gmail.com**ABSTRACT:**

Solubility and dissolution is an essential requirement for any drug to perform well in vivo. The present research was undertaken to enhance the dissolution rate of poor water soluble drug Etodolac through solid dispersion and complexation technique. Fusion method and kneading methods were employed for solubility enhancement by Solid Dispersion technique and complexation technique respectively. PEG-6000, HPMC K4M, β -Cyclodextrin and PVPK-30 are used as carriers. Physical mixtures were prepared in different ratio of drug and carriers. The prepared blends were evaluated for solubility, drug content, percent yield and drug release. Solubility enhancement was observed for all the experimental mixtures having maximum attainment for polymers PEG 6000 and PVPK-30. Pre and post enhancement Etodolac solubility values confirm the successful modification in solubility of drug through solid dispersion technique and complexation technique with slight edge toward complexation technique.

KEYWORDS: Etodolac, Solubility, Solid dispersion, Complexation, Carrier.**INTRODUCTION:**

Solubility and dissolution of drugs is a crucial prerequisite to the performance of the drug in vivo. The major share (90%) of the active pharmaceutical ingredients in the development pipeline and 40 % of the drugs in the market are poorly water soluble. Hence, solubility is still an important area of the research.^{1,2} According to the Noyes-Whitney equation, the dissolution rate of a drug substance is directly proportional to its equilibrium solubility.³ However, the nature of the dissolving solid and the dissolution medium also exert strong influences on the dissolution rate.⁴ Various physical, chemical and miscellaneous approaches have been used to enhance the solubility and dissolution of the poorly water soluble drugs.^{5,6}

However, solid dispersion or complexation is still preferred technique to improve solubility due to its obvious advantages. The term solid dispersion refers to a drug-polymer two component system generally consisting of a hydrophilic matrix and a hydrophobic drug prepared by hot melt extrusion, melting (fusion) method or solvent evaporation method.^{7,8} Usage of solubilizing complexing agent can solve the poor aqueous solubility problem by forming guest (non polar region of one molecule) - host (cavity of another molecule) complexes.^{9,10} Small molecules or larger molecules can be taken up by supramolecular cyclic structures. This inclusion complex is possible because of the central cavity in their structure and these so formed cyclic molecules have been explored as drug delivery systems.¹¹ Etodolac is a nonsteroidal anti-inflammatory agent and inhibitor of prostaglandin synthetase. Etodolac is absorbed from the gastro-intestinal tract with peak plasma concentrations being attained about 1-2 h after ingestion. Etodolac is poorly water soluble, and slightly soluble in simulated gastric fluid. The delayed onset of action is the result of limited dissolution rate due to poor solubility therefore its bioavailability is expected to be limited by its dissolution rate, which could be increased

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**Title of Paper-** Design and development of fast dissolving liquisolid formulation**Name of Author/s-** Bhamare Vaibhav G, Kamble Ravindra K**Name of Journal-** Journal of medical, pharmaceutical and allied science

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Research article

Design and development of fast dissolving liquisolid formulationBhamare Vaibhav G¹, Kamble Ravindra K²¹K. K. Wagh College of Pharmacy, Nashik, Maharashtra, India²Bhupal Nobles' College of Pharmacy, Udaipur, Rajasthan, India**ABSTRACT**

Various techniques have been employed for the solubility modification of BCS class II drugs. Out of the recent solubility enhancement techniques, Liquisolid technique based on the work of Spireas et al has explored as method that can supplement drug release. Formulations containing Etodolac were developed by dissolving the drug in a non-volatile solvent and then employing the adsorption principle with a carrier and coated material admixture. The post formulation saturation solubility study has highlighted significant modification in solubility of the drug in comparison to pre solubility modification. The Liquisolid formulation then subjected to direct compression for the development of Fast dissolving tablet formulation using two varying concentrations of Sodium Starch Glycolate. The in vitro - in vivo evaluation of research study concludes adaptability and applicability of fast dissolving liquisolid tablet formulation allowing it to overcome barriers associated with the solubility. The optimized formulation found to unveil dissolution along with diffusion from the dosage form by Fickian mechanism.

Keywords: Etodolac, Liquisolid, Carrier material, Coating material Fast dissolving tablet, Superdisintegrant.

