



Bharath

INSTITUTE OF HIGHER EDUCATION AND RESEARCH

(Declared as Deemed-to-be University under section 3 of UGC Act, 1956)
(Vide Notification No. F.9-5/2000 - U.3, Ministry of Human Resource Development, Govt. of India, dated 4th July 2002)



Phone : 044-22290742 / 22290125 . Telefax : 044-22293886
Website : www.bharathuniv.ac.in

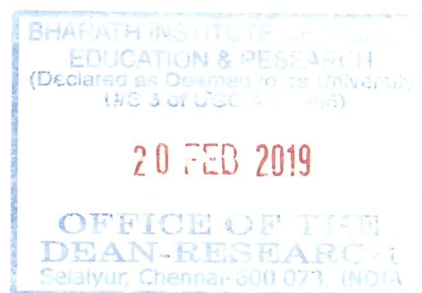
173, Agaram Road, Selaiyur, Tambaram,
Chennai - 600 073. Tamil Nadu.

Ref. No.SMS-2018-O-06

Date: 20.02.2019

TO

Ms. Swathi
Assistant Professor/Microbiology
BIHER



Thro: Concern Head of the Department

Greetings!!!

We are happy to announce that the Research Advisory Committee has approved your proposal for Seed Money Scheme-2018 which was presented by you. You are requested to complete the proposal and send the progress report to the Dean Research in the prescribed time period.

Title of the Project: Diuretic activity of methanolic extract of leaves of Pedalium murex L.

Seed Money Amount: Rs.1, 00,000/- (Rupees One Lakh Only)

Approved on: 05.02.2019

Payment details:

Voucher No.51

Dated: 27.02.2019

With Regards

Dean-Research

Bharath University

SELAIYUR, CHENNAI - 600 073, TAMIL NADU, INDIA.

CASH / PAYMENT VOUCHER

Date 27/02/2019

V.No. 51

Debit _____ Amount _____

Rs.

PAID TO Dr. S. Swathi

RUPEES One Lakh only

TOWARDS Seed Money Scheme - 2018



[Signature]

[Signature]

Authorised by

Finance Manager

Cashier/Accountant

Payee's Signature

PROPOSAL SUBMISSION

1. Details of Principal Investigator

Name : Dr. S. Swathi
Designation : Assistant Professor
Highest Qualifications : M. Sc.,
Department : Microbiology
E-mail : swathi.mmb@gmail.com
Contact no : 9047727660
Date of Joining : 05.05.2015

2. Details of Principal Investigator

Name : Dr. C. Naveen Kumar
Designation : Associate Professor
Highest Qualifications : Ph.D.
Department : Microbiology
E-mail : navin.mmb@gmail.com
Contact no : 9047765601
Date of Joining : 13.04.2013

Technical details

1. Introduction

Pedalium murex is a small herb belonging to family Pedaliaceae, commonly known as 'Anai nerinji, peru nerunji' and is widely distributed in It is distributed in tropical Africa, Ceylon, India, Mexico and Pakistan. It is a common herb grows throughout India but it is found commonly along the western and corommandal coasts as a weed of waste places. It also occurs in Delhi, Rajasthan and Punjab, Tamil Nadu and Gujarat and Deccan peninsula [1, 2]. According to Indian system of medicine (Siddha and Ayurveda), *Pedalium murex* is cooling tonic, aphrodisiac, improves appetite and useful in strangury, urinary discharges, vesicular calculi, cough, asthma, pain, cures skin diseases and heart troubles, piles, leprosy. It purifies blood, diuretic, removes stone in the bladder. According to Unani system of medicine, it is diuretic, cures strangury, gleet, gonorrhoea, lumbago, and tonic, enriches blood, increases menstrual flow, good gargles for mouth troubles and painful gums, stomachic, appetizer, emmenagogue etc [3, 4].

2. Review of status of Research and Development in the subject

Abdala S., D. Martín-Herrera, D. Benjumea, P. Perez-Paz, 2008, Diuretic activity of *Smilax canariensis*, an endemic Canary Island species, *J Ethnopharmacol*, 119, pp. 12–16.

