



Anandi ShikshanPrasarak Mandal Sanchalit
ANANDI PHARMACY COLLEGE,
Kalambe Tarf Kale, Tal: Karveer, Dist: Kolhapur-416205 (M. S.) India
Approved by PCI New Delhi, Recognized by DTE, Mumbai, Govt. of Maharashtra,
Affiliated to Shivaji University, Kolhapur
Email: anandipharmacycollege02@gmail.com



Criteria 3

Research Innovations and Extension



Anandi Shikshan Prasarak Mandal Sanchalit
ANANDI PHARMACY COLLEGE,
Kalambe Tarf Kale, Tal: Karveer, Dist: Kolhapur-416205 (M. S.) India
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Criteria 3	Research, Innovations and Extension
Key Indicator 3.1	Resource Mobilization for Research
Metric No. 3.1.1	Grants received from Government and non-governmental agencies for research projects / endowments in the institution during the last five years (INR in Lakhs)

Data Verified by:

 IQAC Coordinator	
 Principal	



Anandi Shikshan Prasarak Mandal Sanchalit
ANANDI B. PHARMACY COLLEGE,
KalambeTarf Kale, Tal: Karveer, Dist: Kolhapur-416205 (M. S.) India
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Govt. of Maharashtra, Affiliated to Shivaji University, Kolhapur
Email: anandipharmacycollege02@gmail.com



Ref. No. : 18/2022-23

Date:

3.1.1 Grants received from Government and Non- Government Agencies for research projects/ endowments in the institution during the last five years (INR in Lakhs)

Name of the Project/ Endowment, Chairs	Name of the Principal Investigator / Co-investigator	Department of Principal Investigator	Amount Sanctioned	Name of the Funding Agency	Type (Government/Non-Government)
Development of anti diabetic herbal nano formulation from leaves of Chamaecostus cuspidatus	Ms A.A. Varne	Pharmaceutical Chemistry	10000/	Research Sensitization Scheme for College, SUK.	Government



H. Ueckler
Principal
Anandi Pharmacy College
Kalambe Tarf Kale,
Tal. Karveer, Dist. Kolhapur.



"Swavlambi Shikshan Hech Amache Brid"
Anandi Shikshan Prasarak Mandal, Kalambe Tarf Kale



ANANDI B PHARMACY COLLEGE (DEGREE)

AT :- KALAMBE TARF KALE, POST : KOPARDE, TAL : KARVEER, DIST. KOLHAPUR-416205

Affiliated to - A.I.C.T.E., New Delhi, Shivaji University, Kolhapur. (MAHARASHTRA)

Off. Ph. (0231) 2440031, Mob.: 9822101026/9421175722

Email: anandipharmacycollege@gmail.com

D.T.E. Code - 6904

Founder President :- Mr. Satish Pandurang Desai, M.A., M.P.Ed.

Founder Secretary :- Mrs. Dr. Vidhya Satish Desai, M.A., M.Ed., G.D.C.&A., M.Phil., Ph.D.

Ref. No. 28/2023-24

Date: 05/06/2023

To
Dr. H. N. More
Chairman, Lead College
Shivaji University, Kolhapur

Subject: Regarding submission of research project report under "Research Sensitization Scheme for College (UG) Students 2022-23"

Respected Sir,

Apropos, We Anandi Pharmacy College Kalambe tarf Kale, Kolhapur were directed to submit the details of the research project work with expenditure bill. Therefore, the detailed expenditure of the project (along with the signed bills) and project report is enclosed herewith.

