

Gokhale Education Society's

**Sir Dr. M.S. Gosavi College of
Pharmaceutical Education & Research, Nashik.**

Prin. T. A. Kulkarni Vidynagar, Nashik - 422005. (M.S.), India



Affiliated to SPPU, Pune & MSBTE, Mumbai • Approved by PCI, New Delhi and DTE, Mumbai • Recognized by Govt. of Maharashtra

An ISO 9001:2015 Certified Institute

Key Indicator: 6.5 Internal Quality Assurance System

**(Metric No. : 6.5.2)
Quality Assurance Initiatives of the institution**

Collaborative Quality Initiatives with Other Institutions





Gokhale Education Society's

Sir Dr. M.S. Gosavi College of Pharmaceutical Education & Research, Nashik.

Prin. T. A. Kulkarni Vidynagar, Nashik - 422005. (M.S.), India



Affiliated to SPPU, Pune & MSBTE, Mumbai • Approved by PCI, New Delhi and DTE, Mumbai • Recognized by Govt. of Maharashtra

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Phone : 0253-2232799

An ISO 9001:2015 Certified Institute

Prin. Dr. Sunil V. Amrutkar
M. Pharm., Ph.D. (Pharmaceutical Chemistry)

***Collaboration
With
Amrutvahini Sheti and Shikshan Vikas Sanstha's
Amrutvahini College of Pharmacy, Amrutnagar,
P.O. Sangamner.
Tal. -Sangamner, Dist. - Ahmednagar***



Amrutvahini Sheti and Shikshan Vikas Sanstha's

AMRUTVAHINI COLLEGE OF PHARMACY, SANGAMNER

- ▶ Permanently affiliated to Savitribai Phule Pune University [ID : PU/AN/Pharm/83 (2004)] [Puncode : CPHA016760]
- ▶ Approved by AICTE, New Delhi & Pharmacy Council of India (PCI), New Delhi
- ▶ Approved by DTE., Mumbai & Govt. of Maharashtra
- ▶ A.I.S.H.E. Code : C-42026
- ▶ ISO 9001 : 2015 Certified

MEMORANDUM OF UNDERSTANDING

BETWEEN

**Amrutvahini Sheti and Shikshan Vikas Sanstha's
Amrutvahini College of Pharmacy, Amrutnagar,
P.O. Sangamner- 422608.**

Tal.- Sangamner, Dist. - Ahmednagar (Maharashtra State)

AND

**AND Gokhale Education Society's Sir Dr. M.S. Gosavi College of Pharmaceutical
Education and Research, Vidyanagar, Nashik, Tal.- Nashik Dist.- Nashik, Pin.-
422005. (Maharashtra State)**

This Memorandum of Understanding (MoU) executed on the 1st Day of the July year 2019 at Nashik.

BETWEEN

**Amrutvahini Sheti and Shikshan Vikas Sanstha's Amrutvahini College of
Pharmacy, Sangamner- 422608** established on 2004 and represented through its
Principal which expression shall include its successors in the office and permitted
assignees of the **FIRST PARTY.**

The First Party is represented by **Dr. M. J. Chavan, Principal, Amrutvahini Sheti
and Shikshan Vikas Sanstha's Amrutvahini College of Pharmacy, Sangamner-
422608 (Maharashtra State)**

AND

**Gokhale Education Society's Sir Dr. M.S. Gosavi College of Pharmaceutical
Education and Research, Vidyanagar, Nashik, Tal.- Nashik Dist.- Nashik** through
its Principal which is an Institute engaged in academic and research activities in
the field of Pharmaceutical Sciences which expression shall include its successors
in the office and permitted assignees of **SECOND PARTY.**



1



- ▶ Permanently affiliated to Savitribai Phule Pune University [ID : PU/AN/Pharm/83 (2004)] [Puncode : CPHA016760]
- ▶ Approved by AICTE, New Delhi & Pharmacy Council of India (PCI), New Delhi
- ▶ Approved by DTE., Mumbai & Govt. of Maharashtra
- ▶ A.I.S.H.E. Code : C-42026
- ▶ ISO 9001 : 2015 Certified

The Second Party is represented by **Dr. S. V. Amrutkar, Principal, Gokhale Education Society's Sir Dr. M.S. Gosavi College of Pharmaceutical Education and Research, Vidyanagar, Nashik, Tal.- Nashik Dist.- Nashik, Pin.- 422005. (Maharashtra State)**

And the First Party and the Second Party shall be collectively referred to as "Parties" and individually as "Party".

WITNESSETH:

Whereas both the parties are having objectives to utilize the instrument/equipment facilities available at their ends with the written permission of the Principal;

AND

Whereas each party will undertake to support each other's effort for the specific purpose mentioned in the MoU.

Whereas both First Party and Second Party, now

- Recognizing the importance of instrument and equipment facilities required for research and development in the areas Pharmaceutical sciences.
- Appreciating the need for collaborative research activities in all fields related to Pharmaceutical sciences.
- Recognizing the need of research publication in journal of repute for jointly undertaken research project.

Now, therefore, the parties have intended, agreed and consented to the following terms and deeds in the pursuance of the common intent.

1. The First Party:

- Shall provide the list of sophisticated instruments and equipments available in working condition to the Second Party;
- Shall make the sophisticated instruments and equipments available to the students and faculty at minimum cost as and when requested in written by the Second party;





Amrutvahini Sheti and Shikshan Vikas Sanstha's

AMRUTVAHINI COLLEGE OF PHARMACY, SANGAMNER

- ▶ Permanently affiliated to Savitribai Phule Pune University [ID : PU/AN/Pharm/83 (2004)] [Puncode : CPHA016760]
- ▶ Approved by AICTE, New Delhi & Pharmacy Council of India (PCI), New Delhi
- ▶ Approved by DTE., Mumbai & Govt. of Maharashtra
- ▶ A.I.S.H.E. Code : C-42026
- ▶ ISO 9001 : 2015 Certified

- Shall undertake a collaborative research project with the faculty of Second Party and its publication in the journal of repute.

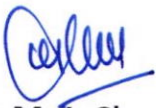

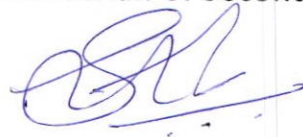
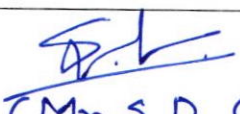
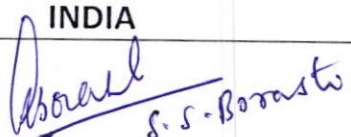
2. The Second Party:

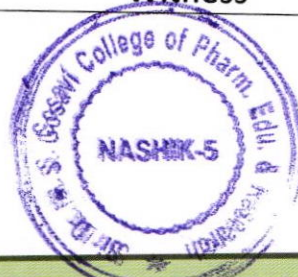
- Shall provide the list of sophisticated instruments and equipments available in working condition to the First Party;
- Shall make the sophisticated instruments and equipments available to the students and faculty at minimum cost as and when requested in written by the First party;
- Shall undertake a collaborative research project with the faculty of First Party and its publication in the journal of repute.

Both parties also agrees about sharing of faculty as per required by both of parties.

This MoU shall be effective from date of signing of this MoU until 31st May 2024 (Five Years from the date of execution). Moreover the said MOU will be terminated by any one of party by sending notice to another party.

In consideration of the mutual covenants contained herein above and the terms and conditions of this MoU and in witness whereof Parties have hereinto set their hand/seal:

<p>For and on behalf of First Party</p>   <p>Dr. M. J. Chavan Principal, Amrutvahini Sheti and Amrutvahini College of Pharmacy, Shikshan Vikas Sanstha's Amrutvahini College of Pharmacy, Sangamner- 422608. (Maharashtra State) INDIA</p>	<p>For and on behalf of Second Party</p>  <p>Dr. S. V. Amrutkar Principal, Gokhale Education Society's Sir Dr. M.S. Gosavi College of Pharmaceutical Education and Research, Vidyanagar, Nashik-422005 (Maharashtra State) INDIA</p>
 <p>(Mr. S. D. Gunjal) Witness</p>	 <p>S. S. Boraste Witness</p>





Amrutvahini Sheti and Shikshan Vikas Sanstha's

AMRUTVAHINI COLLEGE OF PHARMACY, SANGAMNER

- ▶ Permanently affiliated to Savitribai Phule Pune University (ID : PU/ANI/Pharm/83 (2004)) (Pune code : CPH/A/167)
- ▶ Approved by AICTE, New Delhi & Pharmacy Council of India (PCI), New Delhi
- ▶ Approved by DTE, Mumbai & Govt. of Maharashtra
- ▶ A.I.S.H.E. Code : C-42026
- ▶ ISO 9001 : 2015 Certified

Out No. - ~~20~~ AVCOP/2021-22/168-A.

Date- 15/10/2022.

To,
The Principal,
GES Sir Dr. M. S. Gosavi College of
Pharmaceutical Education and Research,
Nashik

Subject- Hands on training to your faculty members

Dear Sir,

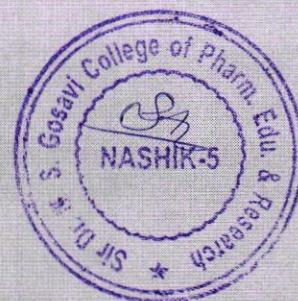
Your faculty members, Mrs. Dhanashri Mali, Mr. Kamlesh Dandagvhal and Mrs. Deepali Bhandari completed hands on training at our institute on IR spectroscopy, Particle size and Zeta Potential Analyzer.

I expect same mutual co-operation in future to strengthen academic excellence.

Thanking You,



Principal
PRINCIPAL
Amrutvahini College of Pharmacy,
Sangamner





ESTD. 2004

Amrutvahini Sheti and Shikshan Vikas Sanstha's

AMRUTVAHINI COLLEGE OF PHARMACY, SANGAMNER

- ▶ Permanently affiliated to Savitribai Phule Pune University [ID : PU/AN/Pharm/83 (2004)] [Punocode : CPHA01]
- ▶ Approved by AICTE, New Delhi & Pharmacy Council of India (PCI), New Delhi
- ▶ Approved by DTE., Mumbai & Govt. of Maharashtra
- ▶ A.I.S.H.E. Code : C-42026
- ▶ ISO 9001 : 2015 Certified

Out No. - **AVCOP/2020-21/234-A**

Date- **02/02/2021**

To,
The Principal,
GES Sir Dr. M. S. Gosavi College of
Pharmaceutical Education and Research,
Nashik

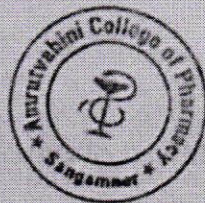
Subject- Hands on training to your faculty members

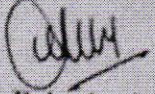
Dear Sir,

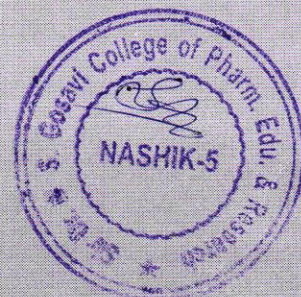
Your faculty members, Dr. Shilpa Harak and Mrs. Smita Shelke completed hands on training at our institute on Particle size and Zeta Potential Analyzer (HORIBA).

I expect same mutual co-operation in future to strengthen academic excellence.