Since time immemorial, the traditional medicinal practices have been known for the treatment of various ailments in India. A vast knowledge about the use of plants against different illnesses may be expected to have accumulated in areas where the use of plants is still a great importance. The medicinal value of a plant lies in some of its chemical substances (phytochemicals) that produce a definite physiological action on the human body. The most important bioactive compounds of plants are alkaloids, flavonoids, tannins and phenolic compounds.

2.1. International Status:

The plant is widely used to treat numerous diseases including gastric ulcer, asthma, heart problems, anti-inflammatory activity and particularly urinary disorders. Traditional medicine has become a skilled approach by means of rational values in handling a variety of diseases and developing an affordable phytotherapy. It is proclaimed that *P. murex* is an expensive source of unique bioactive compounds for the development of natural medicines against various diseases. It contains several flavonoids like pedalin, diosmetin, dinatin, pedalin dinatin-7-glucuronide (Subramanian and Nair, 1972). The stem contains herman and seeds contain an alkaloid harmine and also possesses some saponins. It contains alkaloids, a greenish fatty oil, small amount of resin and ash. Fruit contains a mucilagenous alkaloid 3.5 to 5 % stable oil, aromatic oil, tannins, glycosides, sterol and some nitrates, fat, resin, and gum, Caffeic acid, cumaric acid, daucosterol, ferulic acid, hepatatriacontonic acid, vanillic acid (Mithal and Sagar, 1974), ursolic acid and sitosterol were isolated from this plant. Flavonoids, triterpenoids, steroids, lipids, fatty acids,

phenolic acids, amino acids and carbohydrates of *Pedalium murex* were also reported (Khanuja and Shukla, 2004).

2.2. National Status:

NIL

3. Progress/ achievement so far, if any

- a). Reference papers was collected.
- b). Literature survey was studied.
- c). Materials and methods were designed.

