Dr. Rajendra N. Thite
MA (Sociology, Indology), MBA, Ph.D.
President

Dhananjay N.Thite
B.E.(Computer)
Secretary

Dwarkadas Baheti
M.Pharm, Ph.D.
Principal

Late Bapusaheb Thite
Ex. State Home Minister (Mah.)
Ex.Member of Parlament (Baramati)
Founder President

Metric No: 1.3.2

Percentage of students undertaking project work/field work/ internships (Data for the latest completed academic year)

CONTENT

Shri Chhatrapat Sambhaji Shikshan Sanstha's

SITABAI THITE COLLEGE OF PHARMACY, SHIRUR

Tal-Shirur (Ghodnadi), Dist-Pune, Maharashtra, India-412210

DETAILS OF PROJECT WORK

Academic Year: 2022-23

Total number of Final year students (Sem-VII &VIII): 71 Duration: 6 Months

Sr. No.	Name of Students	Title of Project	Project Guide
1	Shirke Jagruti Dilip	Exploitation of natural resources for commercial application- spray dried sugarcane juice powder"	Dr. M. S. Tare
2	Varale Prasad Bhanudas		
3	Shirke Jagruti Dilip	Antiurolithiatic Activity: Potential Application of Spray Dried Neera	
4	Varale Prasad Bhanudas		
5	Kaldate Shruti Dhanraj	Computer Aided Drug Design	Dr. A. S. Lunkad
6	Langhe Sairaj Balu	Molecular Docking	
7	Gaikwad Anagha Vishwas		
8	Pawar Yash Dnyandeo	Molecular Modeling	
9	Shriram Sonali Babasaheb		
10	Moghe Shital Rajkumar	Drug Design	
11	Kaldate Shruti Dhanraj	Synthesis of chalcone derivatives and evaluation of their antibacterial activity	
12	Langhe Sairaj Balu		
13	Gaikwad Anagha Vishwas		
14	Pawar Yash Dnyandeo		
15	Shriram Sonali Babasaheb		
16	Moghe Shital Rajkumar		
17	Apeksha Bhogawade	"Interpretation of Spectra"	Dr. U. S. Thube
18	Abhishek Jamdade	"A Review on Synthesis of Benzothiazole."	
19	Bhagyashri Kothawale	"Novel Approaches in Drug Design."	
20	Suyash Mahajan	"Presentation on Industrial Training at Hindustan Antibiotic Ltd. Pimpri, Pune."	
21	Snehal Ranpise	"Drug Discovery"	
22	Megha Sonawane	"Practical Approach toward the Medicinal Agents."	
23	Pratiksha Waghmode	"A Review on Recent Advances in Anti-tubercular Drug Development	

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Tal-Shirur (Ghodnadi), Dist-Pune, Maharashtra, India-412210

Sr. No.	Name of Students	Title of Project	Project Guide
24	Apeksha Bhogawade	Synthesis, Characterisation and Biological Screening of Some Schiff Bases."	Dr. U. S. Thube
25	Abhishek Jamdade		
26	Bhagyashri Kothawale		
27	Suyash Mahajan		
28	Snehal Ranpise		
29	Megha Sonawane		
30	Pratiksha Waghmode		
31	Sumit D. Gaikwad	Pharmacognostic Study of Thunbergia laurifolia leaf	Prof. B.B Talole
32	Sujit S. Thopate		
33	Ajay G. Mhaske	Pharmacognostic Study of Thunbergia laurifolia Stem	
34	Abhishek S. Kalawade		
35	Sonali B. Kolpe	Pharmacognostic Study of Terminalia Arjuna leaf	
36	Vaishnavi S. Magar		
37	Gauravi B. Durge	Pharmacognostic Study of Terminalia Arjuna Fruit	
38	Janhavi B. Dangade		
39	Sonali B. Kolpe	Biosynthesis of Sliver Nanoparticles using Ipomoea cairica leaf extract & its Anthelmintic activity	
40	Vaishnavi S. Magar		
41	Gauravi B. Durge		
42	Sumit D. Gaikwad	Formulation , Evaluation & Antibacterial Activity of Herbal gel for Mouth ulcer	
43	Sujit S. Thopate		
44	Janhavi B. Dangade		
45	Ajay G. Mhaske	Formulation , Evaluation & Anti-inflammatory activity of Herbal Lepa	
46	Abhishek S. Kalawade		
47	Ms Rani N. Dhawale	Method development and validation of potent antioxidant Querecetin in Capsule dosage form by UV-VIS Spectroscopy	Prof. S. R. Zade
48	Ms. Shital S. Doiphode		
49	Ms. Nisha B. Doiphode		
50	Ms. Nikita E. Tajane		
51	Ms Rutuja S. Waral		
52	Ms. Vibhawari B. Wable		
53	Mr, Pradip K. Ware		
54	Ms Rani N. Dhawale	Determination of Phenolic content and Antibacterial activity of Methanolic extract of aerial parts of Kegelia Africana	
55	Ms. Shital S. Doiphode		
56	Ms. Nisha B. Doiphode		
57	Ms. Nikita E. Tajane	Formulation and Evaluation of Herbal Hair Gel	
58	Ms Rutuja S. Waral		
59	Ms. Vibhawari B. Wable	Green synthesis of Silver nanoparticles of Methanolic extract of aerial parts of Kegelia Africana	
60	Mr, Pradip K. Ware		
61	Bondarde Vaishnavi Rajendra	Simultaneous estimation of Aceclofenac and Paracetamol in Tablet dosage form by UV visible spectroscopy	Prof. N. C. Shinde

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Sr. No.	Name of Students	Title of Project	Project Guide
62	Borhade Neha Nitin	3D printing used in Pharmaceutics	Prof. N. C. Shinde
63	Jagdale Suyash Rajendra	Pharmaceutical Quality assurance and Quality control system	
64	Pathare Abhishek Uttam	Method development and validation of UV spectroscopic method for the estimation of Saxagliptin and Dapagliflozin in Tablet dosage form	
65	Todkari Shrinath Babusha	Method development and validation of UV spectroscopic method for the determination of Lamivudine	
66	Bondarde Vaishnavi Rajendra	Synthesis, characterization and Evaluation of Antibacterial activity of 5-Nitro -1,4-Naphthoquinine	
67	Borhade Neha Nitin	Development of an analytical method to determine eugenol concentration in alcoholic extracts of Ocimum Sanctum Linn	
68	Jagdale Suyash Rajendra	Development of an analytical method to determine eugenol concentration in alcoholic extracts of Ocimum Sanctum Linn	
69	Pathare Abhishek Uttam	Formulation and Evaluation of Herbal Face Toner	
70	Todkari Shrinath Babusha	Evaluation of Ethyl acetate aloe vera leaf extract for Antimicribial activity	
71	Bharat Vishal Dilip	Project report on Industrial Training	Prof. P. V. Vishwe
72	Gaikwad Shubham Rajendra		
73	Mane Aarati Pandurang		
74	Roham Sumit Anil		
75	Raskar Dhanshri Anil		
76	Rathod Pooja Raosaheb		
77	Bharat Vishal Dilip	Hair care cosmetics: Formulation and evaluation of Shampoo bar	
78	Gaikwad Shubham Rajendra		
79	Mane Aarati Pandurang		
80	Roham Sumit Anil		
81	Raskar Dhanshri Anil		
82	Rathod Pooja Raosaheb	Shat-Pro Let food be your medicine	Prof. M.B. Parbhane
83	Jasud Suyog Jagannath		
84	Tarate Kalyani Dhondibhau		
85	Zanzad Aishwarya Sanjay		
86	Kharat Arpita Sahebrao		