Thanking You,




Principal
PRINCIPAL
Amrutvahini College of Pharmacy
Sangamner





Amrutvahini Sheti and Shikshan Vikas Sanstha's

AMRUTVAHINI COLLEGE OF PHARMACY, SANGAMNER

- Permanently affiliated to Savitribai Phule Pune University [ID : PU/AN/Pharm/83 (2004)] [Puncode : CPHA0167]
- Approved by AICTE, New Delhi & Pharmacy Council of India (PCI), New Delhi
- Approved by DTE., Mumbai & Govt. of Maharashtra
- A.I.S.H.E. Code : C-42026
- ISO 9001 : 2015 Certified

Out No. - **AVCOP/2019-20/208-A**

Date-**20/08/2019.**

To,
The Principal,
GES Sir Dr. M. S. Gosavi College of
Pharmaceutical Education and Research,
Nashik

Subject- Hands on training to your faculty members


Dear Sir,

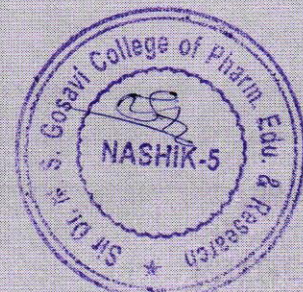
Your faculty members, Dr. Prashant Pingale and Mr. Sahebrao Boraste completed hands on training at our institute on **Particle size and Zeta Potential Analyzer (HORIBA)**.

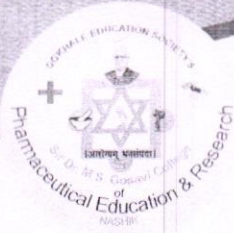
I expect same mutual co-operation in future to strengthen academic excellence.

Thanking You,




Principal
PRINCIPAL
Amrutvahini College of Pharmacy
Sangamner





Gokhale Education Society's

**Sir Dr. M.S. Gosavi College of
Pharmaceutical Education & Research, Nashik.**

Prin. T. A. Kulkarni Vidynagar, Nashik - 422005. (M.S.), India



Affiliated to SPPU, Pune & MSBTE, Mumbai • Approved by PCI, New Delhi and DTE, Mumbai • Recognized by Govt. of Maharashtra

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Phone : 0253-2232799

An ISO 9001:2015 Certified Institute

Prin. Dr. Sunil V. Amrutkar
M. Pharm., Ph.D. (Pharmaceutical Chemistry)

Ref. No. : GES/MSGCOPER/

Date : 05/04/2023

To
The Principal
Amrutvahini College of Pharmacy
Sangamaner

Subject: To avail the facility of Zetasizer (Zeta Potential Analyzer)

Respected Sir

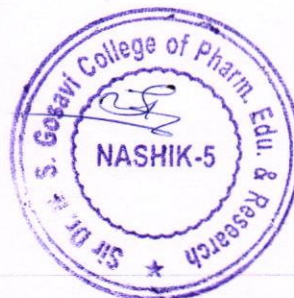
We Miss. Rasika M. Tapadia & Ms. Nisha R. Gavali student of S. Y. M. Pharm (Pharmaceutics) at Gokhale Education Society's Sir Dr. M. S. Gosavi College of Pharmaceutical Education and Research, Nashik. I request you to please grant us the permission to perform the analysis of particle size and zeta potential of 02 formulation samples using Zetasizer at your institute.

Thanking You

Yours Sincerely,

Miss. Rasika M. Tapadia & Ms. Nisha R. Gavali
Name of the student

Dr. D. M. Shinkar
Guide



Dr. S. V. Amrutkar
Principal



Gokhale Education Society's

**Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research, Nashik**

Prin. T. A. Kulkarni Vidyanagar, Nashik - 422005 (M.S.), India



Affiliated to Savitribai Phule Pune University ■ Approved by AICTE & PCI, New Delhi and DTE, Mumbai. ■ Recognized by Govt. of Maharashtra.

Prin. Dr. Sunil V. Amrutkar
M.Pharm., Ph. D. (Pharmaceutical Chemistry)

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Telefax.: 0253 - 2232799

Ref. No. : GES/MSGCOPER/ 487 'B' / 2021-22

Date : 09 / 03 / 2022

To
The Principal
Amrutvahini College of Pharmacy
Sangamaner

Subject: To avail the facility of Zetasizer (Zeta Potential Analyzer)

Respected Sir

I Miss. Sayali Sampat Darekar student of S. Y. M. Pharm (Pharmaceutics) at Gokhale Education Society's Sir Dr. M. S. Gosavi College of Pharmaceutical Education and Research, Nashik. I request you to please grant me the permission to perform the analysis of particle size and zeta potential of 01 formulation samples using Zetasizer at your institute.


Thanking You

Yours Sincerely,

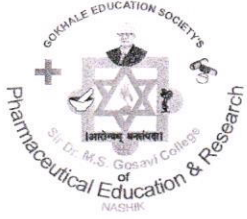
Miss. Sayali Sampat Darekar
Student

Mr. S. S. Boraste
Guide




Dr. S. V. Amrutkar
Principal





Gokhale Education Society's

**Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research, Nashik**

Prin. T. A. Kulkarni Vidyanagar, Nashik - 422005 (M.S.), India



Affiliated to Savitribai Phule Pune University ■ Approved by AICTE & PCI, New Delhi and DTE, Mumbai. ■ Recognized by Govt. of Maharashtra.

Prin. Dr. Sunil V. Amrutkar
M.Pharm., Ph. D. (Pharmaceutical Chemistry)

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Telefax.: 0253 - 2232799

Ref. No. : GES/MSGCOPER/487 'A' /2021-22

Date : 09/03/2022

To
The Principal
Amrutvahini College of Pharmacy
Sangamaner


Subject: To avail the facility of Zetasizer (Zeta Potential Analyzer)

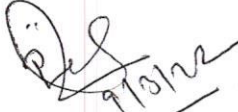
Respected Sir

I Miss. Shreya Rajendra Dawange student of S. Y. M. Pharm (Pharmaceutics) at Gokhale Education Society's Sir Dr. M. S. Gosavi College of Pharmaceutical Education and Research, Nashik. I request you to please grant me the permission to perform the analysis of particle size and zeta potential of 03 formulation samples using Zetasizer at your institute.


Thanking You

Yours Sincerely,

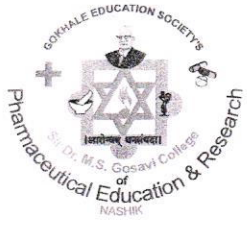

Miss. Shreya Rajendra Dawange
Student


Dr. P. L. Pingale
Guide




Dr. S. V. Amrutkar
Principal





Gokhale Education Society's
**Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research, Nashik**

Prin. T. A. Kulkarni Vidyanagar, Nashik - 422005 (M.S.), India



Affiliated to Savitribai Phule Pune University ■ Approved by AICTE & PCI, New Delhi and DTE, Mumbai. ■ Recognized by Govt. of Maharashtra.

Prin. Dr. Sunil V. Amrutkar
M.Pharm., Ph. D. (Pharmaceutical Chemistry)

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Telefax.: 0253 - 2232799

Ref. No. : GES/MSGCOPER/487 / 2021-22

Date : 09/03/2022

To
The Principal
Amrutvahini College of Pharmacy
Sangamaner

Subject: To avail the facility of Zetasizer (Zeta Potential Analyzer)

Respected Sir

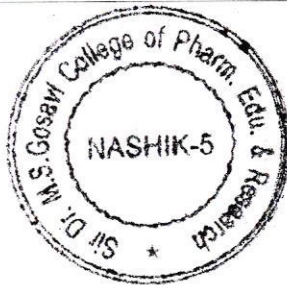
I Miss. Sonal Sanjay Jadhav student of S. Y. M. Pharm (Pharmaceutics) at Gokhale Education Society's Sir Dr. M. S. Gosavi College of Pharmaceutical Education and Research, Nashik. I request you to please grant me the permission to perform the analysis of particle size and zeta potential of 03 formulation samples using Zetasizer at your institute.

Thanking You

Yours Sincerely,

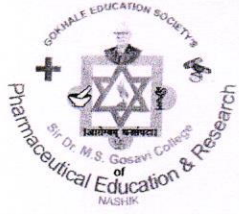
Miss. Sonal Sanjay Jadhav
Student

Dr. D. M. Shinkar
Guide



Dr. S. V. Amrutkar
Principal





Gokhale Education Society's
**Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research, Nashik**

Prin. T. A. Kulkarni Vidyanagar, Nashik - 422005 (M.S.), India



Affiliated to Savitribai Phule Pune University ■ Approved by AICTE & PCI, New Delhi and DTE, Mumbai. ■ Recognized by Govt. of Maharashtra.

Prin. Dr. Sunil V. Amrutkar
M.Pharm., Ph. D. (Pharmaceutical Chemistry)

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Telefax.: 0253 - 2232799

Ref. No. : GES/MSGCOPER/375/2021-22

Date : 15/01/2022

To,
The Principal,
Amrutvahini College of Pharmacy,
Sangamner.

Subject - Request for hands on training.

Dear Sir,

As per mentioned in subject, request you to provide the training of **IR Spectroscopy**, **Particle size** and **Zeta Potential Analyzer** to following staff members of our college as per your convenient schedule at your institute.

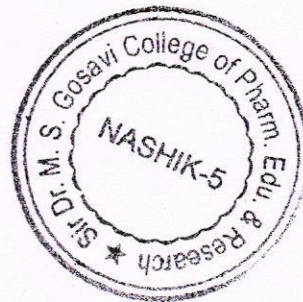
This will be helpful to them and our institute in future.

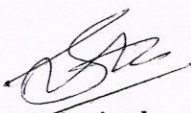
Kindly do the needful.

Thanking You,

Name of the staff members:

1. Mrs. Dhanashri R. Mali
2. Mrs. Deepali D. Bhandari
3. Mr. Kamlesh R. Dandagvhal




Principal
Principal
Gokhale Education Society's
Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research
Prin. T. A. Kulkarni Vidyanagar,
Nashik - 422 005.





Gokhale Education Society's
**Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research, Nashik**

Prin. T. A. Kulkarni Vidyanagar, Nashik - 422005 (M.S.), India



Affiliated to Savitribai Phule Pune University ■ Approved by AICTE & PCI, New Delhi and DTE, Mumbai. ■ Recognized by Govt. of Maharashtra.

Prin. Dr. Sunil V. Amrutkar
M.Pharm., Ph. D. (Pharmaceutical Chemistry)

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Telefax.: 0253 - 2232799

Ref. No. : GES/MSGCOPER/184B/2020-21

Date : 02/02/2021

To,
The Principal,
Amrutvahini College of Pharmacy,
Sangamner.

Subject - Request for hands on training.

Dear Sir,

As per mentioned in subject, request you to provide the training of Particle size and Zeta Potential Analyzer to following staff members of our college as per your convenient schedule at your institute.

This will be helpful to them and our institute in future.

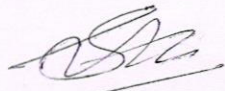
Kindly do the needful.

Thanking You,

Name of the staff members:

1. Mrs. Smita P. Shelke
2. Dr. Shilpa S. Harak




Principal
Principal
Gokhale Education Society's
Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research
Prin. T. A. Kulkarni Vidyanagar,
Nashik - 422 005.





Gokhale Education Society's
**Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research, Nashik**

Prin. T. A. Kulkarni Vidyanagar, Nashik - 422005 (M.S.), India



Affiliated to Savitribai Phule Pune University ■ Approved by AICTE & PCI, New Delhi and DTE, Mumbai. ■ Recognized by Govt. of Maharashtra.

Prin. Dr. Sunil V. Amrutkar
M.Pharm., Ph. D. (Pharmaceutical Chemistry)

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Telefax.: 0253 - 2232799

Ref. No. : GES/MSGCOPER/290B/2019-20

Date : 20/08/2019

To,
The Principal,
Amrutvahini College of Pharmacy,
Sangamner.