Thanking you,

Yours faithfully,

Miss. A.A. Varne
(Research guide)

Dr. B. S. Adnaik
Principal
Anandi Pharmacy College
Kalambe Tarf Kale,
Tal - Karveer Dist - Kolhapur





"Swavlambi Shikshan Hech Amache Brid"
Anandi Shikshan Prasarak Mandal, Kalambe Tarf Kale, Sanchalit

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Ref. No. 29/2023-24

Date : 05/06/2023

Utilization Certificate

This is to certify that the grant of Rs. 10, 000/- (Ten thousand rupees) has been sanctioned to Miss. A.A. Varne by Shivaji University, Kolhapur under "Research Sensitization Scheme for College (UG) Students 2022-23". Out of this sanctioned amount the Rs 10,000/- (Ten thousand rupees) has been completely utilized for which it was sanctioned and in accordance with the terms and conditions laid down by the university. If any result check or audit objection some irregularly is noticed as later date action will be taken to refund adjust or regularize the corrected amount.

Miss. A.A. Varne
(Research guide)

Dr. R. S. Adnaik
(Principal)
Anandi Pharmacy College
Kalambe Tarf Kale,
Tal - Karveer Dist - Kolhapur





"Swavlambi Shikshan Hech Amache Brid"
Anandi Shikshan Prasarak Mandal, Kalambe Tarf Kale, Sanchna

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Ref. No. 30/2023-24


Date: 05/06/2023

Detailed expenditure incurred for the research project

Sr. No.	Particulars	Invoice No.	Amount (In rupees)
1.	PEG-200	248	525
2.	Tween-20	248	826
3.	Peppermint oil	248	3762
4.	Alpha Amylase	248	1078
5.	Di-Nitro Salicylic Acid	248	561
6.	Starch	248	279
7.	Sodium Potassium Tartrate	248	1031
8.	Sodium Hydroxide	248	272
9.	Acetone	248	1529
10.	Particle Size determination Test (DLS)	165003	178
11.	Particle Size and Zeta Potential	CR-544	300
TOTAL			10,341/-


Miss. A.A. Varne

(Research guide)


Dr. R. S. Adnaik
Principal
Anandi Pharmacy College
Kalambe Tarf Kale,
Tal. Karveer Dist. Kolhapur





"Swavlambi Shikshan Hech Amache Brid"
Anandi Shikshan Prasarak Mandal, Kalambe Tarf Kale,



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Ref. No. 27/2023-24

Date: 05/06/2023

Shivaji University, Kolhapur Sponsored
Minor research project sanctioned under SUK lead college research
Sensitization scheme (Research Promotion Activity 2022-23)

Income and expenditure statement

Description: UG Minor research project

Advance amount: Nil

Cheque no.: Nil

Sr. No.	Income	Amount		Sr. No.	Expenditure	Amount
1	Grant sanctioned by Shivaji university	10,000	00	01	Chemicals and Evaluation Test	10341
2	Actual Received	00	00			
3	Amount to be receivable		10,000			
4	Additional expenditure shared by college		341			
Total		10341		Total		10341

FOR M/S. SAGAR PATIL AND ASSOCIATES

(S. S. PATIL)

Chartered Accountant

M. No. 603533

FRN 155180W



Dr. R. S. Adnaik

Principal

Anandi Pharmacy College

Kalambe Tarf Kale,

Tal - Karveer Dist - Kolhapur



Authorised Dealers & Stockist in : Fine, Industrial and Pharmaceutical Chemicals,
Laboratory Glasswares & other Equipments For School, Colleges & Industries

671, E, VASANT RANT, APPT. 3 RD LANE,
SHAHUPURI, KOLHAPUR. 416001
PHONE NO. 0231-2661216
EMAIL ID - vinodunique@yahoo.com
GST No. 27AMNPP2410Q1Z1

UNIQUE

BIOLOGICAL & CHEMICALS

INVOICE BILL

Bill No. 248

PI Date

Customer Order No.