4. Work plan

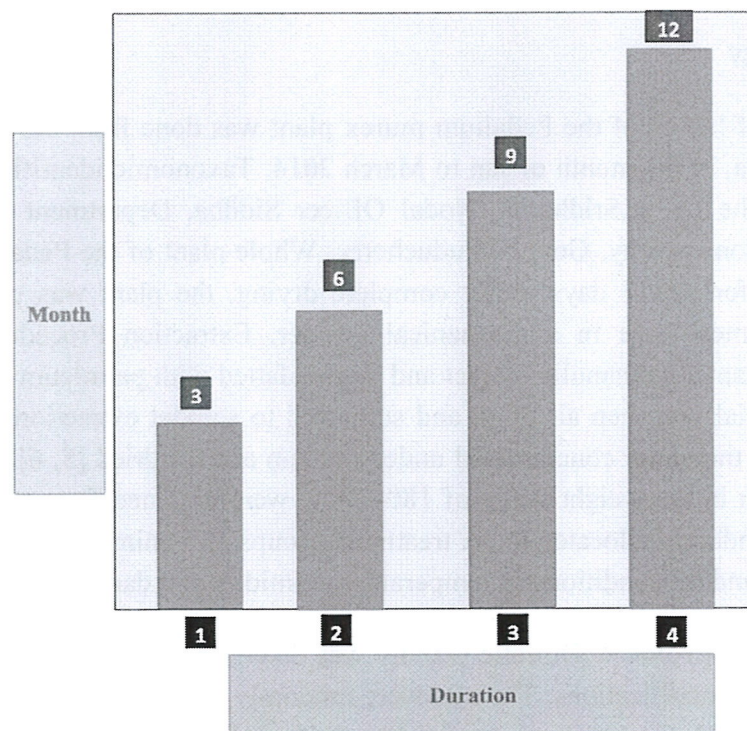
4.1 Methodology

Collection of leaves of the *Pedalium murex* plant was done from the different areas around Puducherry India, in the month of Jan to March 2014. Taxonomic identification of the plant has been done by the Dr. R.Sridharan, Nodal Officer Siddha, Department of Indian Systems of Medicine and Homeopathy, Govt of Puducherry. Whole plant of the *Pedalium murex* plant was dried in shade for 10–12 days. After complete drying, the plant was pulverized to a coarse powder of 40 mesh size in a mechanical grinder. Extraction Procedure: The leaves were powdered to obtain a methanolic extract and then defatted with petroleum ether at 60–70°C. The powdered material was then air dried and subjected to Soxhlet extraction for 18 h at 50–55°C. The extract was thereafter concentrated under vacuum and air-dried [5, 6]. **Animals:** Adult male Wistar rats, each in the weight range of 180–200g, were obtained from the Animal House. The animals were randomly allocated to six treatment groups of 6 animals each and kept in cages and housed under standard conditions of temperature, humidity and dark light cycle (12h–12h).

Experimental protocol: Diuretic activity was determined by the following methods of Kau et al., with minor modifications. The rats were randomly divided into four groups of six animals each as follows: (1) Control – given 5 ml/kg body weight of de-ionized water; (2) methanol extract – 200 mg/kg body weight; (3) methanol extract – 400 mg/kg body weight; and (4) Thiazide – 150 µg/kg body weight (Abdala, 2008; Martín- Herrera, 2008). In all cases, the volume of the dose was administered 5 ml/kg body weight. The animals were fasted overnight (18 h) prior to the test but with free access to tap water only and then were given an oral loading of normal saline (0.9%) of 0.05 ml per g body weight. Immediately after administration, the rats were paired and placed in metabolism cages. Urine was collected in a graduated cylinder and its volume was recorded at 2 h intervals for 8 h. Cumulative urine excretion was calculated in relation to body weight and expressed as ml/100 g b.w. Electrolyte (Na⁺ and K⁺) concentrations estimated (as described below) from the urine sample of each pair of rats at the end of the experimental period (8 h) and expressed as mequ/100 g b.w. Measurement of Urine Output and

Analysis of Electrolytes: Na⁺ and K⁺ concentrations were measured using flame photometer (Toshniwal, Model TCM-35). The instrument was calibrated with standard solutions containing different concentrations of Na⁺ and K⁺. **Statistical Analysis:** The results are expressed as mean values \pm S.E.M. (standard error of mean) for pairs of rats. Statistical comparison was carried out by analysis of variance (ANOVA) followed by Turkey's test to find out the level of significance using SPS software. The difference between the means of treated groups and the non-treated control group were considered statistically significant when $P < 0.05$.

4.2 Time Schedule of activities giving milestones through BAR diagram. (Maximum of 1/2 pages)



S. No	Activity/ mile stolen	1 st Year			
		1	Literature review	1-3 month	
2	Analysis of existing work	-	4-6 month		
3	Designing & work initiated	-	-	7-9 month	
4	Statistics & Discussion with results	-	-	-	10-12 month

4.3 Expected outcome within the time period of See Money Scheme

The results obtained in this study provide a quantitative basis to explain the traditional folkloric use of *Pedalium murex* as a diuretic agent. Natural plant drugs and excipients have gained importance over synthetic materials because they are nontoxic, less expensive and freely available. The purpose of this study is to search for a cheap and effective natural excipient that can be used as an effective alternative for the formulation of pharmaceutical suspensions. The suspending properties of *Malva sylvestris* and *P. murex* mucilage were evaluated comparatively with *Acacia* at concentrations of 0.5%, 1.0%, 1.5%, and 2% w/v in calcium carbonate suspension. Characterization tests were carried out on purified *Malva sylvestris* and *P. murex* mucilage. Sedimentation profile, redispersibility, rheology, particle size analysis was employed as an evaluation parameter. The values obtained were used as basis for comparison of the suspending agents studied. The results suggested that, *Malva sylvestris* and *P. murex* mucilage could be used as a suspending agent. They have low rate of sedimentation, high viscosity, slightly basic pH and are easily redispersible.

5. Suggested Plan of action stating the name of funding agency where the project will be communicated for financial support within the time period of project.