Subject - Request for hands on training.

Dear Sir,

As per mentioned in subject, request you to provide the training of **Particle size and Zeta Potential Analyzer** to following staff members of our college as per your convenient schedule at your institute.

This will be helpful to them and our institute in future.

Kindly do the needful.

Thanking You,

Name of the staff members:

1. Dr. Prashant L. Pingale
2. Mr. Sahebrao S. Boraste



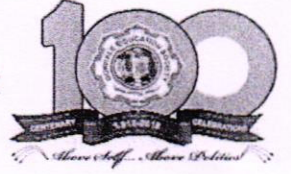
Principal

Principal
Gokhale Education Society's
Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research
Prin. T. A. Kulkarni Vidyanagar,
Nashik - 422 005.



Gokhale Education Society's
**Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research, Nashik**

Prin. T. A. Kulkarni Vidyanagar, Nashik - 422005 (M.S.), India



Affiliated to Savitribai Phule Pune University ■ Approved by AICTE & PCI, New Delhi and DTE, Mumbai. ■ Recognized by Govt. of Maharashtra.

Prin. Dr. Sunil V. Amrutkar
M.Pharm., Ph. D. (Pharmaceutical Chemistry)

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Telefax.: 0253 - 2232799

Ref. No. : GES/MSGCOPER/422c/2021-22

Date : 12/02/2022

To,
The Principal,
Amrutvahini College of Pharmacy,
Sangamner.

Subject- Request for Particle size and Zeta-Potential Analysis of Sample.

Respected Sir,

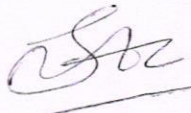
As per mentioned in subject, we are sending a sample for Particle size and Zeta-Potential Analysis for our college student.

Kindly do the needful.

Thanking You,

Principal



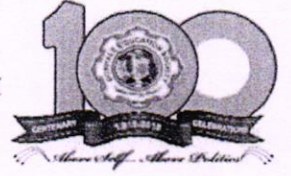

Principal
Gokhale Education Society's
Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research
Prin. T. A. Kulkarni Vidyanagar,
Nashik - 422 005.





Gokhale Education Society's
**Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research, Nashik**

Prin. T. A. Kulkarni Vidyanagar, Nashik - 422005 (M.S.), India



Affiliated to Savitribai Phule Pune University ■ Approved by AICTE & PCI, New Delhi and DTE, Mumbai. ■ Recognized by Govt. of Maharashtra.

Prin. Dr. Sunil V. Amrutkar
M.Pharm., Ph. D. (Pharmaceutical Chemistry)

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Telefax.: 0253 - 2232799

Ref. No. : GES/MSGCOPER/427B/2021-22

Date : 18/02/2022

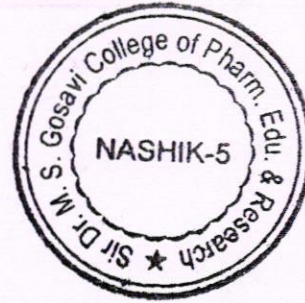
To,
The Principal,
Amrutvahini College of Pharmacy,
Sangamner.

Subject- Thanking Letter about Particle size and Zeta-Potential Analysis of Sample.

Respected Sir,

As per mentioned in subject, we are very thankful towards you for Particle size and Zeta-Potential Analysis facility provided to our college student.

Thanking You,



Principal

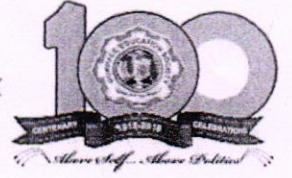
Principal
Gokhale Education Society's
Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research
Prin. T. A. Kulkarni Vidyanagar,
Nashik - 422 005.





Gokhale Education Society's
**Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research, Nashik**

Prin. T. A. Kulkarni Vidyanagar, Nashik - 422005 (M.S.), India



Affiliated to Savitribai Phule Pune University ■ Approved by AICTE & PCI, New Delhi and DTE, Mumbai. ■ Recognized by Govt. of Maharashtra.

Prin. Dr. Sunil V. Amrutkar
M.Pharm., Ph. D. (Pharmaceutical Chemistry)

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Telefax.: 0253 - 2232799

Ref. No. : GES/MSGCOPER^{219B}~~119B~~/2019-20

Date : 08/07/2019

To,
The Principal,
Amrutvahini College of Pharmacy,
Sangamner.

Subject- Request for HPLC Analysis of Sample.

Respected Sir,

As per mentioned in subject, we are sending a sample for HPLC Analysis for our college student.

Kindly do the needful.

Thanking You,



Principal

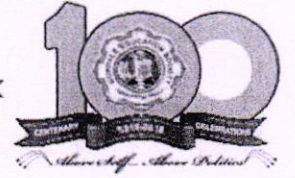
Principal
Gokhale Education Society's
Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research
Prin. T. A. Kulkarni Vidyanagar,
Nashik - 422 005.





Gokhale Education Society's
**Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research, Nashik**

Prin. T. A. Kulkarni Vidyanagar, Nashik - 422005 (M.S.), India



Affiliated to Savitribai Phule Pune University ■ Approved by AICTE & PCI, New Delhi and DTE, Mumbai. ■ Recognized by Govt. of Maharashtra.

Prin. Dr. Sunil V. Amrutkar
M.Pharm., Ph. D. (Pharmaceutical Chemistry)

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Telefax.: 0253 - 2232799

Ref. No. : GES/MSGCOPER/219B/2019-20

Date : 11/07/2019

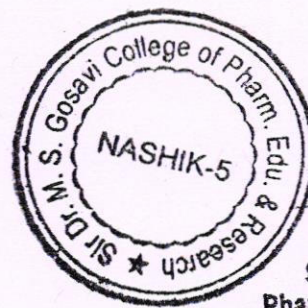
To,
The Principal,
Amrutvahini College of Pharmacy,
Sangamner.

Subject- Thanking Letter about HPLC Analysis of Sample.

Respected Sir,

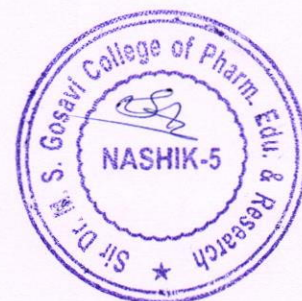
As per mentioned in subject, we are very thankful towards you for HPLC facility provided to our college student for analysis of sample.

Thanking You,



Principal

Principal
Gokhale Education Society's
Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research
Prin. T. A. Kulkarni Vidyanagar,
Nashik - 422 005.





Amrutvahini Sheti and Shikshan Vikas Sanstha's

AMRUTVAHINI COLLEGE OF PHARMACY, SANGAMNER

- ▶ Permanently affiliated to Savitribai Phule Pune University [ID : PU/AN/Pharm/83 (2004)] [Puncode : CPHA016760]
- ▶ Approved by AICTE, New Delhi & Pharmacy Council of India (PCI), New Delhi
- ▶ Approved by DTE., Mumbai & Govt. of Maharashtra
- ▶ A.I.S.H.E. Code : C-42026
- ▶ ISO 9001 : 2015 Certified

Out. No.- 93

Date- 08/10/2021.

To,

The Principal,

Gokhale Education Society's

Sir Dr. M.S. Gosavi College of Pharmaceutical Education and Research,

Vidyanagar,

Nashik- 422005.

Subject- Certificate of Training on Particle size and Zeta-Potential Analyzer to Dr. D. M. Shinkar.

Respected Sir,

We are enlightened to certify that Dr. D. M. Shinkar had received training on Particle size and Zeta-Potential Analyzer on 08/10/2021.

Kindly do the needful.

Thanking You,

Principal



PRINCIPAL
Amrutvahini College of Pharmacy
Sangamner





Amrutvahini Sheti and Shikshan Vikas Sanstha's

AMRUTVAHINI COLLEGE OF PHARMACY, SANGAMNER

- ▶ Permanently affiliated to Savitribai Phule Pune University [ID : PU/AN/Pharm/83 (2004)] [Puncode : CPHA016760]
- ▶ Approved by AICTE, New Delhi & Pharmacy Council of India (PCI), New Delhi
- ▶ Approved by DTE., Mumbai & Govt. of Maharashtra ▶ A.I.S.H.E. Code : C-42026
- ▶ ISO 9001 : 2015 Certified

Out. No.- AVCOP/office/22-23/25

Date- 01/08/2022.

To,

The Principal,

Gokhale Education Society's

Sir Dr. M.S. Gosavi College of Pharmaceutical Education and Research,

Vidyanagar,

Nashik- 422005.

Subject- Request for use of extrusion spheronizer for our college student.

Respected Sir,

As per mentioned in subject, kindly allow our college student Mr. Hrutik Murtadak to use extrusion spheronizer for his research project.

Kindly do the needful.

Thanking You,


Principal

PRINCIPAL
Amrutvahini College of Pharmacy
Sangamner





Amrutvahini Sheti and Shikshan Vikas Sanstha's

AMRUTVAHINI COLLEGE OF PHARMACY, SANGAMNER

- ▶ Permanently affiliated to Savitribai Phule Pune University [ID : PU/AN/Pharm/83 (2004)] [Puncode : CPHA016760]
- ▶ Approved by AICTE, New Delhi & Pharmacy Council of India (PCI), New Delhi
- ▶ Approved by DTE., Mumbai & Govt. of Maharashtra
- ▶ A.I.S.H.E. Code : C-42026
- ▶ ISO 9001 : 2015 Certified

Out. No.- 267-A,

Date 10/09/2022.

To,

The Principal,

Gokhale Education Society's

Sir Dr. M.S. Gosavi College of Pharmaceutical Education and Research,

Vidyanagar,

Nashik- 422005.

Subject- Thanking Letter for use of extrusion spheronizer facility to our college student.

Respected Sir,

As per mentioned in subject, we are very thankful towards you for extrusion spheronizer facility provided to our college student Mr. Hrutik Murtadak for preparation of formulation.

Thanking You,

Principal

PRINCIPAL
Amrutvahini College of Pharmacy,
Sangamner





Gokhale Education Society's

**Sir Dr. M.S. Gosavi College of
Pharmaceutical Education & Research, Nashik.**

Prin. T. A. Kulkarni Vidynagar, Nashik - 422005. (M.S.), India



Affiliated to SPPU, Pune & MSBTE, Mumbai • Approved by PCI, New Delhi and DTE, Mumbai • Recognized by Govt. of Maharashtra

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Phone : 0253-2232799

An ISO 9001:2015 Certified Institute

Prin. Dr. Sunil V. Amrutkar
M. Pharm., Ph.D. (Pharmaceutical Chemistry)

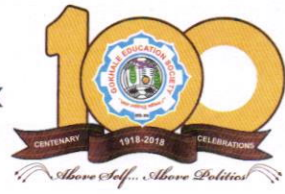
***Collaboration
With
Shree Gurudatta Shikshan
Sanstha's
Loknete Dr. J. D. Pawar
College of Pharmacy
A/P. Manur. Tal. Kalwan, Dist.
Nashik***



Gokhale Education Society's

**Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research, Nashik**

Prin. T. A. Kulkarni Vidyanagar, Nashik - 422005 (M.S.), India



Affiliated to Savitribai Phule Pune University ■ Approved by AICTE & PCI, New Delhi and DTE, Mumbai. ■ Recognized by Govt. of Maharashtra.