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Sr. No.	Name of Students	Title of Project	Project Guide
87	Tarate Kalyani Dhondibhau	Formulation And Evaluation of Polyherbal Shampoo & Conditioner.	Prof. M.B. Parbhane
88	Zanzad Aishwarya Sanjay		
89	Navale Saurabh Ashok	Swasthayu- Protein powder to build immunity	
90	Navale Sneha Shantaram		
91	Pacharane Pratiksha Bajirao		
92	Jasud Suyog Jagannath	Biodegradable anticoagulant thin film of Bromelain & Ginko Biloba	
93	Kharat Arpita Sahebrao		
94	Bhalke Pratika Rajendra	Quality By Design (QbD): A concept for development of quality pharmaceuticals	Prof P. B. Wanjul
95	Shinde Pallavi Shahaji		
96	Korde Omkar Baban	New Drug Development Process	
97	Khire Aniket Pratap		
98	Jagtap Mangal Anil		
99	Bhagade Nirankar Shivaji	3D Printing- A new Dimension	
100	Borude Vaishnavi Deepak		
101	Bhalke Pratika Rajendra	Formulation and Evaluation of Herbal Tablet	
102	Shinde Pallavi Shahaji	Formulation and Evaluation of Herbal Tablet	
103	Korde Omkar Baban	Extraction and Evaluation of Antibacterial activity of Fruit of Withania Coagulance	
104	Khire Aniket Pratap	Extraction and Evaluation of Antibacterial activity of Fruit of Withania Coagulance	
105	Borude Vaishnavi Deepak	Formulation and Evaluation of Herbal Biotin Gummies	
106	Bhagade Nirankar Shivaji	Formulation and Evaluation of Herbal Biotin Gummies	
107	Jagtap Mangal Anil	Extraction of Malabar Spinach Fruit As A Natural Indicator.	
108	Shaikh Alisha shamshuddin	Formulation & evaluation of Herbal hair oil & Hair mask	Prof. V. S. Padwal
109	Shelke pragati sunil		
110	Tiwatane akansha rajendra		
111	Chavan Tejal shivram	Industrial Training Report	
112	Jadhav mayuri raju		
113	Kokate poonam lahu	Microneedle based drug delivery system	
114	Palve vaishali kailas		
115	Shaikh Alisha shamshuddin	Formulation of Herbal nasal spray for migraine	
116	Shelke pragati sunil		
117	Tiwatane akansha rajendra		
118	Chavan Tejal shivram	Formulation of Herbal shampoo	
119	Jadhav mayuri raju		
120	Kokate poonam lahu	Formulation & evaluation of polyherbal Facewash	
121	Palve vaishali kailas		

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Sr. No.	Name of Students	Title of Project	Project Guide
122	Shinde Snehal Maruti	Genetic level therapy for Neonates	Prof. B.B. Bidave
123	Talware Vishwakarma Shrihari		
124	Gaikwad Rutwik Mahesh	Novel Drug Carrier System	
125	Ithape Vaishali Vilas		
126	Pawase Shalini Shubhash	Virtual learning and software's used in pharmacology	
127	Shelar Bhagyashri Balasaheb		
128	Thite Apeksha Dhananjay		
129	Shinde Snehal Maruti	Formulation and Evaluation of Perfume from Marigold and Tuberose	
130	Talware Vishwakarma Shrihari	Formulation and Evaluation of cold cream enriched with Almond oil and Tocopherol	
131	Gaikwad Rutwik Mahesh	Formulation and Evaluation of Herbal Anisestar Anti-fungal cream	
132	Ithape Vaishali Vilas		
133	Pawase Shalini Shubhash	Formulation and Evaluation of Herbal oil of Tinospora cordifolia fr anti-arthritic activity	
134	Shelar Bhagyashri Balasaheb	Formulation and Evaluation of herbal Emulgel Psidium of Guajava leaves extract	
135	Thite Apeksha Dhananjay		

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ANTICOAGULANT EDIBLE FILM OF BROMELIN, GINKO BILOBA & LIQUORICE

Project work report submitted to,

Savitribai Phule Pune University,

In partial fulfilment of the requirement of

Bachelor of Pharmacy

By

Mr. Jasud Suyog Jagannath, Roll No. : - 425

Final Year B Pharmacy

Under the guidance of

Prof. Mrs. Parbhane M. B.

Asst. Professor (Department of Pharmaceutics)

STCOP, Shirur

Shri Chhatrapati Sambhaji Shikshan Sanstha's

SITABAI THITE COLLEGE OF PHARMACY, Shirur, Dist. – Pune. 412210

2022-2023

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SITABAI THITE COLLEGE OF PHARMACY, Shirur,

Dist. - Pune. 412210

CERTIFICATE

Endorsement by the Principal

This is to certify that the report entitled, **Anticoagulant Edible Film of Bromelain, Ginkgo Biloba & Liquorice** is bonafide work conducted by Mr. Suyog Jagannath Jasud of Final year B. Pharmacy, under the guidance of Prof Mrs. Parbhane M. B. (Department of Pharmaceutics) Sitabai Thite College of Pharmacy, Shirur.

Place: Shirur

Dr. D.G. Baheti

Principle, S.T.C.O.P., shirur.

Date: 19/06/2023

Principal
PRINCIPAL
Sitabai Thite College of Pharmacy
Shirur (Ghodnadi), Dist. Pune

Shri. Chhatrapati Sambhaji Shikshan Sanstha's

SITABAI THITE COLLEGE OF PHARMACY, Shirur,

Dist. - Pune. 412210

CERTIFICATE

Endorsement by the Guide

This is to certify that the report entitled, **Anticoagulant Edible Film Of Bromelain , Ginkgo Biloba & Liquorice** is a record of bonafide work conducted by Mr. Suyog Jagannath Jasud of Final year B. Pharmacy, under the supervision and guidance in partial fulfilment of requirement and regulation of course.

Place: Shirur

Date: 19/06/2023

Prof Mrs Parbhane M. B.

S.T.C.O.P., shirur

Principal
PRINCIPAL
Sitabai Thite College of Pharmacy
Shirur (Ghodnadi), Dist. Pune

Shri. Chhatrapati Sambhaji Shikshan Sanstha's

SITABAI THITE COLLEGE OF PHARMACY, Shirur,

Dist. - Pune. 412210

CERTIFICATE

Endorsement by the Examiner

This is to certify that the report entitled **Anticoagulant Edible Film of Bromelain, Ginkgo Biloba & Liquorice** is bonafide work conducted by Mr. Suyog Jagannath Jasud of Final year B. Pharmacy, under the guidance of Prof Mrs. Parbhane M. B. (Department of Pharmaceutics) Sitabai Thite College of Pharmacy, Shirur.

Place: Shirur

Date: 19/06/2023

Recommended By,
(Prof. Padwal Vijaya S)
Examiner

Principal
PRINCIPAL
Sitabai Thite College of Pharmacy
Shirur (Ghodnadi), Dist. Pune

Shri. Chhatrapati Sambhaji Shikshan Sanstha's SITABAI THITE COLLEGE OF PHARMACY, Shirur,

Dist. - Pune. 412210

CERTIFICATE

Declaration by the Candidate

I hereby declare that this report entitled **Anticoagulant Edible Film of Bromelain, Ginkgo Biloba & Liquorice** is a bonafide work carried out by Mr. Suyog Jagannath Jasud me under the guidance of Prof. **Mrs. Parbhane M. B. (Department of Pharmaceutics),** Sitabai. Thite College of Pharmacy, Shirur. Ghodnadi, Pune

Place : Shirur

Suyog Jagannath Jasud

Final year B. Pharm .

Date : 19/06/2023

Principal
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Sitabai Thite College of Pharmacy
Shirur (Ghodnadi), Dist. Pune

ACKNOWLEDGEMENT

I would like to acknowledge and give my warmest thanks to my supervisor Prof. Parbhane M.B. who made this work possible. Her guidance and advice carried me through all the stages of performing my project. I would also like to thank my committee members for letting my defense be an enjoyable moment, and for your brilliant comments and suggestions, thanks to you.

I would also like to give special thanks to Principle Dr. D. G. Baheti sir and my family as a whole for their continuous support and understanding when undertaking my research and writing my project. Your prayer for me was what sustained me this far.

Finally, I would like to thank God, for letting me through all the difficulties. I have experienced your guidance day by day. You are the one who let me finish my degree. I will keep on trusting you for my future.