Nil

6. Bibliography: Nil

Nil

7. List of Projects submitted/implemented by the Investigators (Separate for Pi and Co-PI)

7.1 Details of Projects submitted to various funding agencies:

S.No	Title	Cost in Lakhs	Month of Submission	Role as PI/Co-PI	Agency	Status
1	NA	NA	NA	NA	NA	NA

7.2 Details of Projects under implementation

Sl. No.	Title	Cost in lakhs	Duration	Role as PI/ Co-PI	Agency
1	NA NA	NA	NA	NA	NA

7.3 Details of Projects completed during the last 5 years

Sl. No.	Title	Cost in lakhs	Duration	Role as PI/ Co-PI	Agency
1	NA	NA NA	NA	NA	NA

8. List of publications published by the Investigators, if any:

a) Principal Investigator

S. No	Author names	Title of paper	Name of Journal	Vol (Issue)	Page No.	Year
1.	Swathi. S1 , Naveen kumar. C2, Abarna. V3, Jayapradha. S4, Srikumar. R5	Screening of Chlamydia trachomatis Infection among Childbearing Age Group Women in a Tertiary Center in South India	Indian Journal of Public Health Research & Development	9(9)	77-81	2018
2.	ISwathi.S* , 2Naveen Kumar.C, 3Abarna. V, 4Jayapradha. S, 5Kamatchi. S	Prevalence of Intestinal Parasites in a Tertiary Care Hospital in Rural Puducherry	Journal of Current Trends in Clinical Medicine & Laboratory Biochemistry	3(3)	16-21	2017
3.	S Ayyappan, Sachu Philip, N Bharathy, V Ramesh, C Naveen Kumar, S Swathi , A Arun Kumar	Antioxidant status in neonatal jaundice before and after phototherapy	Journal of pharmacy & Bioallied sciences	7(1)	S16-19	2015
4.	KP Shiva Govindan, Saleem Basha, V Ramesh, C Naveen Kumar, S Swathi	A comparative study on serum lipoprotein (a) and lipid profile between rheumatoid arthritis patients and normal subjects	Journal of Pharmacy & Bioallied Sciences	7(1)	S22-25	2015

5.	Jayaranjani.K Jayarani.K, Sandhyarani.T, Naveen Kumar's, Swathi.S	Detection of MBL Producing Pseudomonas aeruginosa in Tertiary Care Hospital, Pondicherry	International Journal of Recent Scientific Research	5(8)	1460-1463	2014
----	--	---	--	------	-----------	------

b). Co-Principal Investigator

S. No	Author names	Title of paper	Name of Journal	Vol (Issue)	Page No.	Year
1.	Naveenkumar C1 , Swathi S2, Srikumar R3, Sairavikiran B4, Prabhakarreddy E5	Comparative Study on Normal Symptomatic Medication with Andrographis Paniculata (Nila-Vembu) Extract on Platelets Count in Thrombocytopenia Patient affected from Dengue Fever	Indian Journal of Public Health Research & Development	9(8)	16-20	2018
2.	Naveen kumar C1 , Srikumar R2, Swathi S3, Chidambaram R4, Muthukrishnan G5, E Prabhakar Reddy6	Phytochemical Analysis and Antifungal Activity of Ganoderma lucidum	Indian Journal of Public Health Research & Development	9(120)	130-135	2018
3.	Naveen Kumar C , Sri Kumar R, Swathi R, Prabhakar Reddy E, Chidambaram R.	Role of Ganoderma lucidum against trizole drugs resistant Aspergillus species	International Journal of Research Pharmaceutical Sciences	9(4)	1189-1195	2018
4.	S Ayyappan, Sachu Philip, N Bharathy, V Ramesh, C Naveen Kumar , S Swathi, A Arun Kumar	Antioxidant status in neonatal jaundice before and after phototherapy	Journal of pharmacy & Bioallied sciences	7(1)	S16-19	2015
5.	KP Shiva Govindan, Saleem Basha, V Ramesh, C Naveen Kumar , S Swathi	A comparative study on serum lipoprotein (a) and lipid profile between rheumatoid arthritis patients and normal subjects	Journal of Pharmacy & Bioallied Sciences	7(1)	S22-25	2015