Prin. Dr. Sunil V. Amrutkar

M.Pharm., Ph. D. (Pharmaceutical Chemistry)

E-mail : prin@msgpharma.org

drmsgpharma@gmail.com

Website : www.msgpharma.org

Telefax.: 0253 - 2232799

Ref. No. : GES/MSGCOPER/

Date :

**MEMORANDUM OF UNDERSTANDING
BETWEEN**

**Gokhale Education Society's Sir Dr. M.S. Gosavi College of Pharmaceutical
Education and Research, Vidyanagar, Nashik, Tal.- Nashik Dist.- Nashik,
Pin.- 422005. (Maharashtra State)**

AND

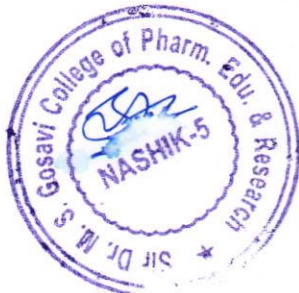
**Loknete Dr. J D Pawar College of Pharmacy Nashik
Survey No. 220/1, Kalwan - Nasik Rd Down Hill Campus,
Dattabhoomi Tal Kalwan, Dist. Nashik Manur,
Maharashtra 423501**

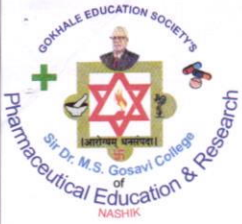
This Memorandum of Understanding (MoU) executed on the 1st Day of the July year 2019 at Nashik.

BETWEEN

**Gokhale Education Society's Sir Dr. M.S. Gosavi College of Pharmaceutical
Education and Research Nashik** established on 2012 and represented through its
Principal which expression shall include its successors in the office and permitted
assignees of the **FIRST PARTY**.

The First Party is represented by **Dr. S.V.Amrutkar, Principal, Gokhale Education
Society's Sir Dr. M.S. Gosavi College of Pharmaceutical Education and Research
Nashik.**





Gokhale Education Society's

**Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research, Nashik**

Prin. T. A. Kulkarni Vidyanagar, Nashik - 422005 (M.S.), India



Affiliated to Savitribai Phule Pune University ■ Approved by AICTE & PCI, New Delhi and DTE, Mumbai. ■ Recognized by Govt. of Maharashtra.

Prin. Dr. Sunil V. Amrutkar
M.Pharm., Ph. D. (Pharmaceutical Chemistry)

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Telefax.: 0253 - 2232799

Ref. No. : GES/MSGCOPER/

Date :

AND

Loknete Dr. J. D. Pawar College of Pharmacy Nashik through its Principal which is an Institute engaged in academic and research activities in the field of pharmaceutical Sciences which expression shall include its successors in the office and permitted assignees of **SECOND PARTY**.

The Second Party is represented by **Dr. A. D. Maru , Principal, Loknete Dr. J. D. Pawar College of Pharmacy Nashik Survey No. 220/1, Kalwan - Nasik Rd Down Hill Campus, Dattabhoomi, Tal Kalwan, Dist. Nashik Manur, Maharashtra.**

And the First Party and the Second Party shall be collectively referred to as "**Parties**" and individually as "**Party**".

WITNESSETH:

Whereas both the parties are having objectives to utilize the instrument/ equipment facilities available at their ends with the written permission of the Principal;

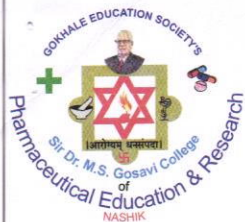
AND

Whereas each party will undertake to support each other's effort for the specific purpose mentioned in the MoU.

Whereas both First Party and Second Party, now

- Recognizing the importance of instrument and equipment facilities required for research and development in the areas Pharmaceutical sciences.
- Appreciating the need for collaborative research activities in all fields related to Pharmaceutical sciences.
- Recognizing the need of research publication in journal of repute for jointly undertaken research project.





Gokhale Education Society's

Sir Dr. M. S. Gosavi College of Pharmaceutical Education & Research, Nashik

Prin. T. A. Kulkarni Vidyanagar, Nashik - 422005 (M.S.), India



Affiliated to Savitribai Phule Pune University ■ Approved by AICTE & PCI, New Delhi and DTE, Mumbai. ■ Recognized by Govt. of Maharashtra.

Prin. Dr. Sunil V. Amrutkar
M.Pharm., Ph. D. (Pharmaceutical Chemistry)

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Telefax.: 0253 - 2232799

Ref. No. : GES/MSGCOPER/

Date :

Now, therefore, the parties have intended, agreed and consented to the following terms and deeds in the pursuance of the common intent.

1. The First Party:

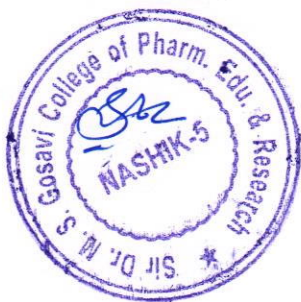
- Shall provide the list of sophisticated instruments and equipments available in working condition to the Second Party;
- Shall make the sophisticated instruments and equipments available to the students and faculty at minimum cost as and when requested in written by the Second party;
- Shall undertake a collaborative research project with the faculty of Second Party and its publication in the journal of repute.

2. The Second Party:

- Shall provide the list of sophisticated instruments and equipments available in working condition to the First Party;
- Shall make the sophisticated instruments and equipments available to the students and faculty at minimum cost as and when requested in written by the First party;
- Shall undertake a collaborative research project with the faculty of First Party and its publication in the journal of repute.

Both parties also agrees about sharing of faculty as per required by both of parties.

This MoU shall be effective from date of signing of this MoU until 31st May 2024 (Five Years from the date of execution). Moreover the said MOU will be terminated by any one of party by sending notice to another party.





Gokhale Education Society's

**Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research, Nashik**

Prin. T. A. Kulkarni Vidyanagar, Nashik - 422005 (M.S.), India



Affiliated to Savitribai Phule Pune University ■ Approved by AICTE & PCI, New Delhi and DTE, Mumbai. ■ Recognized by Govt. of Maharashtra.

Prin. Dr. Sunil V. Amrutkar
M.Pharm., Ph. D. (Pharmaceutical Chemistry)

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Telefax.: 0253 - 2232799

Ref. No. : GES/MSGCOPER/

Date :

In consideration of the mutual covenants contained herein above and the terms and conditions of this MoU and in witness whereof Parties have hereinto set their hand/seal:

For and on behalf of First Party	For and on behalf of Second Party
 Dr. S. V. Amrutkar Principal, Gokhale Education Society's Sir Dr. M.S. Gosavi College of Pharmaceutical Education and Research, Vidyanagar, Nashik, Tal.- Nashik Dist.- Nashik, Pin.- 422005. (Maharashtra State)	 Dr. A. D. Maru Principal, Loknete Dr. J. D. Pawar College of Pharmacy Nashik Survey No. 220/1, Kalwan - Nasik Rd Down Hill Campus, Dattabhoomi Tal Kalwan, Dist. Nashik Manur, Maharashtra 423501
 S. S. Borade Witness	 Mr. Mitesh P. Sonawane Witness





Shree Gurudatta Shikshan Sanstha's

Loknete Dr. J. D. PAWAR COLLEGE OF PHARMACY

A/P- Manur, Tal- Kalwan, Dist- Nashik, Pin- 423501 (M. S.)

Approved by AICTE, PCI, New Delhi and Maharashtra State Govt. Affiliated to University of Pune

E Mail ID: copharmkalwan@gmail.com Visit us: www.piper2008.com Phone No.: (02592) 222880

Outward No.: LNJDPA/126/2021-22

Date: 20/09/2022

To,

Dr. Dattatraya Shinkar,

Associate Professor,

Department of Pharmaceutics,

GES Sir Dr.M.S. Gosavi College of Pharmaceutical Education and Research, Nashik.

Subject: Invitation as Expert Speaker....

Dear Sir,

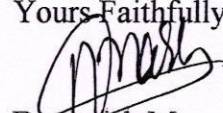
We would like to inform you that we have an important subject at Final year B. Pharm named "Biostatistics & Research Methodology".

We are very much well aware of your expertise in the subject and would like to share your knowledge and expertise in the subject with our Final year students. We hereby invite you at our college for the Expert Guest Lecture on "Biostatistics & Research Methodology" to be delivered on Saturday 23rd April 2022.

We request you to please accept our invitation by sending your consent.

Thanking you.

Yours Faithfully


Dr. Avish Maru
Principal

Loknete Dr. J. D. Pawar
College of Pharmacy, Manur
Tal. Kalwan, Dist. Nashik (M.S.)





Shree Gurudatta Shikshan Sanstha's

Loknete Dr. J. D. PAWAR COLLEGE OF PHARMACY

A/P- Manur, Tal- Kalwan, Dist- Nashik, Pin- 423501 (M. S.)

Approved by AICTE, PCI, New Delhi and Maharashtra State Govt. Affiliated to University of Pune
E Mail ID: copharmkalwan@gmail.com Visit us: www.piper2008.com Phone No.: (02592) 222880

Outward No.: LNJD/179/2021-22

Date: 23/04/2022

To,

Dr. Dattatraya Shinker,

Associate Professor,

Department of Pharmaceutics,

GES Sir Dr.M.S. Gosavi College of Pharmaceutical Education and Research, Nashik.

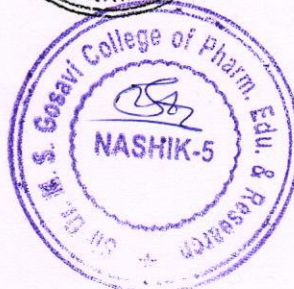
Subject: Letter of Thanks.

Dear Sir,


I would like to extend my hearty gratitude towards you for as Expert Guest Lecture for "Biostatistics & Research Methodology" to our Final Year B. Pharmacy students on Saturday, 23/04/2022, organized by SGSS Loknete Dr. J. D. Pawar College of Pharmacy, Manur, Tal. Kalwan, Dist. Nashik Maharashtra.

We look forward for the same co-operation in future.

With sincere thanks.



Yours Faithfully


Dr. Avish Maru
Principal

Loknete Dr. J. D. Pawar
College of Pharmacy, Manur
Tal. Kalwan, Dist. Nashik (M. S.)



Shree Gurudatta Shikshan Sanstha's

Loknete Dr. J. D. PAWAR COLLEGE OF PHARMACY

A/P- Manur, Tal- Kalwan, Dist- Nashik, Pin- 423501 (M. S.)

Approved by AICTE, PCI, New Delhi and Maharashtra State Govt. Affiliated to University of Pune
E Mail ID: copharmkalwan@gmail.com Visit us: www.piper2008.com Phone No.: (02592) 222880

Outward No.: LNJDPA/131/2021-22

Date: 02/05/2022

To,

Dr. Dattatraya Shinker,

Associate Professor,

Department of Pharmaceutics,

GES Sir Dr.M.S. Gosavi College of Pharmaceutical Education and Research, Nashik.

Subject: Invitation as Expert Speaker....

Dear Sir,

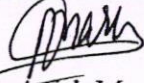
We would like to inform you that we have an important subject at Final year B. Pharm named "Biostatistics & Research Methodology".

We are very much well aware of your expertise in the subject and would like to share your knowledge and expertise in the subject with our Final year students. We hereby invite you at our college for the Expert Guest Lecture on "Biostatistics & Research Methodology" to be delivered on Wednesday 4th May 2022.

We request you to please accept our invitation by sending your consent.

Thanking you.