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IPCA Laboratories Ltd. Mumbai provided the Etodolac as a

INTRODUCTION

Solubility phenomena have great influence on pharmaceutical industry. [1]. Post administration of drug by oral route, the absorption and bioavailability of drug in systemic circulation is limited by its solubility and permeability. [2]. The BCS plays vital role for formulation scientist, for advising strategy to increase the effectiveness of drug development by proper choice of dosage form and bioequivalence tests. [3]. Numerous researches on solubility enrichment of BCS class II or class IV drugs have rooted various techniques. [4-6]. Liquisolid approach has been lately explored as a method for improved drug release. [7]. It is therefore proposed that a mathematical model implemented and validated by Spireas and coworkers measures necessary quantities of carrier polymer and coating material. [8, 9] to achieve a drug embedded system a system with appropriate flowability and compressibility. In continuation with the solubility enhancement, formulation development has been one tool that has impact on patient compliance. Fast dissolving tablet formulation gaining wide popularity in terms of its bioavailability in shorter duration of time and usefulness toward population in comparison to conventional tablet formulation.

MATERIALS AND METHODS

free sample. The rest of the ingredients were of analytical quality. Throughout the investigation, distilled water was used.

Experimental

Analytical characterization. [10-11]. The identity of the drug was confirmed by comparing IR spectrum using FTIR (Shimadzu Affinity press FTIR 1800), thermogram using DSC (Shimadzu DSC 60) and X-Ray powder diffraction spectra (Shimadzu XRD-7000). Same procedure has been employed to identify incompatibility issues (if any) generated when the drug is formulated into fast dissolving tablet formulation post Liquisolid treatment.

Saturation solubility study of drug. [12-13]. Solubility studies were carried by shake flask method where excess of sample is added into the fixed volume of solvent. The saturated solutions were continuously shaken round-the-clock and the resultant solutions were filtered, appropriate dilutions were prepared and UV absorbance was recorded. The same procedure is employed for formulation post Liquisolid treatment.

Design of Liquisolid system with mathematical modeling. [14-17] It is suggested that a mathematical model executed and



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**Title of Paper-** Theoretical consideration of solubility by Hildebrand solubility approach**Name of Author/s-** Vaibhav Gulabrao Bhamare, Renuka Ravindra Joshi, Mayur Sakham Gangurde and Vijay V Pawar.**Name of Journal-** World journal of Advanced Research and Reviews

(REVIEW ARTICLE)

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Theoretical consideration of solubility by Hildebrand solubility approach

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Abstract

Pharmaceutical field is widely focusing on solubility parameter models to select solvent or non-solvent that can enhance solvency of drug. Solubility Parameter is very useful concept in understanding the mechanism of solvent and solvency behavior with their applications in pharmaceuticals to open the door of research having focus on theoretical considerations of solubility. Hildebrand and Hansen Solubility Parameter are frequently used to identify solvents.

Keywords: Solubility; Solvation; Hildebrand Solubility Parameter; Hansen solubility parameter

1. Introduction

Currently solubility study is on the peak point of formulation scientist and the basic reason is existence of nearly 70% drug in class II of BCS classification [1]. Solubility Parameter is very useful concept in understanding the mechanism of solvent. Hildebrand is the first one to coin the term solubility parameter [2,3]. The Solubility Parameter is a numerical figure which gives solvency behavior of specific solvent [4].

Various Solubility Parameter like Hildebrand Solubility, Hansen Solubility, Fedors, Van Krevelen are in use to depict the solvency behavior of solvent [5]. The Solubility Parameter, which expresses the cohesion between like molecules, is obtained from heat of vaporization, internal pressure, surface tension and other properties as expressed by Hildebrand and Scott [6]. Coating's pharmaceutical, cosmetics foodstuffs are produced as multi-component chemical mixture and Hildebrand solubility Parameter and Hansen solubility parameter plays vital role to meet environmental shelf life and product quality specifications of these compounds [7].

The solubility of drug is very important for pharmaceutical industry. Solubility means ability of solute to dissolve in a solvent especially water [8]. According IUPAC solubility is defined as ratio of designated solute in solvent [9]. Solubility plays major role in the manufacture of liquids orals as well as in the manufacturing of parenteral formulations, also it is important to obtain desired concentration of drug in systemic circulation for getting pharmacological response. The solubility of drugs in gastrointestinal fluids is an important step for absorption of drugs. Thus, solubility phenomenon is important in pharmacy [10,11,12].

2. Solution as a system

A solution is a special type of homogeneous mixture composed of two or more substance. A Solvent is a substance that dissolves a solute resulting in a solution. The substance dissolved is called as the solute [13,14,15,16]. Solvents plays vital role like applying coatings, removing stains or adhesive. Choice of solvent mainly depend on factors such as

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