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ABSTRACT

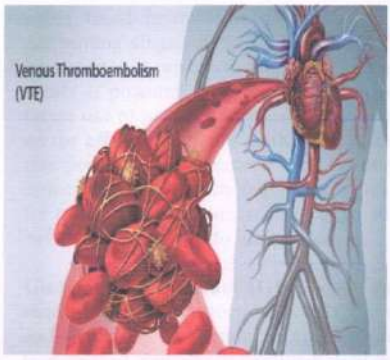
Nature is an attractive source of new therapeutic candidate compounds as a tremendous chemical diversity is found in millions of species of plants, animals, marine organisms, and microorganisms as potential medicinal agents. The abundance, availability and affordability of pineapple have triggered the researcher to explore its potential for clinical laboratory applications. This study was conducted to determine the viability of pineapple (Ananas comosus) extract as anticoagulant and substitute for synthetic anticoagulant. In the observation for red blood cell hemolysis, the different volumes of extracts produced results comparable to other anticoagulant. Plants have been one of the important sources of medicines since the beginning of human cultivation. There is a growing demand for plant-based medicines, health products, pharmaceuticals, food supplements, etc. Medicinal plants are of great importance to the health of individuals and communities. The medicinal value of these plants lies in some chemical substances that produce a definite physiological action on the human body. The most important of these bioactive constituents of plants are triterpenoid, saponin, flavonoids, tannins, alkaloids, and phenolic compounds. Herbs such as ginkgo biloba and liquorice are used due to the liquorice extracts showed an anticoagulant property from a few clinical studies and ginkgo might slow blood clotting. So, in this study we used the combination of bromelain, licorice and ginkgo biloba for the synergistic effect.

The potato is a starchy food, a tuber of the plant Solanum tuberosum has a composition of 60 - 80% starch. Starch is one of the basic ingredients for the manufacture of edible films physical properties, brittle a plasticizer. In this study, edible films were made from Solanum tuberosum starch using plasticizer gelatin. Edible film made with plasticizer gelatin 1.5 (F1), 2 (F2), 2.5 (F3) with 5 grams of starch in 100 mL of water. The concentration of plasticizer is 30-50% of the amount of starch with the preservatives used propylene paraben. The principle of making edible films is gelatinization with the solvent casting. The evaluation of edible film includes organoleptic, thickness test, pH test, water content examination, absorption test, percent elongation, attractiveness. From the evaluation that has been carried out, it was found that the three formulas met the characteristics of edible film.

A transdermal patch is a medicated adhesive patch that is placed on the skin to deliver a specific dose of medication through the skin and into the bloodstream. An advantage of a transdermal drug delivery route over other types of medication delivery (such as oral, topical, intravenous, or intramuscular) is that the patch provides a controlled release of the medication into the patient, usually through either a porous membrane covering a reservoir of medication or through body heat melting thin layers of medication embedded in the adhesive.

Thrombosis occurs when blood clots disrupt the normal flow of blood in the body, which can cause severe health problems such as pulmonary embolism, heart attack or stroke. Current treatments often rely on the use of blood thinners, such as bromelain. Too large a dose can cause problems such as spontaneous hemorrhaging, while doses that are too small may not be able to prevent a relapse of thrombosis. A thrombin-responsive closed-loop patch is developed for prolonged bromelain combination delivery in a controlled manner. This patch can activated thrombin and subsequently releases bromelain combination to prevent coagulation in the blood flow.

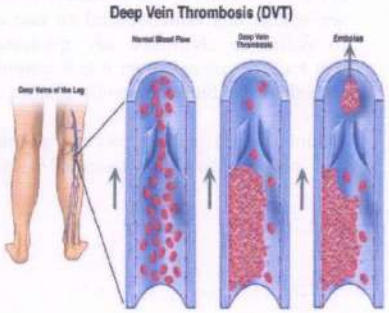
INTRODUCTION



Venous thromboembolism (VTE) is a leading cause of morbidity and mortality in many patients. These patients usually require anticoagulant treatment to restrict further propagation of the thrombi". Although anticoagulant use is associated with various risks, the most significant are bleeding complications. Patients with certain types of cancer who are at higher risk for VTE may require anticoagulant treatment. Moreover, these patients may also develop thrombocytopenia, which can also increase the risk of bleeding. Therefore we developed an in vitro assay to evaluate the effect of anticoagulants on plasma clot formation.

Anticoagulants are medicines that help prevent blood clots. They're given to people at a high risk of getting clots, to reduce their chances of developing serious conditions such as strokes and heart attacks. A blood clot is a seal created by the blood to stop bleeding from wounds. While they're useful in stopping bleeding, they can block blood vessels and stop blood flowing to organs such as the brain, heart or lungs if they form in the wrong place. Anticoagulants work by interrupting the process involved in the formation of blood clots. They're sometimes called "blood- thinning" medicines, although they don't actually make the blood thinner. Although they're used for similar purposes, anticoagulants are different to antiplatelet medicines, such as low-dose aspirin and clopidogrel. If a blood clot blocks the flow of blood through a blood vessel, the affected part of the body will become starved of oxygen and will stop working properly.

Depending on where the clot forms, this can lead to serious problems such as:
Strokes or transient ischemic attacks ("mini-strokes")
Heart attacks
Deep vein thrombosis (DVT).
Pulmonary embolism



Treatment with anticoagulants may be recommended if an increased risk of developing one of these problems. This may be because you've had blood clots in the past or you've been diagnosed with a condition such as atrial fibrillation that can cause blood clots to form. You may also be prescribed an anticoagulant if you've recently had surgery, as the period of rest and inactivity you need during your recovery can increase your risk of developing a blood clot.

Through the years, the importance of herbal plants in the field of medicine continues to gain popularity and has attracted researchers to conduct broader studies regarding their efficacy as sources of antimicrobial drugs and medicines for diseases like diabetes and cancer. Since the development of technology, one of the challenges being faced in the clinical laboratory is the use of effective anticoagulants for performing diagnostic procedures. Majority of the anticoagulants used in the clinical laboratory are expensive and relatively toxic to human health. Thus, the need to study plants as potential sources of anticoagulants is imperative since it gives hopes in the future use of organic substances that are less expensive and non-toxic. Several studies on the efficacy of plants as therapeutic anticoagulants have been conducted, but none was performed to determine their efficacy as anticoagulants for laboratory diagnostic procedures. Herbs such as liquorice, ginkgo biloba used as therapeutic anticoagulants for treatment of cardiovascular, coagulation and thrombotic disorders. Anticoagulants have been developed to inhibit clotting.

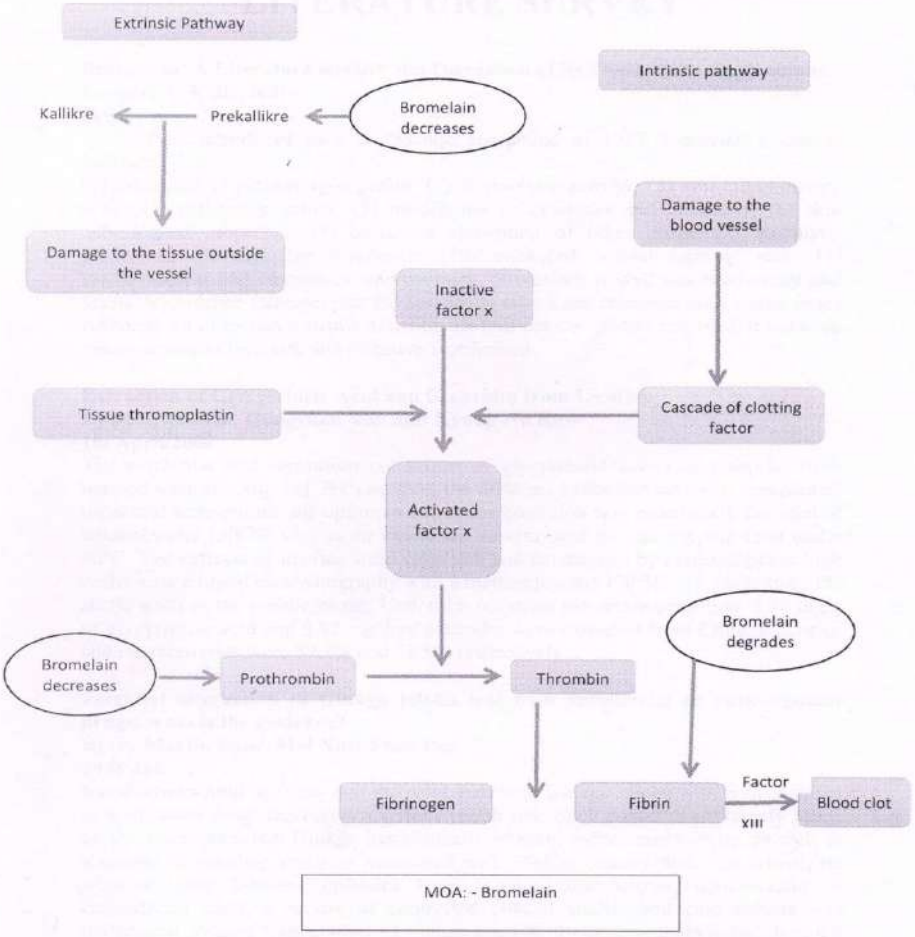
Ginkgo biloba extract (GBE) contains flavone glycosides and terpenoids. It can modify vasomotor function, reduce the adhesion of blood cells to the endothelium, and inhibit the activation of platelets, and therefore plays an important role in the treatment of a variety of cardiovascular and neurological disorders.