Yours Faithfully


Dr. Avish Maru





Shree Gurudatta Shikshan Sanstha's

Loknete Dr. J. D. PAWAR COLLEGE OF PHARMACY

A/P- Manur, Tal- Kalwan, Dist- Nashik, Pin- 423501 (M. S.)

Approved by AICTE, PCI, New Delhi and Maharashtra State Govt. Affiliated to University of Pune

E Mail ID: copharmkalwan@gmail.com Visit us: www.piper2008.com Phone No.: (02592) 222880

Outward No.: LNJD/138/2021-22

Date: 04/05/2022

To,

Dr. Dattatraya Shinker,

Associate Professor,

Department of Pharmaceutics,

GES Sir Dr.M.S. Gosavi College of Pharmaceutical Education and Research, Nashik.

Subject: Letter of Thanks.

Dear Sir,

I would like to extend my hearty gratitude towards you for as Expert Guest Lecture for "Biostatistics & Research Methodology" to our Final Year B. Pharmacy students on Wednesday, 04/05/2022, organized by SGSS Loknete Dr. J. D. Pawar College of Pharmacy, Manur, Tal. Kalwan, Dist. Nashik Maharashtra.

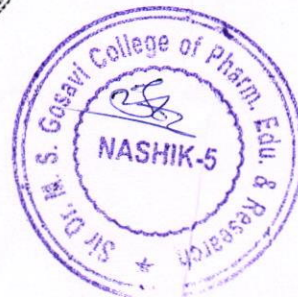
We look forward for the same co-operation in future.

With sincere thanks.

Yours Faithfully

Dr. Avish Maru
Principal

Loknete Dr. J. D. Pawar
College of Pharmacy, Manur
Tal. Kalwan, Dist. Nashik (M.S.)





Research article

Formulation and *In Vitro* Evaluation of Mucoadhesive Buccal Tablet of Lafutidine

Dattatraya M. Shinkar¹, Bharati D. Aher², Parag D. Kothawade², Santosh S. Surana³, Prashant L. Pingale¹

¹Department of Pharmaceutics, GES's Sir Dr. M. S. Gosavi College of Pharmaceutical Education and Research, Nashik - 422 005, Maharashtra, India

²Department of Pharmaceutics, Loknete Dr. J. D. Pawar College of Pharmacy, Manur, Tal. Kalwan, Dist. Nashik, Maharashtra, India

³Department of Pharmacognosy, Loknete Dr. J. D. Pawar College of Pharmacy, Manur, Tal. Kalwan, Dist. Nashik, Maharashtra, India

ABSTRACT

The mucoadhesive buccal tablet of lafutidine was formulated to overcome the problem of low bioavailability. All the tablet formulations compressed by direct compression technique using xanthan gum and guar gum. *In vitro* drug release profiles and release kinetics of all tablet formulations were analyzed; % swelling index and mucoadhesive strength were determined. Formulation F6 optimized formulation consist of 20 % xanthan gum and 10 % guar gum, which provided 98.66±0.96% drug release at 12 h and higher mucoadhesive strength. FTIR spectroscopy studies shown that there was interaction between the drug and excipients selected. Lafutidine was released more than 90% after 12 h of *in vitro* drug release studies, supported by swelling and matrix erosion investigation. The drug was released by anomalous (non-Fickian) mechanism have release exponent (n) value of 0.79, indicating combined erosion and swelling and fitted best to zero-order model. The study concluded that buccal tablet of lafutidine containing xanthan gum and guar gum showed a promising potential alternative as mucoadhesive drug delivery system for the treatment of peptic ulcer.

Keywords: Mucoadhesive buccal tablet, Lafutidine, Polymers, Bioavailability

Received: 23-09-2021, Accepted: 17-12-2021

Correspondence: Dr. Dattatraya M. Shinkar* dattashinkar@gmail.com

Gokhale Education Society's Sir Dr. M. S. Gosavi College of Pharmaceutical Education and Research Nashik, Maharashtra, India.

INTRODUCTION

Mucoadhesive buccal drug delivery system (MBDDS) is the most progressive drug delivery releases the drug into buccal cavity. Mucosa in buccal cavity is extremely vascularized and has rich blood supply emptying into jugular vein; hence, the drugs absorbed in buccal cavity avoids the first pass metabolism of the drug in the liver and presystemic elimination in the gastrointestinal tract. All the buccal dosage forms can be applied easily in the buccal cavity and terminated in case of an emergency and unpredictable side effects. Recently, many researchers investigated buccal drug delivery systems as an alternate approach for the systemic and local delivery of buccal tablets, discs, gels, patches, films, sponges or wafers. Amongst all dosage forms, buccal tablets can be developed to retain their shape, integrity and posture during application time. Surfaces of bioadhesive drug delivery system caused by mucous and techniques involved in evaluation of mucoadhesive drug delivery. Mucoadhesion is a condition in which two constituents, held together for prolonged periods of time with the aid of interfacial forces.¹ It is a complex process pertaining to wetting, adsorption and interpenetration of polymer chains.² Many drugs are subjected to presystemic metabolism after their oral administration, because of a deficient significant correlation between membrane permeability, absorption and bioavailability.³⁻⁵

Lafutidine is a histamine H₂-receptor antagonist used in the treatment of gastric and duodenal ulcers related to acute gastritis and acute aggravation of chronic gastritis. It has oral bioavailability of only 20-30% due to high hepatic first pass metabolism and half life of 1.92±0.94 h. Therefore, the significance of this study was to develop buccal tablet formulation of lafutidine as an alternate drug delivery system for the treatment of peptic ulcers. The various natural mucoadhesive polymers were screened to study their effect on flow properties of powder blends and compressional characteristics of prepared buccal tablet formulations, including swelling index and *in vitro* mucoadhesive strength. The 3² factorial design was utilized for the purpose of formulation optimization with selected polymers. The % drug release, % swelling index, mucoadhesive strength and drug release mechanism were analyzed for F6 as a optimized formulation.

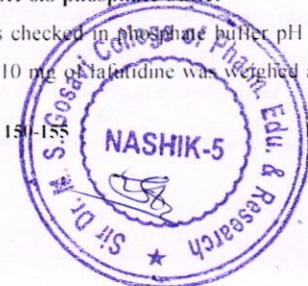
MATERIALS AND METHODS

Lafutidine procured from Swapnroop Drug agency, Aurangabad and excipients used in study of analytical grade.

Methods

UV spectrum of lafutidine in pH 6.8 phosphate buffer

The solubility of lafutidine was checked in phosphate buffer pH 6.8 using UV visible lab India. A 10 mg of lafutidine was weighed and



After 5 min remove the preload from the clamp and then add weight in right pan needed to separate the tablet from buccal mucosa noted as mucoadhesive strength. The average of triplicate is taken.¹⁶⁻¹⁸

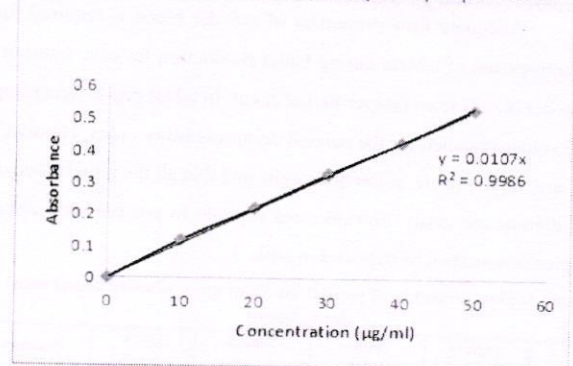
In vitro drug release study

Cumulative percent drug release studies for all buccal tablet formulations were performed using USP 2 Paddle dissolution test apparatus at 50 rpm. by taking 500 ml of pH 6.8 phosphate buffers as a dissolution medium. At specific time intervals of 0.15,30,1.2,3,4,5,6,7,8,9,10,11,12hr. 5 ml of samples were withdrawn and suitably diluted with pH 6.8 phosphate buffers and analyzed at 273 nm by UV method. The average of six reading were taken.¹⁹⁻²³

Results and Discussion

λ_{max} of lafutidine was determine in phosphate buffer pH 6.8. The standard curve of lafutidine is linear at 273 nm and linearity was observed as per Beers Lambert's law depicted in figure 1.

Figure 1: Standard curve of lafutidine in pH 6.8 phosphate buffer



The FTIR spectra of lafutidine and its physical mixture with xanthan gum and guar gum revealed no interaction, proves compatibility of drug with selected polymers for the study shown in figure 2 and 3.

Figure 2: Drug + xanthan gum

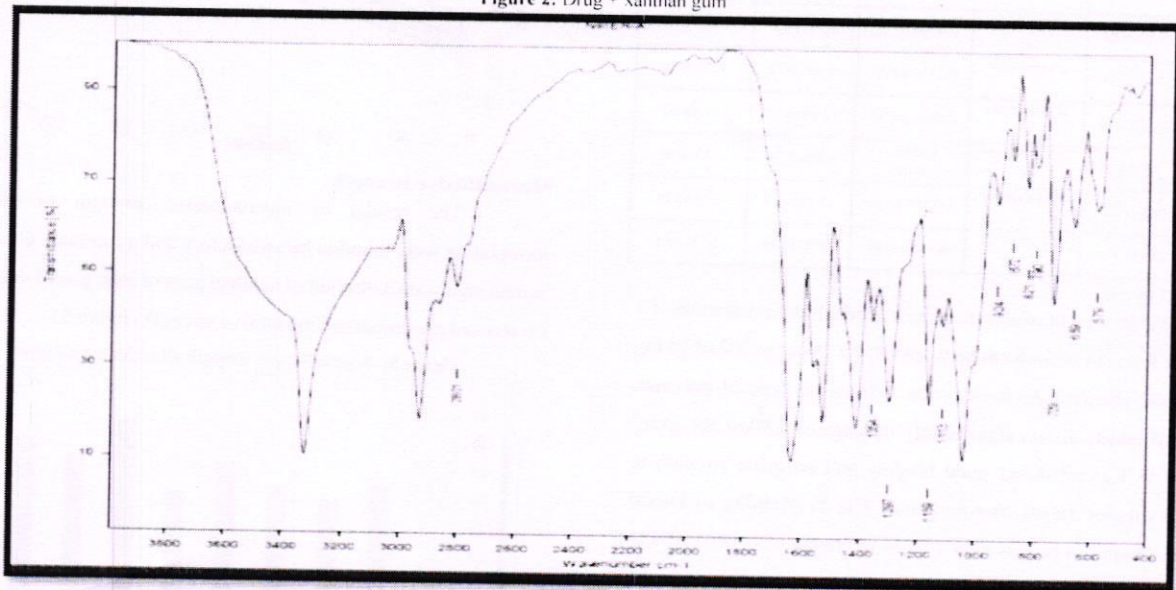
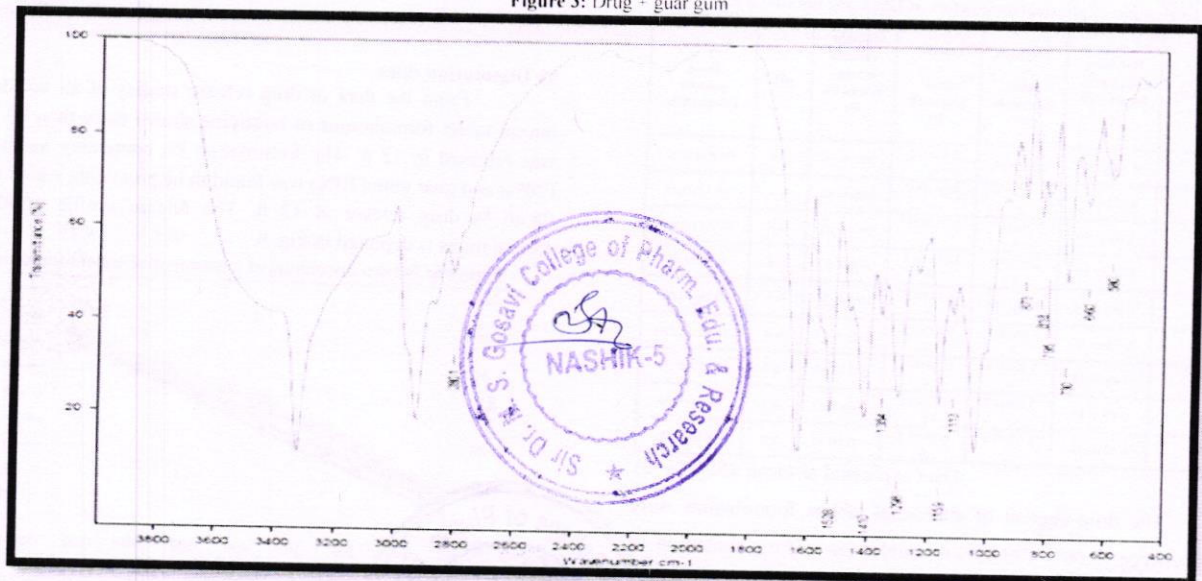


Figure 3: Drug + guar gum



Stability study

The stability study was conducted for formulation F6 at 40±2°C/75±5% RH for three months shown no significant changes has been observed for the parameters tested color, odor, surface pH, drug content and % cumulative drug release shown in table 5.