Transportation Mode

Vehicle Number

Date & Time of Supply

20/03/2023

Place of Supply

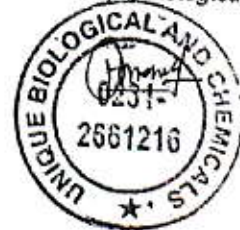
No. of Cases

DETAILS OF RECIPIENT (CONSIGNEE)

To,
Principal,
Anandi B. Pharmacy College,
Kalambe Tarf Kale

Sr. No.	Particular	Pack	Qty.	Rate	Amt.
1	PEG-200	1	500 ml.	525	525
2	Tween- 20	2	500 ml.	413	826
3	Peppermint oil	2	500 ml	1881	3762
4	Alpha Amylase	2	100 ml.	539	1078
5	Di- Nitro Salicylic Acid	2	25 gm.	281	561
6	Starch	1	500 ml	279	279
7	Sodium Potassium Tartrate	1	500 ml.	1031	1031
8	Sodium Hydroxide	2	500 ml	136	272
9	Acetone	2	2.5 ltr.	765	1529
				Total	9,8,63/-
In Words :- Nine thousand eight hundred sixty three Rs. Only					

For Unique Biologicals



Sant Dnyaneshwar Shikshan Santhas

Annasaheb Dange College of B Pharmacy(2022-2023)

Ashta, Tal. Walwa, Dist. Sangli PIN 416 301

CASH RECEIPT / CREDIT

Receipt No: **CR-544**

Date : **04/03/2023**

Received from **Mr. Shekhar Shahaji Nalawade**
Sum of Rs. **300 /-**

for Analysis for Partical Size & Zeta Potential

403083 Other Service Charges

300.00

300.00

Total Rs.

Amount (Rs.)

Rs. Three Hundred Only

Reference:



Checked by

Section Head Accounts Office

Page 1 of 1



SHIVAJI UNIVERSITY, KOLHAPUR
BANK RECEIPT (By Net Banking)

Receipt No. : 165003
Receipt Date : 27/02/2023
Received From : SHEKHAR SHAHAJI NALAWADE
Purpose : FEE FOR CONSULTANCY FEES (SCHOOL OF NANO SCIENCE)
Deposit In A/c : A/c - 60409827554 FAO Shivaji University Kolhapur
Payment Gateway
Transaction No. : YIC41756549657

Sr.No.	Particular	Budget	Amount
1	Consultancy Fees	A.65.R.4	150
2	SGST	E.4.R.104.1	14
3	CGST	E.4.R.104.2	14
	Total (Rs.)		178

Rupees ONE HUNDRED AND SEVENTY-EIGHT ONLY

(Computer Generated Receipt And Therefore Does Not Require Signature)

2023-27-02 01:19 PM

Finance Department

Shivaji University, Kolhapur



College name: Anandi Pharmacy College Kalambe tarf Kale, Kolhapur

Particulars	College Bank Details
Name Of Account Holder	Anandi B. Pharmacy College Kalambe Ta
Bank Account No.	38450200000264
IFSC CODE	BARBOKOPARD
Name Of Bank	Bank of Baroda
Branch Name	Koparde
Branch Code	3845
Account Type	Current





BHARATI VIDYAPEETH
COLLEGE OF PHARMACY, KOLHAPUR

: Founder :
Dr. Palangrao Kadam
M.A., LL.B., Ph.D.

Courses: D.Pharm, B. Pharm, M. Pharm, Ph.D, DTE College Code No. - 6256
(Approved by A.I.C.T.E., P.C.I., New Delhi)
Affiliated to MSBTE, Mumbai, Permanently Affiliated to Shivaji University, Kolhapur & Included in list under Sect.2(F) & 12(B) of UGC Act, 1956
B.Pharm. Course reaccredited by NBA, New Delhi

: Principal :
Dr. H.N. MORE
M.Pharm., Ph.D.

LEAD COLLEGE, SHIVAJI UNIVERSITY, KOLHAPUR, NIRF INDIA RANKING 2022-74*
Near Chitranagari, Kolhapur - 416013 (MS) Tel. (0231) 2637286, 2638392, Fax : 2638833

Ref. No. : BV/CPK / JSS /2023 - 2024

Date : 27/05/2023

To
The Principals and Project guides,
Pharmacy colleges under Lead College
Shivaji University,
Kolhapur.