Anticoagulant and Memory Enhancing Activity of Glycyrrhizin

Glycyrrhizin, an already known anti- inflammatory compound, has also been found as the first plant-based inhibitor of thrombin. It prolonged the thrombin and fibrinogen clotting time and increased plasma recalcification duration. The thrombin-induced platelet aggregation was found to be inhibited by the action of glycyrrhizin, but PAF (platelet aggregating factor)- or collagen-induced agglutination was not affected by glycyrrhizin. One of the laboratory-based research has shown memory enhancing activity of G. glabra in experimental animals.

Pineapple (Ananas comosus) is a common fruit that is found all throughout the world. In fact, it is the third most important tropical fruit in world production, next to banana and citrus. Although pineapples nowadays are processed commercially for juice and food flavors like pineapple tidbits sold in the market in cans, 70% of the pineapple produced in the world is consumed as fresh fruit. One of the essential chemical components present in pineapple is the enzyme bromelain. It is a crude extract from pineapple fruit and stem. Bromelain is known to have exceptional health benefits. It is most notable for its effectiveness in the reduction of inflammation and decreasing swelling, but scopes of its benefits are increasing. An admirable capability of bromelain is preventing blood coagulation. Bromelain is a natural anticoagulant that works by breaking down the blood clotting protein fibrinogen and by inhibiting platelet aggregation.

Anticoagulant effect of bromelain is by inhibiting cyclooxygenase and modulates prostaglandins and thromboxane, affecting both inflammation and coagulation, and hydrolyzes bradykinin.



General Mechanism Of Anticoagulant

1. Heparin increases the inhibitory action of antithrombin III (AT III) on clotting factors XIIa, XIa, IXa, Xa and thrombin.
2. This inhibits the conversion of prothrombin to thrombin and fibrinogen to fibrin.
3. It also inhibits platelet function. It may reduce the activity of ATIII at high doses.

Mechanism Action Of Warfarin

LITERATURE SURVEY

Bromelain: A Literature Review and Discussion of its Therapeutic Applications
Gregory S. Kelly, N.D.
1996

First introduced as a therapeutic compound in 1957, bromelain's actions include:
(1) inhibition of platelet aggregation; (2) fibrinolytic activity; (3) anti-inflammatory action;(4) anti-tumor action; (5) modulation of cytokines and immunity; (6) skin debridement properties; (7) enhanced absorption of other drugs; (8) mucolytic properties; (9) digestive assistance; (10) enhanced wound healing; and (11) cardiovascular and circulatory improvement. Bromelain is well absorbed orally and available evidence indicates that its therapeutic effects are enhanced with higher doses. Although all of its mechanisms of action are still not completely resolved, it has been demonstrated to be a safe and effective supplement.

Extraction of Glycyrrhizic Acid and Glabridin from Licorice
By Minglei Tian, Hongyuan Yan and Kyung Ho Row
16/ April/2008

The extraction and separation conditions of glycyrrhizic acid and glabridin from licorice were investigated. By changing the different extraction solvents, procedures, times and temperature, the optimum extraction condition was established: the used of ethanol/water (30:70, v/v) as an extraction solvent, and 60 min dipping time under 50°C. The extracts of licorice were separated and determined by reversed-phase high performance liquid chromatography with a methanol/water (70:30, v/v, containing 1% acetic acid) as the mobile phase. Under the optimum extraction condition, 2.39 mg/g of glycyrrhizic acid and 0.92 mg/g of glabridin were extracted from Chinese licorice and the recoveries were 89.7% and 72.5% respectively.

Potential interaction of Ginkgo biloba leaf with antiplatelet or anticoagulant drugs: what is the evidence?
Kerry Martin Bone. Mol Nutr Food Res.
2008 Jul.

Some writers hold the view that the combination of Ginkgo biloba with anticoagulant or antiplatelet drugs represents a serious health risk. Such concerns are largely based on the assumption that Ginkgo has clinically relevant antiplatelet activity, as well as accounts of bleeding episodes associated with Ginkgo consumption. To investigate whether these bleeding episodes have a pharmacodynamics, idiosyncratic or coincidental basis, a review of controlled clinical studies and case reports was undertaken. Results from controlled studies consistently indicate that Ginkgo does not significantly impact haemostasis nor adversely affect the safety of co-administered aspirin or warfarin. Most of these studies were undertaken using EGb 761, a well-defined extract of Ginkgo biloba. In contrast, EGb 761 has not generally been implicated in the case reports. In general, the quality of these case reports is low. Nevertheless, the possibility of an idiosyncratic bleeding event due to Ginkgo use cannot be excluded on the basis of the available information. However, there is scant information from case reports or controlled trials to support the suggestion that Ginkgo potentiates the effects of anticoagulant or antiplatelet drugs. Such high-level

safety concerns for this herb are deemed to be unsupported by the currently available evidence.

Risk of hemorrhage associated with co-prescriptions for Ginkgo biloba and antiplatelet or anticoagulant drugs
Agnes L F Chan et al. J Altern Complement Med.
2011 Jun.

The aim of this study was to explore the risk of hemorrhage associated with co-prescriptions for Ginkgo biloba extract (GBE) and antiplatelet or anticoagulant agents, and evaluate the trends of co-prescriptions.

A retrospective population based study was performed by using claim data of the Taiwan National Health Insurance Research Database from 2000 to 2008. Prescriptions for GBE alone and in combination with antiplatelet/anticoagulant drugs were retrieved and the odds ratio for co-prescriptions after the first prescription of GBE was explored.

The total number of prescriptions for GBE alone or in combination with antiplatelet or anticoagulant agents increased gradually from 1547 (0.08%) and 3575 (0.19%) in 2000 to 4676 (0.23%) and 15,297 (0.79%) in 2008, respectively. GBE was mostly prescribed to patients aged 60 years or older. The adjusted odds ratio for co-prescriptions associated with the risk of hemorrhage is 1.5 (95% confidence interval, 0.5-5.0). The risk of hemorrhage was associated with patients aged ≥65 and male patients, who were prescribed GBE alone (adjusted odds ratio: 3.8 and 1.4; 95% confidence interval, 2.8-5.2 and 1.1-1.9).

Although the combination of G. biloba extract with antiplatelet or anticoagulants showed insignificant correlation to the risk of hemorrhage, patients using ginkgo, particularly those with known bleeding risks and elderly, should take a particular attention to the possibility of increasing risk of bleeding.

Bromelain a Potential Bioactive Compound: A Comprehensive Overview from a Pharmacological Perspective
A. Chakraborty, S. Mitra, *et. al.*
Published 1 April 2021

Bromelain is an effective chemoresponsive proteolytic enzyme derived from pineapple stems. It contains several thiol endopeptidases and is extracted and purified via several methods. It is most commonly used as an anti-inflammatory agent, though scientists have also discovered its potential as an anticancer and antimicrobial agent. It has been reported as having positive effects on the respiratory, digestive, and circulatory systems, and potentially on the immune system. It is a natural remedy for easing arthritis symptoms, including joint pain and stiffness. This review details bromelain's varied uses in healthcare, its low toxicity, and its relationship to nanoparticles. The door of infinite possibilities will be opened up if further extensive research is carried out on this pineapple-derived enzyme.