Table 5: Stability study of optimized formulation F6

Parameter	Before stability	Testing frequency		
		1 month	2 month	3 month
Color	No change	No change	No change	No change
Odor	No change	No change	No change	No change
pH	6.4	6.3	6.3	6.3
% Cumulative Drug release	98.66±0.55	97.25±0.52	97.10±0.40	98.10±0.40
% Drug content	99.06±0.62	98.85±0.42	98.59±0.20	98.19±0.11

*Mean ±SD SD: Standard deviation (n=3)

Formulation Optimization:

The purpose of 3 level 2 factorial design was to perform the extensive study on effect of selected polymers like xanthan gum (X1) and guar gum (X2) and their interaction using a Design expert software version 8.0.7. The polynomial equation was obtained depending on significant influence among two factors on dependent factors like mucoadhesive strength, swelling index and *in vitro* drug release at 12 h. It is important tool used for the development and design of the dosage form. The three dimensional response surface plot and two dimensional plot gives useful information about the effect of the independent variables and visual representation of values of responses respectively. The results of design study depicted the increase in the drug release, swelling index and mucoadhesive strength as increasing the concentration of xanthan gum and guar gum. The two dimensional contour plot relating X₁X₂ independent variables xanthan gum and guar gum was non linear indicating interaction between two variables. Formulation F6 is selected as a optimized formulation based on results of the design study.

Figure 7: 3D surface plot of xanthan gum and guar gum % CDR

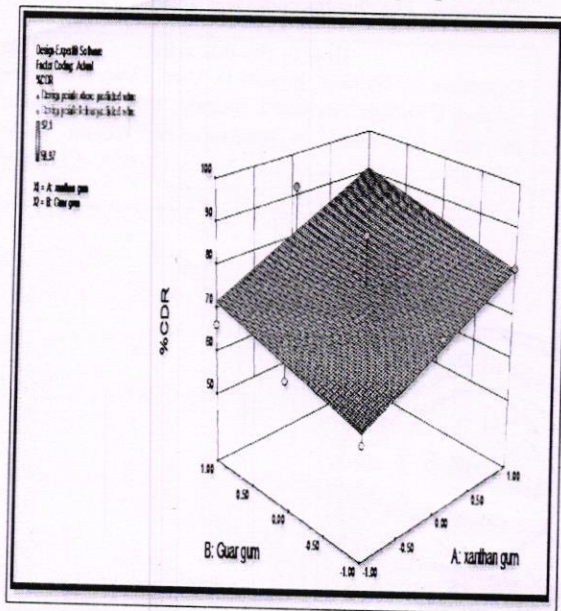


Figure 8: 3D surface plot of mucoadhesive strength

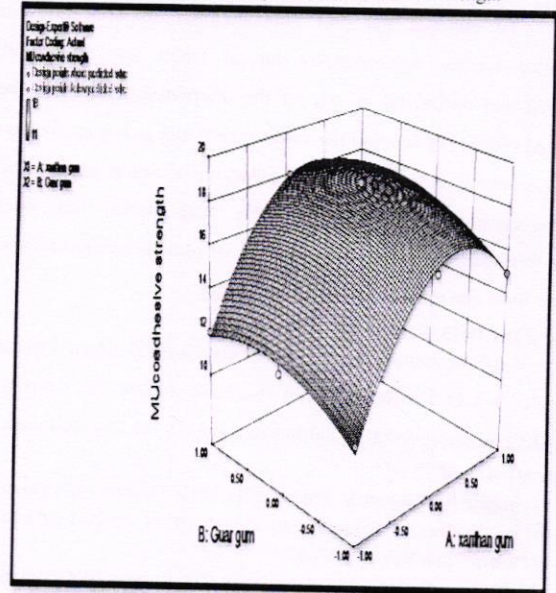
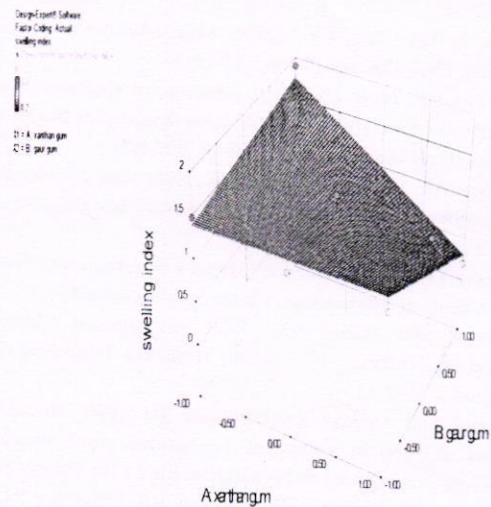
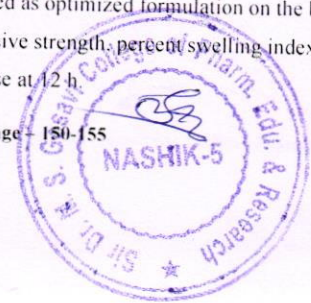


Figure 9: 3D surface plot of swelling index



DISCUSSION

All prepared formulations of lafutidine buccal tablet were subjected to assessment of various physical characteristics and the findings obtained were within the limits which are depicted in table 4. The hardness of all the tablet formulations shown good strength of tablets to resist the stress occurs during handling and transport. The weight and thickness of the tablets was found to be uniform. The uniformity of drug content was observed for all buccal tablet formulations of lafutidine. The mucoadhesive strength was found to enhance with increasing in concentration of either xanthan gum or guar gum. The % swelling index was found in the range of 1.86±0.219 to 2.5±0.23%. The F6 formulation containing xanthan gum (20%) and guar gum (10%) was selected as optimized formulation on the basis of result of *ex-vivo* mucoadhesive strength, percent swelling index and *in vitro* cumulative drug release at 12 h.





SHREE GURUDATTA SHIKSHAN SANSTHA'S

Loknete Dr. J.D. PAWAR COLLEGE OF PHARMACY

A/P. Manur, Tal. Kalwan, Dist. Nashik. Pin : 423501 (M.S.)

(M.Pharm)

Approved by AICTE, New Delhi and Maharashtra State Govt. Affiliated to Savitribai Phule Pune University, Pune

E-Mail ID : copharmkalwan@gmail.com
Website : www.piper2008.com

Ph. No. : (02592) 222880, 222990
Fax : (02592) 222880 / 222288

Outward No: LNJD/P/184/2022-23

08/02/2023

To,
Principal
GES's Sir Dr. M. S. Gosavi College of Pharmaceutical
Education and Research, College Road.
Nashik. 422005

Subject: Permission to analyse samples on FTIR.


Respected Sir,

I am pleased to inform you that our college is doing well in conducting B. pharm and M. pharm courses. We are sending few samples to analyse on FTIR instrument for educational study purpose in M. pharm research projects of following students.

1. Rohit Sanjay Bhamare
2. Sandesh Yashwant Pawar
3. Pushkar Subhash Chavan


Please do the needful.

Thanking you.

To
Shelke madam.
Dr. sec. do needful
as per rule

09.02.23



Yours sincerely


Dr. Avish D. Maru
Principal
Loknete Dr. J. D. Pawar
College Of Pharmacy Manur
Tal. Kalwan, Dist. Nashik



SHREE GURUDATTA SHIKSHAN SANSTHA'S

Loknete Dr. J.D. PAWAR COLLEGE OF PHARMACY

A/P. Manur, Tal. Kalwan, Dist. Nashik. Pin : 423501 (M.S.)

(M.Pharm)

Approved by AICTE, New Delhi and Maharashtra State Govt. Affiliated to Savitribai Phule Pune University, Pune

E-Mail ID : copharmkalwan@gmail.com
Website : www.piper2008.com

Ph. No. : (02592) 222880, 222990
Fax : (02592) 222880 / 222288

Outward No: LNJD P / 227 / 2022-23

Date: 31 / 03 / 2023

To,
Principal,
GES's Sir Dr. M. S. Gosavi College of Pharmaceutical Education and Research,
College Road,
Nashik, 422005

Subject: Permission to analyze samples on FTIR.

Respected Sir,

I am pleased to inform you that our college is doing well in conducting B. Pharm and M. Pharm courses. We are sending few samples to analyze on FTIR instrument for educational study purpose in M. Pharm research project of following students.


1. Shweta Shivaji Charoskar

Please do the needful.

Thanking You.



Yours Sincerely,


Principal
Loknete Dr. J. D. Pawar
College of Pharmacy, Manur
Tal. Kalwan, Dist. Nashik (M.S.)



Gokhale Education Society's

**Sir Dr. M.S. Gosavi College of
Pharmaceutical Education & Research, Nashik.**

Prin. T. A. Kulkarni Vidynagar, Nashik - 422005. (M.S.), India



Affiliated to SPPU, Pune & MSBTE, Mumbai • Approved by PCI, New Delhi and DTE, Mumbai • Recognized by Govt. of Maharashtra

E-mail : prin@msgpharma.org
drmsgpharma@gmail.com
Website : www.msgpharma.org
Phone : 0253-2232799

An ISO 9001:2015 Certified Institute

Prin. Dr. Sunil V. Amrutkar
M. Pharm., Ph.D. (Pharmaceutical Chemistry)

***Collaboration
With
Bhujbal Knowledge City
MET Institute of Pharmacy,
Adgaon, Nashik.***

**MEMORANDUM OF UNDERSTANDING
BETWEEN**

**Gokhale Education Society's Sir Dr. M.S. Gosavi College of Pharmaceutical
Education and Research, Vidyanagar, Nashik, Tal.- Nashik Dist.- Nashik,
Pin.- 422005. (Maharashtra State)**

AND

**MET Institute of Pharmacy
Bhujbal Knowledge City, MET League of Colleges, Adgaon, Nashik, Maharashtra
422003**

This Memorandum of Understanding (MoU) executed on the 1st Day of the July year 2019 at Nashik.

BETWEEN

Gokhale Education Society's Sir Dr. M.S. Gosavi College of Pharmaceutical Education and Research Nashik established on 2012 and represented through its Principal which expression shall include its successors in the office and permitted assignees of the **FIRST PARTY**.