6.	Jayaranjani.K Jayarani.K, Sandhyarani.T, Naveen Kumar.C, Swathi.S	Detection of MBL Producing Pseudomonas aeruginosa in Tertiary Care Hospital, Pondicherry	International Journal of Recent Scientific Research	5(8)	1460-1463	2014
7.	Janani.S Sandhyarani T, Jayarani.K, Sai Ravikiran B, Naveenkumar.C	Microbiological Profile and Spectrum of Drug Susceptibility In Asymptomatic Bacteriuria Among Antenatal Women	Universal Research Journal Of Medical Sciences	1(1)	13-16	2014

9. Budget

SI. No	Head	Amount (Rs.)
1	BP Apparatus, Stethoscopes, Body weight weighing machine, SPSS version 16 Chicago, IL, USA, ECG machine	45000
2	Consumables (gels bottles, cotton, sprit, testing charges, tools, etc.)	10000
3	Travel support for the purpose of research work.	10000
4	Contingency	25000
5	Other's consumables	10000
	Total	1,00,000

*In case of any joint proposal for purchasing a same equipment, each of the associated PLs is also required to give separate budget (without any clubbing) to avoid any ambiguity, if all the associated projects are not awarded by committee.

**10. Name of at least two subject experts from the Institute and one from the outside
Institute with their contact details:**

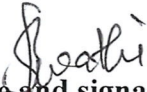
<p>1. Dr. Florida, Research Scientist, Sree Balaji Medical College and Hospital, Chennai Mobile No: 9940027169 E-mail id: biozonediagnostics@gmail.com</p>	<p>2. Dr. Suba, Professor in Microbiology, Rela Transplantation Institute, Chennai Mobile No: 9962526457 E-mail id: subamicro@gmail.com</p>
---	--

CERTIFICATE FROM THE INVESTIGATOR

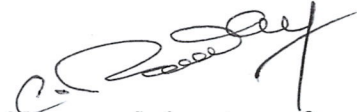
Project Title: Diuretic activity of methanolic extract of leaves of *Pedaliium murex* L.

It is certified that

1. I do hereby agree to submit a complete proposal for financial support to the external funding agency within the time period of SMS-2018.
2. I undertake that spare time on equipment procured in the project will be made available to other users.
3. I agree to submit a certificate from Institutional Biosafety Committee, if the project involves the utilization of genetically engineered organisms. I also declare that while conducting experiments, the Biosafety Guidelines of Department of Biotechnology, Department of Health Research, GOI would be followed in to.
4. I agree to submit ethical clearance certificate from the concerned ethical committee, if the project involved field trails/experiments/exchange of specimens, human & animal materials etc.
5. I agree to abide by the terms and conditions of SMS-2018, BIHER, and Chennai.



**Name and signature of
Principal Investigator**



**Name and signature of
Co-Principal Investigator**


Date: 02.01.2019

Place: Pondicherry

Forwarded by Head of the Department



Signature of the Head


DEAN
SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES
OSUDU, AGARAM VILLAGE,
KODAPAKKAM POST,
PUDUCHERRY - 605 502

PROJECT EVALUATION FORMAT

Recommendation sheet

Name of the Principal Investigator	DR. S. Swathi
Name of the Co-Principal Investigator	Dr. C. Naveenkumar
Name of the Department	Microbiology
Title of project	Diuretic activity of methanolic extract of leaves of Pedalium murex L.
Recommendation of the evaluation committee (Recommended/Revision/Not Recommended)	Recommended
Financial allocation recommended	Rs. 1,00,000/-

SI. No.	Head	Amount
1	BP Apparatus, Stethoscopes, Body weight weighing machine, SPSS version 16 Chicago, IL, USA, ECG machine	45000
2	Consumables- Gel bottles, cotton, sprit, testing charges, tools, etc.	10000
3	Travel support for the purpose of research work.	10000
4	Contingency	25000
5	Others consumables	10000
	Total	1,00,000

Name and Signature of the Research Advisory Committee members with date.



gsw
(Dr. G. Jayalakshmi)