Comparison of proteolytic, cytotoxic and anticoagulant properties of chromatographically fractionated bromelain to un-fractionated bromelain
Samina Badar, Mohamed Azarkan, *et. al.*
2021 May 25

Bromelain consisting of a number of proteolytic enzymes possess anticancer and thrombotic properties. Hence, four chromatically separated fractions were examined for their proteolytic, anticancer and antithrombotic activity. Bromelain

fractions were separated using ion-exchange column chromatography. Proteolytic properties were assessed using standard azocasein assay. Anticancer properties were first assessed using four different cell lines PANC-1, HEP 2B, HEP 3G and OVCAR-3 on cells grown in 96 well plates. Subsequently, fraction 2 and fraction 3 combined with gemcitabine were tested in ASPC-1 cells. Then cytotoxicity of fraction 3 was compared to bromelain in combination with doxorubicin and N-acetylcysteine on HEP G2 and HEP 3B cells. Finally, the anticoagulation effect of fraction 3 or bromelain combined with N-acetylcysteine was evaluated using human blood. Fraction 3 showed the highest proteolytic activity (5% greater than standard bromelain) whilst others were less active. Cytotoxicity as assessed by IC50 indicated fraction 3 to be the most potent whilst the others did not follow their proteolytic potency order. OVCAR-3 was the most sensitive amongst the cell lines. Fraction 3 showed higher potency in combination with gemcitabine in ASPC-1 cells compared to fraction 2. Similarly, fraction 3 in combination with doxorubicin showed higher toxicity when compared to bromelain. Fraction 3 or bromelain only showed thrombolytic activity in combination with N-acetylcysteine. Fraction 3 may be developed for clinical use since it showed better cytotoxicity compared to bromelain

AIM

The study considers the anticoagulant activity on human blood samples of pineapple (bromelain), liquorice and gingko biloba extract as a safe and cost-effective alternative to synthetic anticoagulant. Specifically, this experimental research determined the approximate volume of the extract that can prevent blood clotting.

OBJECTIVE

1) The treatment of venous thromboembolism (deep vein thrombosis and pulmonary emboli).
2) The stroke prevention in arterial fibrillation.
3) The management of patient at risk for thromboembolic stroke.
4) To maintain the blood in the fluid state for hematological testing or to obtain suitable plasma for coagulation and clinical chemistry analyses.

DRUG PROFILE

BROMELAIN:-

Synonym: - Bromelia comosa, Bromelia ananas.
Biological source: - It is group of protein digesting enzymes obtained commercially from the fruits or stem of pineapple.
Family: - Bromeliaceae.
Chemical constituents: - Mixture of different thiol endopeptidases and other components like phosphates, glucosidase, peroxidase, cellulose, escharase, and several protease inhibitors.
Uses: - Natural blood thinning, osteoarthritis, cancer, digestive problem and muscle soreness. Topical bromelain is promoted for burns.

GINGKO BILOBA:-

Synonym: - Ginkgo, Japanese silver apricot, baiguo, maidenhair tree, yinhsing, gingko.
Biological source: - It is consist of leaves obtained from dioeceous tree Ginkgo biloba (Maidenhair tree)
Family: - Ginkgoaceae.
Chemical constituents: - Terpene lactones (ginkgolides and diterpenes) and ginkgo flavone glycosides (ginkgetin, bilobetin and sciadopitysin).
Uses: - Improves circulation by dilating blood vessels and reducing the stickiness of platelets, helps overcome depression.

LIQUORICE:-

Synonym: - Glycyrrhiza, liquorice root; glycyrrhizae radix.
Biological Sources: - Liquorice is the dried, peeled or unpeeled, roots, rhizomes or stolon of glycyrrhiza glabra Linn.
Family: - Leguminasae.
Chemical Constituents: - glycyrrhizic acid, glycyrrhitic acid, glucoronic acid, resin, volatile oil, starch.
Uses: - Circulatory and kidney diseases, digestive problem and menopausal symptoms.

STARCH:-

Synonym: - Amylopectin
Biological source: - From the tubers of potato (Solanum tuberosum Linn.)
Family: - Solanaceae.
Chemical Constituent: - Amylose and amylopectin.
Uses: - Thickeners and stabilizers.

GELATIN:-

Synonym: - Gelatina, gel foam and puragel.
Biological source: - Gelatin is a protein extracted by partial hydrolysis of animal collagenous tissue like skins, tendones, ligaments and bones with boiling water.
Family: - Bovidae.
Chemical constituent: - Protein glutin which on hydrolysis gives a mixture of amino acids (glycine, alanine, valine, cystine and cysteine).

MATERIALS AND EQUIPMENTS

MATERIALS

Sr.No.	Material	Source
1.	Pineapple (Bromelain)	Local market, Shirur
2.	Liquorice	Biosur Pharma, Sidguwan
3.	Ginkgo Biloba	Gtee Botanical Extract Private Limited, Chennai
4.	Starch	STCOP, Shirur.
5.	Gelatin	STCOP, Shirur.
6.	Ethanol	STCOP, Poly, Shirur.
7.	Acetone	STCOP, Shirur.

EQUIPMENTS

Sr. No.	Equipment	Source
1.	Mechanical Stirrer	STCOP, Shirur.
2.	Heating Mentale	STCOP, Shirur.
3.	Magnetic Stirrer With Hot Plate	STCOP, Shirur.
4.	Ointment Slab and Spatula	STCOP, Shirur.
5.	Beaker	STCOP, Shirur.
6.	Funnel	STCOP, Shirur.
7.	RBF	STCOP, Shirur.
8.	Distillation Apparatus	STCOP, Shirur.

EXTRACTION OF BROMELAIN

The pineapple was blended in cold extractants at a 1:1 ratio (w/v) for 3 min

↓

Filtered through a cheese cloth

↓

The filtrate was stirrer by mechanical stirrer for 4 hr.

↓

Bromelain extract

IDENTIFICATION TEST OF BROMELAIN

0.2 g of sample add 1g of anhydrous sodium carbonate and heat gently to carbonize

↓

Cool, Add 5 ml of H_2O stir and filter

↓

Acidify slightly the filter with dil. HNO_3, heat in water bath for 5 min and cool

↓

Now add sliver nitrate which yield light yellow ppt. Which insoluble in dil. HNO_3 or ammonia

↓

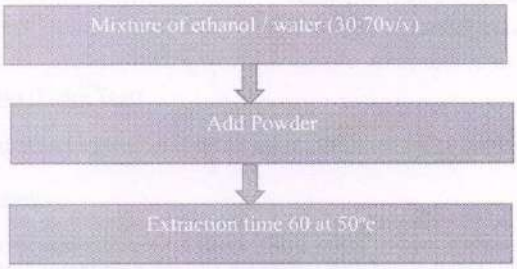
Separate ppt and strong ammonia with shaking

↓

Separate liquids and acidified with dil. HNO_3 yield white turbidity

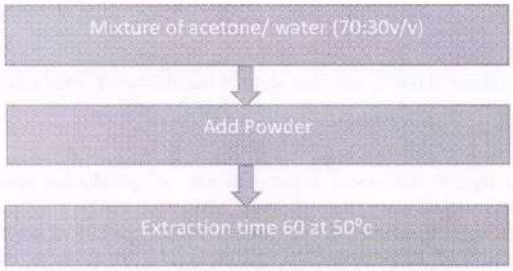
EXTRACTION OF LIQUORICE

The extraction and separation conditions of glycyrrhizic acid and glabridin from licorice were investigated. By changing the different extraction solvents, procedures, times and temperature, the optimum extraction condition was established: the used of ethanol/water (30:70, v/v) as an extraction solvent, and 60 min dipping time under 50°C. The extracts of licorice were separated and determined by reversed-phase high performance liquid chromatography with a methanol/water (70:30, v/v, containing 1% acetic acid) as the mobile phase. Under the optimum extraction condition, 2.39 mg/g of glycyrrhizic acid and 0.92 mg/g of glabridin were extracted from Chinese licorice and the recoveries were 89.7% and 72.5% respectively.



EXTRACTION OF GINGKO BILOBA

Twice 800 g of ground green leaves of Ginkgo biloba are extracted in countercurrent fashion with twice 13.5 liters of an acetone/water (70:30) mixture. This first extraction is performed at a temperature of between approximately 50 and 60° C



IDENTIFICATION TEST OF LIQUORICE AND GINGKO BILOBA

Sr.No.	Tests	Observation
1	Aq. extract + few drops of $FeCl_3$ Solution	Dark coloration
2	Dilute $KMnO_4$ + Aq. extract	Decolorisation of $KMnO_4$
3	Extract + lead acetate reagent	White ppt.
4	Extract + H_2SO_4	Reddish orange coloration which gets decolorized on addition of alkali and reappears on addition of acid again.