Subject: Regarding research grant of Rs.10,000/- per project sanctioned under Research Sensitization Scheme of Shivaji University 2022-23 (Lead College Activity).

Sir/Madam

- With reference to subject cited above, all the participated colleges in research promotion activity under lead college research sensitization scheme of Shivaji University hereby informed that research projects submitted by your college have been sanctioned from Shivaji University, Kolhapur for the research grant of Rs.10,000/- to meet the expenditure of recurring nature towards the project work. The grant should be utilized for the sanctioned project work only. List of sanctioned projects is attached herewith.

Regards,

Dr. H. N. More
PRINCIPAL

Bharati Vidyapeeth
College of Pharmacy, Kolhapur



Web : <http://copkolhapur.bharativedyapeeth.edu>

E - mail : copkolhapur@bharativedyapeeth.edu

List of research proposals selected for Research Sensitization Scheme 2022-2023

Sr. No.	Name of College	Research Title	Names of Students	Name of Advisor	Sanctioned amount Rs.
1	BVCOP, Kolhapur	Estimation of caffeine from Different Marketed formulations of Tea and Coffee	Ms. Rathod Kejal J. Ms. Mane Priyanka S. Mr. Shewale Vinayak R. Mr. Jadhav Sambhaji S.	Mr. V. T. Pawar	10,000/-
2	AMCOP, Pethvadaon	Formulation and evaluation of Pale catechu and red Lentils extract for treatment of Melasma skin disease	Mr. Patil Shivtej A. Mr. Nagargoje Ganesh S Ms. Patil Pratiksha P. Ms. Jadhav Samruddhi S.	Mrs. P. N. Chougule	10,000/-
3	GCOP, Karad	Phytochemical and Pharmacological evaluation of Spirulina as Antidiabetic agent	Mr. Tapekar Saurabh B. Mr. Albal Omkar P. Ms. Vadgaonkar Gayatri S. Ms. Allapurkar Vaishnavi S.	Dr. R. D. Chakole	10,000/-
4	VPIOP, Kodoli	Development and evaluation of microsphere based novel drug delivery systems for smoking cessation therapy	Ms. Khude Sakshi Mr. Phulari Santosh	Dr. S. R. Desai	10,000/-
5	ABCOP, Sangli	Phytochemical Investigation and In-vitro Anti-tubercular & Anti- HIV activity of <i>Delonix regia</i> (Fabaceae)	Ms. Chavan Vaishnavi V. Ms. Devarshi Shrutika D. Mr. Hulage Prashant S. Mr. Godad Irshad A.	Mrs. B. U. Jain	10,000/-
6	AGCOP, Jaitapur	Design And in-silico studies of benzimidazole hybrids as promising DNA polymerase IIIIC inhibitors in treatment of gram positive bacterial infections	Mr. Sayyad Adil A. Ms. Shane Trupti S. Mr. Tambe Prashant M. Ms. Bagwan Aasiya S.	Dr. N. V. Bhillare	10,000/-
7	TKCP, Warnanagar	Development and Characterization of Pro-liposomes of Erlotinib for treatment of Non Small Cell Lung Cancer	Ms. Kale Minakshi B. Mr. Karande Mayur D. Mr. Lambore Babu B. Mr. Gaikwad Nayan	Mrs. S. S. Shinde	10,000/-
8	DSKOP, Digraj	Design & Assessment of in- situ Sol-Gel spray formulation for Treatment of oral Mucositis	Ms. Gadade Rutuja S. Ms. Ingle Nisha S. Ms. Jadhav Pratiksha S.	Miss. N. H. Gurav	10,000/-