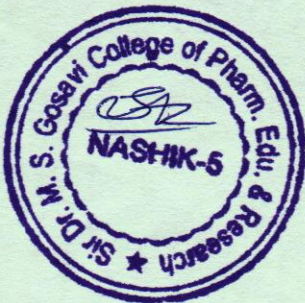
The First Party is represented by **Dr. Sunil V. Amrutkar, Principal, Gokhale Education Society's Sir Dr. M.S. Gosavi College of Pharmaceutical Education and Research Nashik.**

AND

MET Institute of Pharmacy, Nashik through its Principal which is an Institute engaged in academic and research activities in the field of pharmaceutical Sciences which expression shall include its successors in the office and permitted assignees of **SECOND PARTY**.

The Second Party is represented by **Dr. Sanjay J. Kshirsagar, Principal, MET Institute of Pharmacy Bhujbal Knowledge City, MET League of Colleges, Adgaon, Nashik, Maharashtra 422003.**

And the First Party and the Second Party shall be collectively referred to as "**Parties**" and individually as "**Party**".



WITNESSETH:

Whereas both the parties are having objectives to utilize the instrument/ equipment facilities available at their ends with the written permission of the Principal;

AND

Whereas each party will undertake to support each other's effort for the specific purpose mentioned in the MoU.

Whereas both First Party and Second Party, now

- Recognizing the importance of instrument and equipment facilities required for research and development in the areas Pharmaceutical sciences.
- Appreciating the need for collaborative research activities in all fields related to Pharmaceutical sciences.
- Recognizing the need of research publication in journal of repute for jointly undertaken research project.

Now, therefore, the parties have intended, agreed and consented to the following terms and deeds in the pursuance of the common intent.

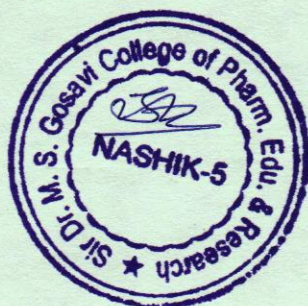
1. The First Party:

- Shall provide the list of sophisticated instruments and equipments available in working condition to the Second Party;
- Shall make the sophisticated instruments and equipments available to the students and faculty at minimum cost as and when requested in written by the Second party;
- Shall undertake a collaborative research project with the faculty of Second Party and its publication in the journal of repute.

2. The Second Party:

- Shall provide the list of sophisticated instruments and equipments available in working condition to the First Party;
- Shall make the sophisticated instruments and equipments available to the students and faculty at minimum cost as and when requested in written by the First party;
- Shall undertake a collaborative research project with the faculty of First Party and its publication in the journal of repute.

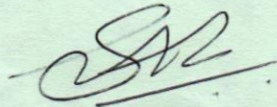
Both parties also agrees about sharing of faculty as per required by both of parties.



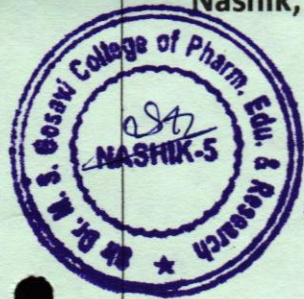
This MoU shall be effective from date of signing of this MoU until 31st May 2024 (Five Years from the date of execution). Moreover the said MOU will be terminated by any one of party by sending notice to another party.

In consideration of the mutual covenants contained herein above and the terms and conditions of this MoU and in witness whereof Parties have hereinto set their hand/seal:

For and on behalf of First Party

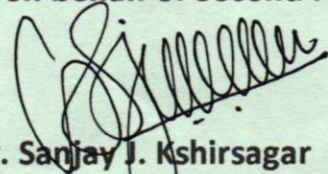


Dr. Sunil V. Amrutkar
Principal, Gokhale Education Society's Sir
Dr. M.S. Gosavi College of
Pharmaceutical Education and Research,
Vidyanagar, Nashik, Tal.- Nashik Dist.-
Nashik, Pin.- 422005. Maharashtra



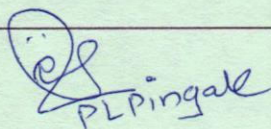
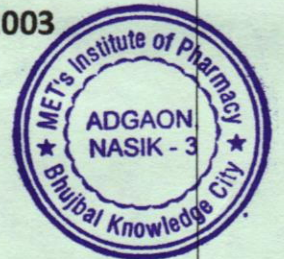
Principal
Gokhale Education Society's
Sir Dr. M. S. Gosavi College of
Pharmaceutical Education & Research,
Prt. T. A. Kulkarni Vidyanagar,
Nashik - 422 005.

For and on behalf of Second Party

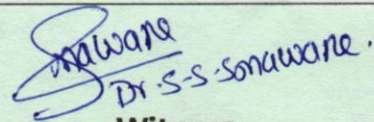


Dr. Sanjay J. Kshirsagar
Principal, MET Institute of Pharmacy
Bhujbal Knowledge City, MET League
of Colleges, Adgaon, Nashik,
Maharashtra- 422003

PRINCIPAL
MET's Institute of Pharmacy
Adgaon, Nashik-3.



Witness



Witness

BHUIBAL KNOWLEDGE CITY
MET Institute of Pharmacy, Adgaon Nashik- 422003
Ph.No.: 0253- 2303515, Telefax: 0253- 2303203
Web: www.met.edu



MET/IOP/M.Pharm/2022-23

Date: 18/11/2022

To,
THE PRINCIPAL,
Shri. Dr M S Gosavi College of
Pharmaceutical Education and Research,
Nashik Maharashtra.

Subject: - Regarding request to check viscosity of sample.

Respected Sir,

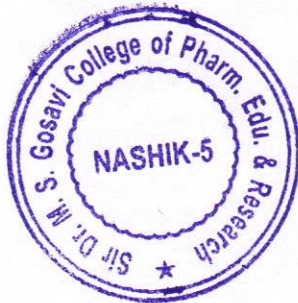
MET's Institute of Pharmacy, Bhujbal Knowledge City, Nashik is one of the recognized institutes providing quality education at undergraduate, postgraduate and doctorate level. As a part of our research activity we require your help in the form of **Viscosity** of sample.

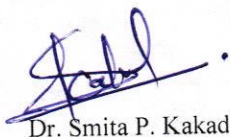
Sr. No.	Particulars
1	Nanoemulsion

To extend this activity your help is highly appreciated. So, it is our humble request to analyze our sample.

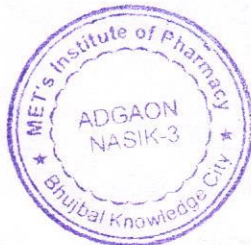
Thanking you,


Warm regards,

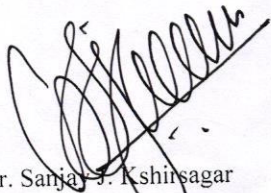



Dr. Smita P. Kakad

(Guide)




Mr. Chetan Ramrao Sonawane
M. Pharmacy Student
Department of Pharmaceutics


Dr. Sanja J. Kshirsagar
PRINCIPAL
(Principal)
MET's Institute of Pharmacy
Adgaon, Nashik

MET/IOP/M.PH/2021-22/35 *81a*

Date- 11/05/2022

To,

The Principal sir,

M. S. Gosavi college of pharmacy,

Nashik, 422005.

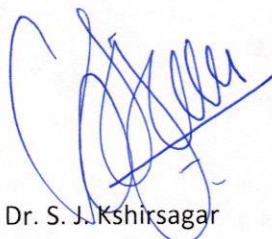
Subject: Permission regarding use of Modified balance apparatus for sample testing.

Respected sir,

MET's Institute of Pharmacy, Bhujbal Knowledge City, Nashik is one of the recognized institutes providing quality education at undergraduate, postgraduate and doctoral level. Since last 15 years we are working on development of conventional and novel drug delivery system for oral, topical, nasal and ocular administration using various approaches. As a part of our research activity one of our students require your help regarding use of modified balance for mucoadhesive testing on 11 may 2022.

To extend these activities your help is highly appreciated. So, it is our humble request to you please give permission for this work.

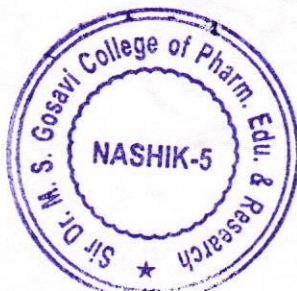
Thanking you....



Dr. S. J. Kshirsagar

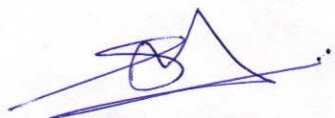
Principal,

MET IOP, BKC, Adgaon, Nashik



Your faithfully ,

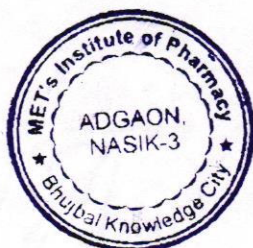
Rajat Pradumna Vishwakarma



Dr. D. S. Bhambere

Guide,

MET IOP, BKC, Adgaon, Nashik



PRINCIPAL
MET's Institute of Pharmacy
Adgaon, Nashik

*To. Dr. Shinkar,
Allow students to perform
their practical (help them
wherever required)*

11/5/22

Adgaon, Nashik - 422 003

Mobile : (91) 09881100099 | Tel. : (0253) 2303515 | Telefax : (0253) 2303203

E-mail : enquiries@bkc.met.edu | www.metbhujbalknowledgecity.ac.in

ISO 9001-2008 certified MET is an NGO in Special Consultative Status with United Nations (ECOSOC)

To,

The Principal sir,

M. S. Gosavi college of pharmacy,

Nashik, 422005.

Subject: Permission regarding use of Modified balance apparatus for sample testing.

Respected sir,

MET's Institute of Pharmacy, Bhujbal Knowledge City, Nashik is one of the recognized institutes providing quality education at undergraduate, postgraduate and doctoral level. Since last 15 years we are working on development of conventional and novel drug delivery system for oral, topical, nasal and ocular administration using various approaches. As a part of our research activity one of our students require your help regarding use of modified balance for mucoadhesive testing on 11 may 2022.

To extend these activities your help is highly appreciated. So, it is our humble request to you please give permission for this work.

Thanking you....



Your faithfully ,


Rushikesh Bhanudas Shinde



Dr. S. J. Kshirsagar

Principal,

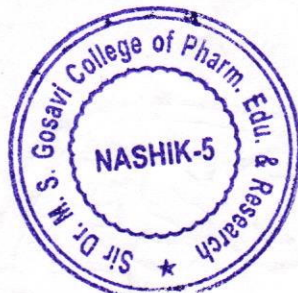
MET IOP, BKC, Adgaon, Nashik



Dr. S. P. Kakad

Guide,

MET IOP, BKC, Adgaon, Nashik



To. Dr. Shrikar,
Allow student to perform
practical & help if required
P.P. Jure
11/5/22

MET/IOP/M.PH/2021-22/69

Date- 04/04/2022

To,

The Principal sir,

M. S. Gosavi college of pharmacy,

Nashik, 422005.

Subject: Permission regarding use of Brookfield viscometer for sample testing.

Respected sir,

MET's Institute of Pharmacy, Bhujbal Knowledge City, Nashik is one of the recognized institutes providing quality education at undergraduate, postgraduate and doctoral level. Since last 15 years we are working on development of conventional and novel drug delivery system for oral, topical, nasal and ocular administration using various approaches. As a part of our research activity one of our students require your help regarding use of brookfield viscometer for sample testing on 05 April 2022.