Test for Saponins (Foam Test)

Dissolved the extract with 20 ml of distilled water and stirred for 15 minutes.

Tests for Flavonoids

With sodium hydroxide: Mix the Extract with 1 ml of sodium hydroxide solution.
With concentrated sulphuric acid: Mix the extract with concentrated sulphuric acid.

Shinoda test: For performing shinoda's test, dissolve the extract in ethanol, to which add magnesium turnings. To this mixture, add Conc. Hydrochloric acid.

Test for Terpinoids

Lieberman's test: Add Acetic acid to the extract kept on the hot plate. To this mixture, add concentrated sulphuric acid.
Trichloroacetic acid test: add tricholoroacetic acid to the extract.

Fehling's test
Keep extract on water bath. To which add Fehling solution A and B mixture.

Loss on drying

Loss on drying was calculating by the mentioned procedure. Weigh quantity of extract and pour onto a weighed petri plate. Keep the Petri plate in oven and weigh at different time interval at 105°C, till two consecutive weighing didn't differ by more than 0.25mg which indicates the final loss of moisture present in the drug Percentage loss on drying was calculated using the below mention formula

LOD(%) = weight of porcelain dish with drug at time 0- weight of porcelain dish after 6 h weight of porcelain dish at time 0-weight of empty porcelain dish

pH determination

The extract was dissolve in 10 ml of distilled water for evaluating the pH. The pH was determined using digital pH meter. The pH was measured in triplicate.

Melting point range

Fill the drug in the capillary tube, sealed to the one end. Then introduce capillary into digital melting point apparatus. The temperature, at which the drug melts, signifies the melting point of drug

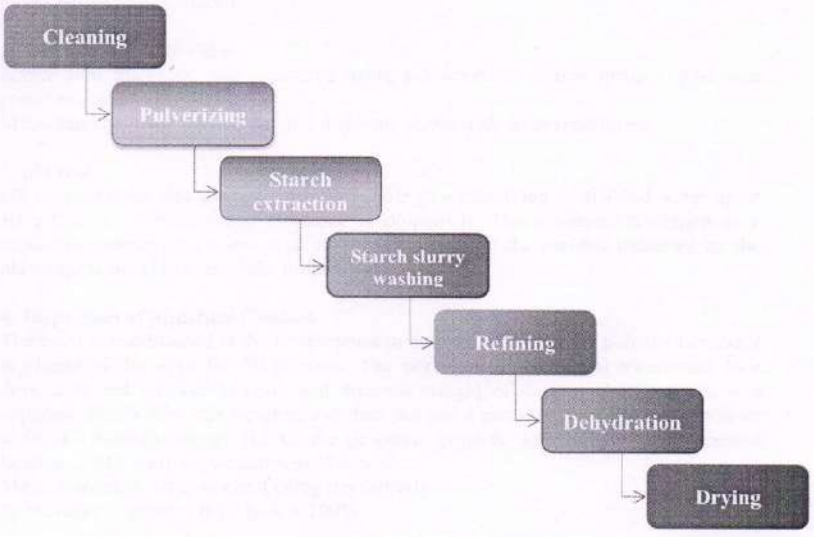
UV spectral analysis

Obtain the UV spectrum of the extracted GA by scanning the extract solution in the range of 200-800nm using UV spectrophotometer. For this, prepare stock solution of 100ug/ ml of GA solution.

Extraction of starch from potato

Procedure:

1. Peal a raw potato and cut into small pieces, and record the initial weight.
2. Grind them in a motor and pestle with sufficient water.
3. Collect the potato homogenate into a beaker and add enough water.
4. Then filter the homogenate through a muslin cloth to remove the particles.
5. Allow the filtrate to settle. Starch rapidly settles at the bottom. Decant the starch free supernatant carefully.
6. Wash 3-4 times and decant the supernatant. Collect the compact mass of starch and allow it to dry.



Making Edible Film

Sr. No.	Substance Name	F1	F2	F3
1.	Starch (%w/v)	3	5	5
2.	Gelatin (%w/v)	2.5	2.5	2.5
3.	Propyl Paraben (%w/v)	1	1	1
4.	Bromelain (%v/v)	0.5	0.7	1
5.	Gingko biloba (% v/v)	0.5	0.7	1
6.	Liquorice (%v/v)	0.5	0.7	1
7.	Aquadest (%v/v)	50	50	50

Method of Making Edible Film

Prepare the tools and materials to be used and weigh all the ingredients. The starch of the potato is then dispersed with aqua distillate and stirred with a stirring rod to form a suspension. Propyl paraben was dissolved into gelatin until dissolved then mixed into the starch suspension and the remaining water was stirred until homogeneous. Furthermore, the mass formed is then heated on a hot plate put a magnetic stirrer for approximately 50 minutes at a temperature of 55-65°C until gel is formed and then poured onto a slab , left for 3 days at room temperature. After 3 days, the edible film was removed and ready for characterization.

Characterization *Edible Film*

1. Organoleptic

Examination Organoleptic examination includes observing the shape, color, and smell of *the edible film* produced.

2. Thickness *Edible Film*

Edible film thickness was measured using a micrometer screw using a 0.01 mm precision tool.

Measurements were carried out at 5 different places with three repetitions.

3. **pH test**

pH measurement was carried out by *of edible film* dissolving in distilled water up to 10 mL in a container. The electrode is dipped in. The electrode is dipped in a container containing a solution of *edible film*, see until the number indicated by the pH meter is the pH value of the preparation.

4. Inspection of Moisture Content

The oven is conditioned at the temperature to be used, and then the porcelain crucible is placed in the **oven** for 30 minutes. The porcelain crucible was transferred to a desiccator and allowed to cool, and then the weight of the porcelain crucible was weighed. *Edible film* was weighed and then put into a porcelain crucible and put in an oven at a temperature of 105°C, the porcelain crucible was weighed and repeated heating until a constant weight was obtained.

Measurement of water content using the formula.

% Moisture content = B-C/ B-A × 100%

Description
A= Weight of empty crucible before heating (grams)
B= Weight of crucible + *Edible film* before heating (grams)
C= Weight of crucible + *Edible the film* after being heated (grams)

5. Absorbance Test Profile of Physiological NaCl Solution *(Swelling test)*
Cut the edible film with a size of 2 x 2 cm then weighed carefully; put it in a petri dish. Containing cotton that has been moistened with physiological NaCl solution as much as 5 ml close the petri dish and leave, after 1 minute the membrane is removed and reweighed. Calculate the percentage of edible film obtained after soaking with that before soaking. Perform immersion and re-weighing at 1 minute; 2; 3; 4; 5 and 6. The absorption test measurement is calculated using the formula:

%Swelling = Wf-Wt/Wt × 100%

Description
Wf = Final Weight
Wt = Initial Weight

6. Measurement of Tensile strength, Percentage of Elongation and *Young's Modulus*
The tensile strength testing process was carried out using the Tensile Strength Modification. The edible film is cut like a rectangle with a length of 100 mm and a width from the data of the thickness of the membrane, and then the top and bottom of the edible film are made like a cross section to be plastered with a tool. Then put a load on the bottom of the membrane little by little until the edible film breaks, then measure of the edible film when it breaks, and weigh the load that causes the *edible film* to break to calculate the measurement of attractiveness. Tensile strength test was carried out on three samples of *edible film* which was then calculated on average. Tensile strength is calculated by the following equation.

Tensile strength (δ) = F / A

Description
F= Maximum tensile force (N) A= Cross-sectional area (mm^2)
Percent elongation is expressed as a percentage, calculated by the formula.
Information
A = Initial length (cm)
B = length after breaking (cm)

Young *modulus* (**E**) can be calculated by the formula:
E = δ /
Description
E = *Young's modulus* (MPa)
δ = Tensile load (N/mm^2)
= Elongation at break (%)

Result

Identification test of bromelain:-

The test for Identification of bromelain was performed. It shows the white turbidity which confirms the presence of bromelain.

Identification test of Gingko Biloba and Liquorice:-

	Tests	Observation	Inference
1	Aq. extract + few drops of $Fecl_3$ Solution	Dark coloration	Phenolic compounds
2	Dilute $KMnO_4$ + Aq. extract	Decolorisation of $KMnO_4$	Reducing compounds
3	Extract + lead acetate reagent	White ppt.	Phenolic compounds, flavonoids
4	Extract + H_2SO_4	Reddish orange coloration which gets decolorized on addition of alkali and reappears on addition of acid again.	Flavonoids

Test no 2

Test no 3

Test no 4

Test for Saponins (Foam Test)

The extract was dissolved with 20 ml of distilled water and stirred for 15 minutes. The formation of 1cm layer of foam for a period of time showed the presence of saponins.