9	SSCOP, Ghogaon	Design & optimization of nanosponges of poorly soluble voriconazole using central composite design	Ms. Chalke Pratiksha M Ms. Lonhe Shreya P. Ms. Sawant Rutuja R. Ms. Patil Monika A.	Dr. J. S. Mullia	10,000/-
10	ACOP, Kale	Development of Anti-diabetic Herbal Nano- formulation from leaves of <i>Chamaecostus cuspidatus</i>	Mr. Nalawade Shekhar S. Mr. Mohite Prathamesh P. Mr. Patil Adesh A. Mr. Kumbhar Rohit K.	Miss A. A. Varne	10,000/-
11	SCOP, Kolhapur	Extraction, Isolation of Phytoconstituents of <i>Apium graveolens</i> and its in-vitro assessment of Antitubercular Activity	Ms. Bhandare Sakshi Mr. Dhavale Rahul Mr. Ingawale Rohan Mr. Chavan Sandesh	Ms. P. B. Vibute- Patil	10,000/-
12	SGMCP, Mahagaon	In Vitro screening & evaluation of antivenom phytochemicals from <i>Buchnania Lanza Spreng</i> bark against <i>Vipera russelli</i>	Ms. Barad Vaishnavi D. Ms. Chille Shalaja C. Ms. Ravan Prajakta R. Ms. Bhikale Ankita A.	Mr. M. R. Holam	10,000/-

Note: Titles in Bold are corrected titles as per suggestions of evaluators.



Dr. H. N. More
PRINCIPAL
Bharati Vidyapeeth
College of Pharmacy, Kolhapur

Shivaji University

RESEARCH SENSITIZATION SCHEME FOR STUDENTS

Application for Financial Support to Research

Name of College /Institute	Anandi Pharmacy College Kalambe, Tarf Kale, Kolhapur.
Name of Students:	1. Shekhar Shahaji Nalawade. 2. Prathamesh Pandurang Mohite. 3. Adesh Ashok Patil. 4. Rohit Krushnat Kumbhar.
Title of Project	Development of Anti-diabetic Herbal Nano-Formulation from leaves of <i>Chamaecostus cuspidatus</i>
Area of research project/Subject	Design and development of Herbal Nano-Formulation for the treatment of Type 2 Diabetes Mellitus
Details of Research Project	
Problem and its importance	To be attached on separate page
Objectives	
Methodology	
Project Output	
i) Financial requirements (Up to Rs 10000/-)	Rs 10000/-
ii) Any other information; if any	To be attached on separate page



❖ Introduction & Need Of Nano-Formulation:

Solubility is a critical factor for drug effectiveness, independent of administration routes. Unfortunately, it is estimated that 40% of all newly entities are poorly soluble or "insoluble" in water. Also, solubility is an important factor that governs the absorption of orally administered drugs, but problems related to poor hydrophilicity.

In order to enhance the dissolution as well as bioavailability of poorly water-soluble drugs by using nanoparticle technology have been developed. It can increase the solubility and dissolution of poorly water-soluble drugs,

This Nano-Formulation resulting which

1. Improve Patients Compliance.
2. Reduce Frequent Dose.
3. Improves Bioavailability.
4. Targeted Specific Drug Release.
5. Minimize side effects and toxicity.

❖ Symptoms of Diabetes Mellitus:

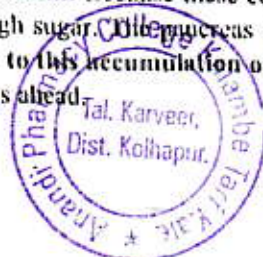
In type 2 Diabetes Mellitus there are primarily two interrelated problems at work. In which patients suffers, Pancreas doesn't produce enough insulin hormone that is shows followings symptoms

- Increased thirst
- Frequent urination
- High cholesterol level
- High blood pressure
- Increased hunger
- Weight loss
- Fatigue
- Blurred vision
- Slow healing sores
- Frequent infections (Gangrin)

❖ Problems and its importance:

• Problems:

Type 2 diabetes is primarily the result of two interrelated problems: Cells in muscle, fat and the liver become resistant to insulin. Because these cells don't interact in a normal way with insulin, they don't take in enough sugar. The pancreas is unable to produce enough insulin to manage blood sugar levels. due to this accumulation of sugar in blood causes hyperglycemia which produces serious damages ahead.