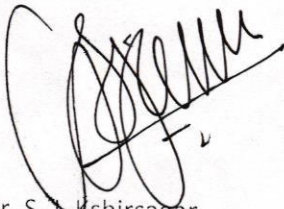
To extend these activities your help is highly appreciated. So, it is our humble request to you please give permission for this work.

Thanking you....



Your faithfully ,


Rushikesh Bhanudas Shinde



Dr. S. J. Kshirsagar

Principal,

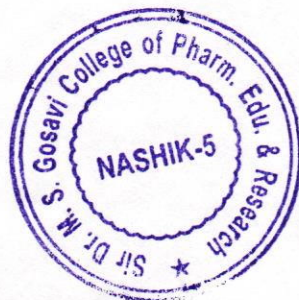
MET IOP, BKC, Adgaon, Nashik



Dr. S. P. Kakad

Guide,

MET IOP, BKC, Adgaon, Nashik



Adgaon, Nashik - 422 003

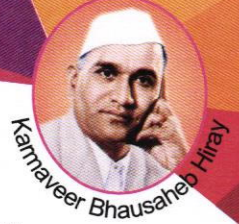
Mobile : (91) 09881100099 | Tel. : (0253) 2303515 | Telefax : (0253) 2303203

E-mail : enquiries@bkc.met.edu | www.metbhujbalknowledgedcity.ac.in

ISO 9001-2008 certified MET is an NGO in Special Consultative Status with United Nations (ECOSOC)



Founder



MAHATMA GANDHI VIDYAMANDIR'S

PHARMACY COLLEGE

Approved by : All India Council of Technical Education (AICTE) and Pharmacy Council of India, New Delhi;
Recognized by : Director of Technical Education, Mumbai and Govt. of Maharashtra,
Permanently Affiliated to : Savitribai Phule Pune University, Pune (CPHN017660)
NBA Accredited (B.Pharmacy), AISHE Code - C - 41939

MGV/PC/2022-23/721

Date: 20/12/2022

To,
Principal,
Sir Dr. M.S. Gosavi College of

Pharmaceutical Education and Research

Nashik, Maharashtra 422003

Subject: Regarding stability study of cream formulation

Dear Sir

Myself MS. Shital J. Patil, PhD Research scholar From the Department of Pharmaceutical chemistry at MGV's Pharmacy, College, Panchvati, Nashik, Under the Guidance of Dr. Sunil K. Mahajan. I have to perform the stability study of my prepared formulation, for that I am collaborating and sharing my samples your institute. This study is for PhD research purpose. We will acknowledge Sir Dr. M.S. Gosavi College of Pharmaceutical Education and Research Nashik for our work. Kindly do the respective study with academic concession.

Thank You



MS. Shital J. Patil
PhD Research Scholar,
Dept. of Pharmaceutical Chemistry, MGV's Pharmacy College,
Nashik-422003

Thanking you,

Yours Truly

To
Dr. Pingle/Sinkar
Pl. do, as per our
rules. *[Signature]*
20/17.01.23



[Signature]
Dr. R. S. Bhambar
PRINCIPAL
MGV's Pharmacy College
Panchavati, Nasik-422 003

Mumbai Agra Road, Panchavati, Nashik - 422 003. Tel.: (0253) 2515620, 2628399, 2511931.

E-mail : mgvpharmacycollege@gmail.com Website : www.mgv.org.in

BHUBAL KNOWLEDGE CITY
MET Institute of Pharmacy, Adgaon Nashik- 422003 Ph.No.:
0253- 2303515, Telefax: 0253- 2303203
Web: www.metbhujbalknowledgecity.ac.in email: principal_iop@bkc.met.edu

Date: 21/02/2023

To,
The Principal,
Sir Dr. M.S. Gosavi College of Pharmaceutical Education and Research,
Prin T. A. Kulkarni Vidyanagar,
Nashik-05

Subject: Regarding Request for Determination of Viscosity of Semisolid Sample.

Respected Sir,

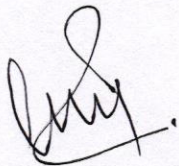
MET's Institute of Pharmacy, Bhujbal Knowledge City, Nashik is one of the recognized institutes providing quality education at undergraduate, postgraduate and doctorate level. One of our students Ms. Sakshi Kedare is working on Shatadhauta Ghrita based cream. As a part of our research activity we require your help in the form of **RT-IR analysis of three samples**. Following are the detail of the samples:

Sr.No.	Particulars
1.	Shatadhauta ghrita
2.	Synthetic base (O/W) type
3.	Drug loaded synthetic cream
4.	Drug loaded Shatadhauta ghrita

To extend this activity your help is highly appreciated. So, it is our humble request to analyze our sample, we are ready to pay the charges as per your policy.

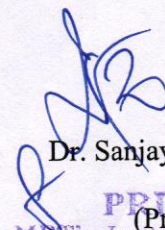
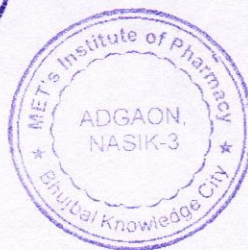
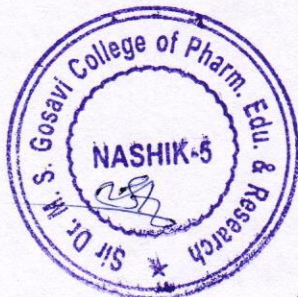
Thanking you,

Warm regards,



Dr. Moreshwar P. Patil

(Guide)



Dr. Sanjay J. Kshirsagar

PRINCIPAL
(Principal)
MET's Institute of Pharmacy
Adgaon, Nashik
MET BKC, Nashik

MET/IOP/M.Pharm/2022-23

Date: 03/02/2023

To,

THE PRINCIPAL,

Sir Dr. M. S. Gosavi College of
Pharmaceutical Education and Research,
Nashik

Subject: Regarding request to determine the viscosity of sample.

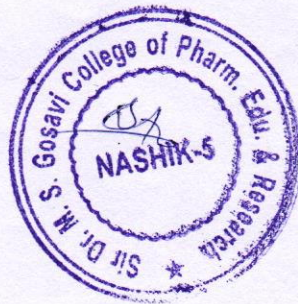
Respected Sir,


MET's Institute of Pharmacy, Bhujbal Knowledge City, Nashik is one of the recognized institutes providing quality education at undergraduate, postgraduate and doctorate level. As a part of our research activity we require your help in the form of **viscosity determination** of sample (Nanoemulsion).

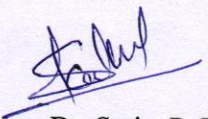
To extend this activity your help is highly appreciated. So, it is our humble request to analyze our sample.

Thanking you,

Warm regards,

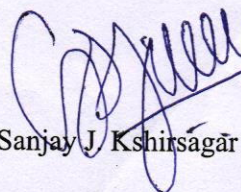



Mr. Chetan Ramrao Sonawane
M. Pharmacy Student
Department of Pharmaceutics


Dr. Smita P. Kakad

(Guide)



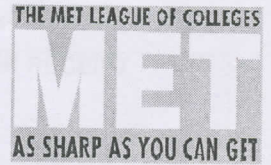

Dr. Sanjay J. Kshirsagar
(Principal)

PRINCIPAL
MET's Institute of Pharmacy
Adgaon, Nashik-3.

To Sub gr
Do as per
rule etc

BHUIBAL KNOWLEDGE CITY
MET Institute of Pharmacy, Adgaon Nashik- 422003
Ph.No.: 0253- 2303515, Telefax: 0253- 2303203

Web: www.metbhujbalknowledgecity.ac.in email: principal_iop@bkc.met.edu



Date: 04/05/2023

To,
The Principal,
Sir Dr.M.S.Gosavi College of Pharmaceutical
Education and Research,
Nashik - 422005.
Maharashtra.

Subject: Regarding request of IR analysis of two samples.

Respected Sir,

MET's Institute of Pharmacy, Bhujbal Knowledge City, Nashik - 03, is one of the recognized institutes providing quality education at undergraduate, postgraduate and doctorate level. As a part of our research activity we require your help in the form of **IR Analysis of Two** samples.

To extend this activity your help is highly appreciated. So, it is our humble request to analyze our sample.

Thanking you,

Warm regards,

Miss.Yadnya Mahendra Gite
M. Pharmacy Student
Department of Pharmaceutics



Dr. Sanjay J. Kshirsagar
(Principal)

PRINCIPAL
MET's Institute of Pharmacy
Adgaon, Nashik-3.

TO, ITC
Lab etc
kindly do the
needful
@
P.P. Ingane

Date: 23/01/2023

To,
The Principal,
Sir Dr. M.S. Gosavi College of Pharmaceutical Education and Research,
Prin T. A. Kulkarni Vidyanagar,
Nashik-05

Subject: Regarding request for FT-IR analysis of semisolid sample.

Respected Sir,

MET's Institute of Pharmacy, Bhujbal Knowledge City, Nashik is one of the recognized institutes providing quality education at undergraduate, postgraduate and doctorate level. One of our students Ms. Sakshi Kedare is working on Shatadhauta Ghrita based cream. As a part of our research activity we require your help in the form of **RT-IR analysis of three samples**. Following are the detail of the samples:

Sr.No.	Particulars
1.	Shatadhauta ghrita
2.	Cow ghee
3.	Synthetic base (O/W) type
5.	Drug loaded shatadhauta ghrita cream
6.	Drug loaded synthetic cream

To extend this activity your help is highly appreciated. So, it is our humble request to analyze our sample, we are ready to pay the charges as per your policy.

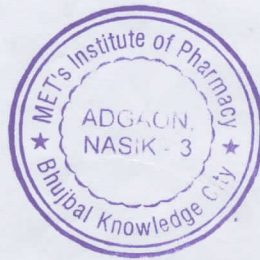
Thanking you,

Warm regards,

Dr. Moreshwar P. Patil

(Guide)

To
2023
pl. do as per
rule 802



Dr. Sanjay J. Kshirsagar

(Principal)
MET BKC, Nashik

PRINCIPAL
MET's Institute of Pharmacy
Adgaon, Nashik-3.

Date: 09/01/2023

To,
THE PRINCIPAL,
 SIR DR. M.S. GOSAVI COLLEGE OF PHARMACEUTICAL EDUCATION AND
 RESEARCH,
 NASHIK, MAHARASHTRA,
 INDIA.

Subject: Regarding request for analysis of samples.

Respected Sir,


MET's Institute of Pharmacy, Bhujbal Knowledge City, Nashik is one of the recognized institutes providing quality education at undergraduate, postgraduate, and doctorate levels. As part of our research activity, we require your help in the form of **FT-IR analysis** of samples.


Sr. No.	No. of Samples	Particulars	Parameters
01.	09	Powder Sample	FT-IR

To extend this activity, your help is highly appreciated. So, it is our humble request to analyze our sample.

Thanking You,

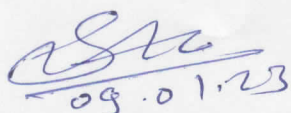
Warm Regards,
 Mr. Kadam Jayesh D.
 Ms. Patil Surabhi B.
 Students, M. Pharmacy
 (Pharmacology)


 Dr. Neelam L. Dashputre
 (Guide)


 Dr. Sanjay Kshirsagar
 Principal,
 MET BKC, Nashik

PRINCIPAL
 MET's Institute of Pharmacy
 Adgaon, Nashik-3.

To
 Shelke madam.
 pl. do as per our
 enl / charges
 applicable


 09.01.23