Tests for Flavonoids

With sodium hydroxide: Extract was mixed with 1 ml of sodium hydroxide solution. yellow to orange color shows the presence of flavonones and yellow color indicates flavones.
With concentrated sulphuric acid: Extract was mixed with concentrated sulphuric acid. Yellow orange color indicates Flavonoids.

Shinoda test: For performing shinoda's test, extract was dissolved in ethanol, to which magnesium turnings were added to this mixture, Conc. Hydrochloric acid was added. Turning of magenta to purple color indicates the presence of flavonoids.

Test for Terpinoids

Lieberman's test: Acetic acid was added to the extract kept on the hot plate. To this mixture, concentrated sulphuric acid was added. Presence of pink color indicates the presence of triterpinoids in the extract.
Trichloroacetic acid test: tricholoroacetic acid was added to the extract. Formation of yellow color indicates the presence of terpinoids.

Fehling's test

On the water bath, Extract was kept. To which Fehling solution A and B were mixed. Brick red precipitate showed the presence of reducing sugars.

Loss on drying

Loss on drying was calculating by the mentioned procedure. Weighed quantity of extract was poured onto a weighed petri plate. The Petri plate was kept in oven and weighed at different time interval at 105°C, till two consecutive weighing didn't differ by more than 0.25mg which indicates the final loss of moisture present in the drug Percentage loss on drying was calculated using the below mention formula

LOD(%) = weight of porcelain dish with drug at time 0- weight of porcelain dish after 6 h weight of porcelain dish at time 0-weight of empty porcelain dish

pH determination

The extract was dissolve in 10 ml of distilled water for evaluating the pH. The pH was determined using digital pH meter. The pH was measured in triplicate.
The pH was found to be 6.8.

Melting point range

The melting point was determined by capillary technique. The drug was filled in the capillary tube, sealed to the one end. The capillary was introduced into digital melting point apparatus. The melting point was found to be 38.

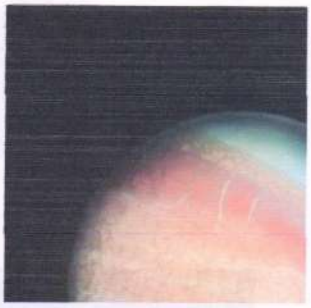
UV spectral analysis

UV spectrum of the extracted GA was obtained by scanning the extract solution in the range of 200-800nm using UV spectrophotometer. For this, stock solution of 100ug/ml of GA solution was prepared.

Sr. No.	Extract	Uv Wavelength (nm)
1	Bromelain	253.2
2	Gingko Biloba	314
3	Liquorice	254
4	Combination (Bromelain, Gingko Biloba & Liquorice)	258.4

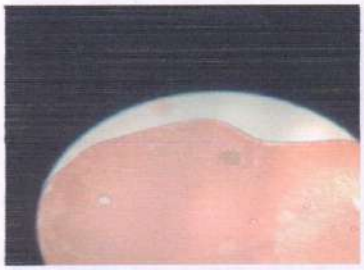
Normal Blood Clotting time:-

Normal blood

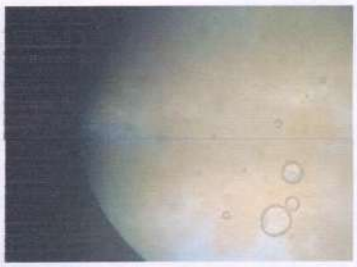


Coagulation of blood after 9 mins

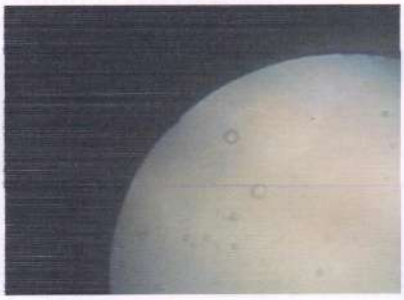
Anticoagulant Activity of Bromelain:-



At start

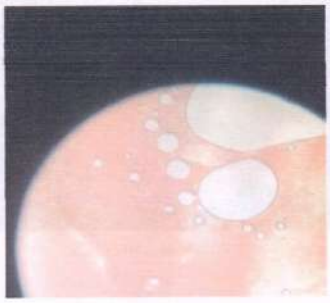


After 1.4 hours

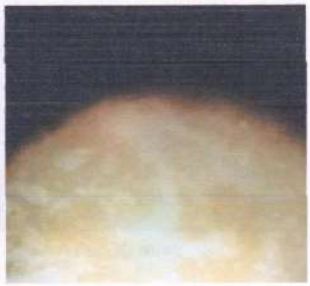


After 1.7 hours

Anticoagulant Activity of Liquorice:-



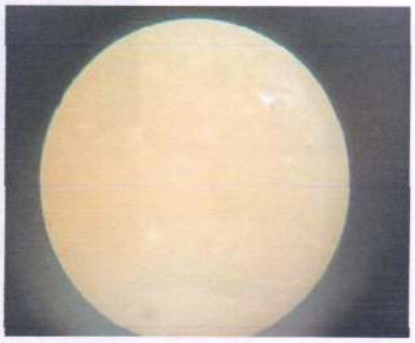
At start



After 1.7 hours

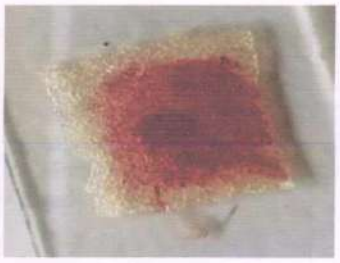
Anticoagulant Activity of Ginkgo Biloba:-

At start

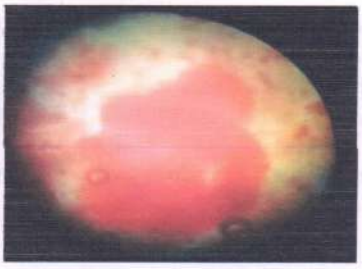


After 1.7 hours

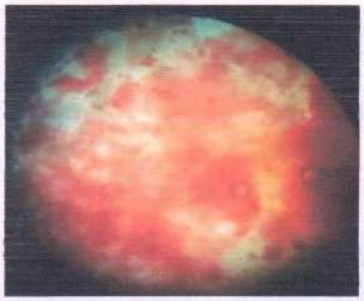
Anticoagulant Activity in combination:-
(Bromelin, Liqourice & Ginkgo Biloba)



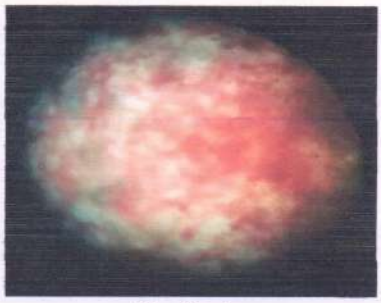
Blood clot on patch



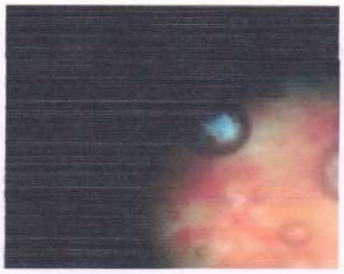
Blood clot under microscope



After 10 mins



After 30 mins



After 50 mins

Evaluation of Edible Film:-

Evaluation of	Formula		
	F 1	F 2	F 3
Organoleptic • Shape • Color • Smell	Thin Layer Clear Sweet odor	Thin Layer Clear Sweet odor	Thin Layer Clear Sweet odor
Thickness (mm)	0.098	0.104	0.142
pH	6.77	6.61	6.49
Moisture Content (%)	13.2786	13.4214	14.3055
Percent Elongation (%)	3	3.33	1.66
Young's Modulus	1.1964	1.4644	1.6623

CONCLUSION

In this project work we can conclude that the combination of bromelain, gingko biloba and liquor ice shows the synergistic anticoagulant activity. This formulation is used to dissolve the clot. Anticoagulant edible film is prepared from herbs so, it's shows less side effect. This formulation is better alternative to the homeopathic medicines as it has many side effects.