• Importance:

1. Importance of making Herbal Nano-Formulation to "Helps diabetic patients to keep their condition under control and lower the risk of diabetes complications.
2. Nano-Formulation has rapid onset of action and improve solubility of drugs which Increases Bioavailability than other conventional dosage forms.
3. This Nano-Formulation which masks the bitter taste of drug
4. And this Nano-Formulation is intended to provide a valid safe and effective dose for diabetic patients with no side effects and no contraindication.

❖ General treatment/management of type 2 Diabetes mellitus:

Routinely the treatment of type 2 diabetes mellitus by making use of allopathic medicines with side effects such as,

Class of allopathic drugs	Side effects
<p><u>1) Insulins:</u></p>	<p>Blood sugar that drops too low, or hypoglycemia Rashes, bumps, or swelling at an injection site Hypersensitivity to drug/class/component</p>
<p><u>2) Biguanide</u> Ex. Metformin</p>	<p>Lactic acidosis, Weight loss, diarrhea, abdominal cramps, Reduced vitamin B12 absorption Chronic kidney disease, Liver failure</p>
<p><u>3) Sulfonylureas</u> Ex. Gliclazide, Gliclazide, Glyburide, Chlorpropanide, Tolazamide,</p>	<p>Risk of hypoglycemia, Weight gain, Hematological changes: agranulocytosis, hemolysis Severe cardiovascular comorbidity, Obesity</p>
<p><u>4) SGLT-2 inhibitors</u> Ex. Dapagliflozin Canagliflozin Empagliflozin Ertugliflozin</p>	<p>Genital yeast infections and urinary tract infections, Polyuria and dehydration Diabetic ketoacidosis</p>

The use of Allopathic medicines that above mentioned are leads major side effects which are some life threatening and causes serious damage to organs,

But Herbal Nano-Formulation will works only on Specific Targeted site which minimizes this problems

• Who might get diabetes mellitus:

- 1) **Family history:** The risk of type 2 diabetes increases if your parent has type 2 diabetes.
- 2) **Weight:** Being overweight or obese is a main risk.
- 3) **Fat distribution:** Storing Fat mainly in your abdomen indicates a greater risk.
- 4) **Inactivity:** The less active you are, the greater your risk. Physical activity helps control your weight, uses up glucose as energy and makes your cells more sensitive to insulin.
- 5) **Blood lipid levels:** An increased risk is associated with low levels of high-density lipoprotein (HDL) cholesterol the "good" cholesterol and high level of low density lipoprotein (LDL)
- 6) **Age:** The risk of type 2 diabetes increases as you get older, especially after age 45.
- 7) **Pregnancy-related risks:** Your risk of developing type 2 diabetes increases if you developed gestational diabetes when you were pregnant or if you gave birth to a baby weighing more than 9 pounds (4 kilograms).
- 8) **Polycystic ovary syndrome:** Having polycystic ovary syndrome a common condition characterized by irregular menstrual periods, excess hair growth and obesity increases the risk of diabetes

This factors produces **dysfunctioning of beta langer hans cells** that are responsible for produce and secrete insulin which are needed for human body to maintain circulating glucose concentration.

❖ Objectives:

- To cure type 2 diabetes mellitus by using chamaecostus cuspidatus plant.
- To Improve Physical, chemical stability & Bioavailability.
- Other traditional dosage forms has many side effects and adverse effects, so our objective is to use this Nano-Formulation to overcome this problems related to the dosage forms.
- Intended to provide a valid safe and effective dose for diabetic patients with no side effects and no contraindication.
- To Improve Patients Compliance and reduce Frequency of dose.
- To make specific site drug release dosage form which reduces drug accumulation and toxicity
- Main objective of this project is to make the "Diabetes-Free world"

❖ Methodology:

Literature survey

Chamaecostus cuspidatus (insulin plant) consumption of the leaves "helps to lower the blood glucose levels," our aim to make palatable formulation to overcome these problems related to consumption.