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SITABAI THITE COLLEGE OF PHARMACY, SHIRUR

Tal-Shirur (Ghodnadi), Dist-Pune, Maharashtra, India-412210

INTERNSHIP DETAILS 2022-23

Duration: 30 days

Sr. No.	Student's Name	Company/Hospital Name	Duration
1	Bhagade Nirankar Shivaji	Murli Krishna pharma PVT. LTD	30 April 2023 to 29 May 2023
2	Bharat Vishal Dilip	Murli Krishna pharma PVT. LTD	23 July 2022 to 22 August 2022
3	Bhogawade Apeksha A.	Murli Krishna pharma PVT. LTD	14 July 2022 to 13 August 2022
4	Bondarde vaishnavi R.	Murli Krishna pharma PVT. LTD	14 July 2022 to 13 August 2022
5	Borude Vaishnavi Deepak	Murli Krishna pharma PVT. LTD	14 July 2022 to 13 August 2022
6	Durge Gauravi Bhausaheb	Murli Krishna pharma PVT. LTD	14 July 2022 to 13 August 2022
7	Gaikwad Rutwik Mahesh	Sangeeta Pharma PVT,LTD	17 July 2023 to 16 August 2023
8	Gupta Vaishnavi Umesh	PHC, Saiwan	2 May 2023 to 30 May 2023
10	Jadhav Dipti Kailas	Murli Krishna pharma PVT. LTD	12 Nov 2022 to 11 Dec 2022
11	Jadhav Mayuri Raju	Murli Krishna pharma PVT. LTD	12 Nov 2022 to 11 Dec 202
12	Jagdale Suyash Rajendra	Rural Hospital Wambori	16 July to 16 August
13	Jasud Suyog Jagannath	Stantech PVT, LTD	17 Feb 2023 to 18 March 2023
14	Khaire Aniket Pratap	PHC, Baradgaon Sudrik	16 July 2022 to 16 August 2022
15	Kolpe Sonali Biraji	Hindustan Antibiotics LTD	11 July 2022 to 10 August 2022
16	Korde Omkar Baban	PHC Kawathe Yemai	20th Feb to 20th March 2023
17	Kothawale Bhagyashri K.	Murli Krishna pharma PVT. LTD	30 July 2022 to 29 August 2022
18	Mahajan Suyash Anil	Hindustan Antibiotics LTD	11 July 2022 to 10 August 2022
19	Mane Arti Pandurang	Murli Krishna pharma PVT. LTD	5 Nov 2022 to 4 Dec 2022
20	Nawale Saurabh Ashok	Hindustan Antibiotics LTD	11 July 2022 to 10 August 2022
21	Pacharne Pratiksha Bajirao	Hindustan Antibiotics LTD	11 July 2022 to 10 August 2022

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Tal-Shirur (Ghodnadi), Dist-Pune, Maharashtra, India-412210

INTERNSHIP DETAILS 2022-23

Duration: 30 days

Sr. No.	Student's Name	Company/Hospital Name	Duration
22	Pathare Abhishek Uttam	Murli Krishna pharma PVT. LTD	30 April 2023 to 29 May 2023
23	Pathare Atharva Ashok	Murli Krishna pharma PVT. LTD	23 July 2022 to 22 Aug2022
24	Rajegore Kacharu Sudhakar	Murli Krishna pharma PVT. LTD	23 July 2022 to 22 Aug 2022
25	Roham Sumit Anil	Reve Pharma PVT. LTD	8 July 2022 to 8 Aug 2022
26	Shaikh Alisha Shamshuddin	Murli Krishna pharma PVT. LTD	14 July 2022 to 13 Aug 2022
27	Tarate Kalyani Dhondibhau	Stantech PVT. LTD	17 Feb 2023 to 18 March 2023
28	Thopate Sujit Shivaji	Murli Krishna pharma PVT. LTD	29 April 2023 to 28 May 2023
29	Varal Rutuja Sanjay	Stantech PVT. LTD	17 Feb 2023 to 18 March 2023
30	Wabale Vibhavari Bhaskar	Murli Krishna pharma PVT. LTD	14 July 2022 to 13 Aug2022
31	Ware Pradip Kisan	PHC Amalner	16 Aug to 16 Sept 2022
32	Zanjad Aishwarya Sanjay	Stantech PVT. LTD	17 Feb 2023 to 18 March 2023

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BORA PHARMA
PRIVATE LIMITED

Ref. No. BPPL/22-23/154
Date : 27/08/2022

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms.Palve Vaishali Kailas** is Third year B.Pharm. Student of Shri Chhatrapati Sambhaji Shikshan Sanstha Sitabai Thite College of Pharmacy,Shirur (Ghodnadi),Dist.Pune.has duly Completed her **Inplant Industrial Training** Successfully from 27/07/2022 to 27/08/2022 Within the working hours of our company.

Yours truly,
For Bora Pharma Pvt.Ltd.

Bora A.V.
(DIRECTOR)

BORA PHARMA PRIVATE LIMITED AHMEDNAGAR

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Admn Office : 113/A, Santosh Appt. Flat No. 4, Prabhat Road, Pune-411 004 • E-mail - bppipune@gmail.com 91-020 25441217
Office : 3650/53 "Vasant Vaibhav", Urban Bank Road, Kapad Bazar, Ahmednagar - 414 001
Tel. 91-0241 - 2418100/2321781 • Fax 2601671 • email : borapharma@gmail.com

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HINDUSTAN ANTIBIOTICS LIMITED

(A GOVT. OF INDIA ENTERPRISE)

PIMPRI, PUNE - 411 018.

TRG/BPHARMTR/3142/21-22 August 10, 2022

CERTIFICATE

This is to certify that Miss Pratiksha Bajirao Pacharne , B. Pharm student of Sitabai Thite College of Pharmacy Shirur (Ghodnadi) Dist. Pune. has completed One Month Industrial Internship at our Organization from 11/07/2022 to 10/08/2022.

For HINDUSTAN ANTIBIOTICS LIMITED

Shivatare

(Ms. Sunita N. Shivatare)
Sr. Officer (Legal/Welfare & Training)

सुनिता शिवतारे/Sunita Shivatare
वरिष्ठ कार्मिक अधिकारी
Senior Personnel Officer
हिन्दुस्तान एंटिबायोटिक्स लि./H.A. LTD.
पिंपरी PIMPRI, पुणे PUNE- 411018.

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MURLI KRISHNA PHARMA PVT. LTD.

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CIN No -U24230PN2004PTC206917
GST No - 27AADCM8601K1ZB

(43)

REF: MKPPL/HR/ITR/2023

DATE: May 29, 2023

CERTIFICATE

We are pleased to certify that **Mr. Pathare Abhishek** (B. Pharm.) the Student of **" Sitabai Thite College of Pharmacy, Shirur "** has completed his One month In-Plant **"Industrial Training"** in the in our factory, during 30th April 2023 to 29th May 2023.

During the above period of his association with us, we found him sincere & honest in the work assigned to him

We wish him all the best in future.

Murli Krishna Pharma Pvt. Ltd. MKPPL

For Murli Krishna Pharma Pvt. Ltd.

HR & Administration

Address - D-98, Ranjangaon M.I.D.C., Ranjangaon, Shirur Taluka, Pune Dist. Maharashtra - 412209, India.
Tel - +91 2138 675699
E-mail - info@mkppl.com

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CIN No.-U24230PN2004PTC206917
GST No.- 27AADCM8601K1ZB

REF: MKPPL/HR/ITR/2023 **DATE: May 29, 2023**

CERTIFICATE

We are pleased to certify that **Mr. Bhagade Nirankar** (B. Pharm.) the Student of **" Sitabai Thite College of Pharmacy, Shirur "** has completed his One month In-Plant **"Industrial Training"** in the in our factory, during 30th April 2023 to 29th May 2023.

During the above period of his association with us, we found him sincere & honest in the work assigned to him

We wish him all the best in future.

Murli Krishna Pharma Pvt. Ltd. MKPPL

For Murli Krishna Pharma Pvt. Ltd.

29/05/23

HR & Administration

Address - D-98, Ranjangaon M.I.D.C., Ranjangaon, Shirur Taluka, Pune Dist. Maharashtra - 412209, India.
Tel. +91 2138 675000

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