Design and Development of medicated Herbal 'Antidiabetic Nano-Formulation



Cultivation of Chamaecostus Cuspidatus (insulin plant)



Extraction of Phytochemicals from Chamaecostus cuspidatus plant leaves



Formulation of medicated herbal Nano-Formulation



Evaluation tests of herbal Nano-formulation



Determination Of Anti-Diabetic Activity of Nano-Formulation




❖ Financial Requirement:

NEED FOR WHAT	AMOUNT
1. Chemical Requirement: Polymers, Excipients, Suspending agents, Solvents for extraction	3000 /-
2. Evaluation Test: a. X-ray Diffraction Study b. Partical size and zeta potential values study c. Drug Content and Entrapment efficiency. d. Surface Morphology by using optical light microscopy	7000 /-

❖ Projected Out-Put:

A successful Development of anti-diabetic Nano-Formulation will make the healthier world and diabetes free world with no side effects with improved patients compliances.

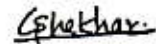
This Nano-Formulation will be fulfill the need of this world for treatment of diabetes mellitus.


Name & Signature of Project Adviser:

Miss Aarti Anant Varne.

Name and signature of students:

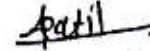
1. Shekhar Shahaji Nalawade.



2. Prathamesh Pandurang Mohite.




3. Adesh Ashok Patil.



4. Rohit Krushnat Kumbhar.




Forwarded through Principal/ Director
Principal
Anandi Pharmacy Colloge
Kalambe Tarf Kala,
Tal - Karveer, Dist - Kolhapur



IN VITRO ALPHA AMYLASE INHIBITARY ACTIVITY OF FRESH JUICE AND EXTRACT OF CHAMAECOSTUS CUSPIDATUS LEAVES

Mr. Shekhar Nalawade, Mr. Prathamesh Mohite, Mr. Adesh Patil, Mr. Rohit Kumbhar,

Miss.Aarti Varne.

Anandi Pharmacy College kalambe tarf kale, Kolhapur

❖ ABSTRACT:

Diabetes mellitus is a chronic metabolic disorder characterized by **hyperglycemia** with disturbances of carbohydrate, lipid and protein metabolism resulting from defect in insulin secretion, insulin action or both. *Chamaecostus cuspidatus* commonly known as *costus igneus*, belongs to the Costaceae family. Leaves are commonly consumed. For its Anti-Diabetic Properties. Our therapeutic approaches to cure diabetes, lowering hyperglycemia is one such approach. One of the effective methods to control diabetes is to inhibit the activity of alpha amylase enzyme which is responsible for the breakdown of starch to more simple sugars (maltose and glucose). This is contributed by alpha amylase inhibitors, which delays the glucose absorption rate thereby maintaining the serum blood glucose in hyperglycemic individuals. The main aim of this project was to perform Comparative study of fresh leaves juice and extract of *Chamaecostus Cuspidatus* leaves for its anti-diabetic activity using in vitro alpha-amylase inhibitory activity. The results indicated promising alpha-amylase inhibitory activity for both. And this therapeutic potentiality found may be due to quercetin that could be utilized in the management of hyperglycemia in treatment of Type 2 diabetes mellitus.

❖ KEYWORDS:

Diabetes, Anti-diabetic plant, Hyperglycemia, Alpha-amylase inhibitor, Anti-diabetic agents, Comparative study, Efficacy study





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Mr. / Ms. Rohit Kumbhar, Shetkar Malawade

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This is to certify that, Mr./Ms.

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selected for poster presentation entitled "In vitro alpha-amylase inhibitory activity of fresh juice and extract of *Chamaecostus cuspidatus* leaves" in "Research Innovation e-Poster Competition" and stood Winner held at MCE's Allana College of Pharmacy, on 20/02/2023.

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