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)
Accredited by NAAC NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL
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Chennai - 600 073. Tamil Nadu.

Ref. No.SMS-2015-O-10 Date: 17.02.2017

TO

Mr. S. Jai Kumar
Associate Professor/Pharmacology
BIHER

BHARATH INSTITUTE OF HIGHER EDUCATION & RESEARCH (Declared as Deemed to be University u/s 3 of UGC Act, 1956) 17 FEB 2017 OFFICE OF THE DEAN-RESEARCH Selaiyur, Chennai-600 073. (INDIA)

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-2015 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: Antiurolithiatic Effect of Ethanolic Leaf Extract of Ipomoea reniformis against Ethylene Glycol Induced Urolithiasis in Experimental Animals

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

Approved on: 15.02.2017

Payment details:

Voucher No.31 **Dated: 24.03.2017**

With Regards

Dean-Research

Bharath University

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

CASH / PAYMENT VOUCHER

Date 24/03/2017

V.No. 37

Debit _____ Amount

Rs. 1,00,000/-

PAID TO Dr. S. Jaikumar

RUPEES One lakh only

TOWARDS Seed Money scheme - 2015

BHARATH UNIVERSITY CHENNAI 600 073. INDIA.

Authorised by **Finance Manager** **Cashier/Accountant** **Payee's Signature**

PROPOSAL SUBMISSION

1. **Details of Principal Investigator**

Name	: Dr. S. Jaikumar
Designation	: Assistant Professor
Highest Qualifications	: Ph.D.
Department	: Pharmacology
E-mail	: jaipharma2007@gmail.com
Contact no	: 8825343635
Date of Joining	: 17.08.2009

2. **Details of Co-Principal Investigator**

Name	: Dr. Somasundaram G
Designation	: Professor
Highest Qualifications	: MD
Department	: Pharmacology
E-mail	: somasundaramganesan8@gmail.com
Contact no	: 9677337050
Date of Joining	: 25.02.2016

Technical details

1. Introduction:

Urolithiasis is a common problem in populations around the world, and contributes significantly to the development of end stage renal disease. It is a matter of debate whether the metabolic factors responsible for renal stone formation are similar or variable in different populations around the globe. The incidence peaked in the third and fourth decades, and prevalence increased with age until approximately the age of 70 years. Importantly, kidney stones were a recurrent disorder, with lifetime recurrence risks reported to be as high as 50%. Mankind has been afflicted by urinary or kidney stones since centuries and it are proven to be an important cause of renal failure. Kidney stone is a common painful condition of multifactorial etiopathogenesis, and calcium oxalate is the commonest component of stone. Traditionally various medicinal plants were used in the treatment of urolithiasis globally due to its least side effects. The present study was undertaken with an aim of evaluating the antiurolithiasis effect of ethanolic leaf extract of Ipomoea reniformis against, ethylene glycol induced urolithaisis in rats.

Herbs and herbal drugs have created interest among the people by its clinically proven effects. The overuse of synthetic drugs, results in higher incidence of adverse drug reactions, has motivated humans to return to nature for safe remedies. One such distinguished herb is Iponema reniformis traditionally used for treating the kidney stones. Ipomoea reniformis belonging to the family Convolvulaceae is a perennial, much branched herb (creeper). It is widely distributed all over the India, especially in damp places in upper gangetic plain, Gujarat, Bihar, West Bengal, Western- Ghats, ascending up to 900m in the hills, Goa, Karnataka in India, Ceylon and Tropical Africa [3].

The traditionally important, Ipomoea reniformis was reported to possess various pharmacological activities. However, there is no scientific evidence to mark the effect of Ipomoea reniformis against urolithiasis. Hence, the present study was conducted with an aim to investigate the protective effect of Ipomoea reniformis in kidney stone.

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

Jabeen Q, Aslam N. Hypotensive, angiotensin converting enzyme (ACE) inhibitory and diuretic activities of the aqueous-methanol extract of Ipomoea reniformis. Iranian journal of pharmaceutical research: IJPR. 2013; 12(4):769.

In the Indigenous system of Medicine, Ipomoea reniformis has been claimed to be useful for cough, headache, neuralgia, rheumatism, diuretic, inflammation, troubles of nose, fever due to enlargement of liver and also in kidney diseases. Powder of leaves is used as a snuff during epileptic seizures, Juice acts as purgative and the root is having diuretic, laxative, and applied in the disease of the eyes and gums, Ipomoea reniformis reported to possess Antioxidant, Antihypertensive, Analgesic, Anti-inflammatory, Antipyretic, Antidiabetic, Antibacterial, Anticancer and Nephro protective activities.

2.1. International Status:

It is estimated that at least 10% of the population in the industrialized part of the world is afflicted by renal disease. Among those, kidney stones are common in industrialized nations with an annual incidence of 0.5-1.9%. About 12% of the population of India is expected to have kidney stones and out of that about 50% of cases encounter loss of one or both kidneys with or without renal damage up to some extent. A large number of plants have been used in India since ancient times, which claim the efficient cure of urinary stone.

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

Plant material: The leaves of Ipomoea reniformis were collected from outskirts of Tirunelveli District, in the month of December. It was identified and authenticated as *Ipomoea reniformis* by Scientist 'F' Botanical survey of India, Southern Regional Centre, Tamilnadu Agriculture University, and Coimbatore. The voucher specimen (BSI/SRC/12/42/2015-16/Sci/1555) has been deposited in department for further references.

Preparation of Extract: The leaves of Ipomoea reniformis were, shade dried and then ground into coarse powder. The powder was then subjected to exhaustive extraction by a maceration process using 70% ethanol as a solvent at room temperature for 7 days. The ethanolic extract was concentrated by vacuum distillation to dry. The collected extract was stored in desiccators and used for further pharmacological study.

Animals: Male Wistar Albino rats weighing between 150– 180 gm were used for the study. The animals were obtained from animal house of Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry, India. On arrival the animals were placed at random and allocated to treatment groups in polypropylene cages with paddy husk as bedding. Animals were housed at a temperature of 24 ± 2oC and relative humidity of 30–70 %. A 12:12 light: dark cycle was followed. All animals were allowed free access to water and fed with standard commercial pelleted rat chaw (Hindustan Lever Ltd, Mumbai). All the experimental procedures and protocols used in this study were reviewed by the

Institutional Animal Ethics Committee (932/a/06/CPCSEA) and were in accordance with the guidelines of the IAEC.

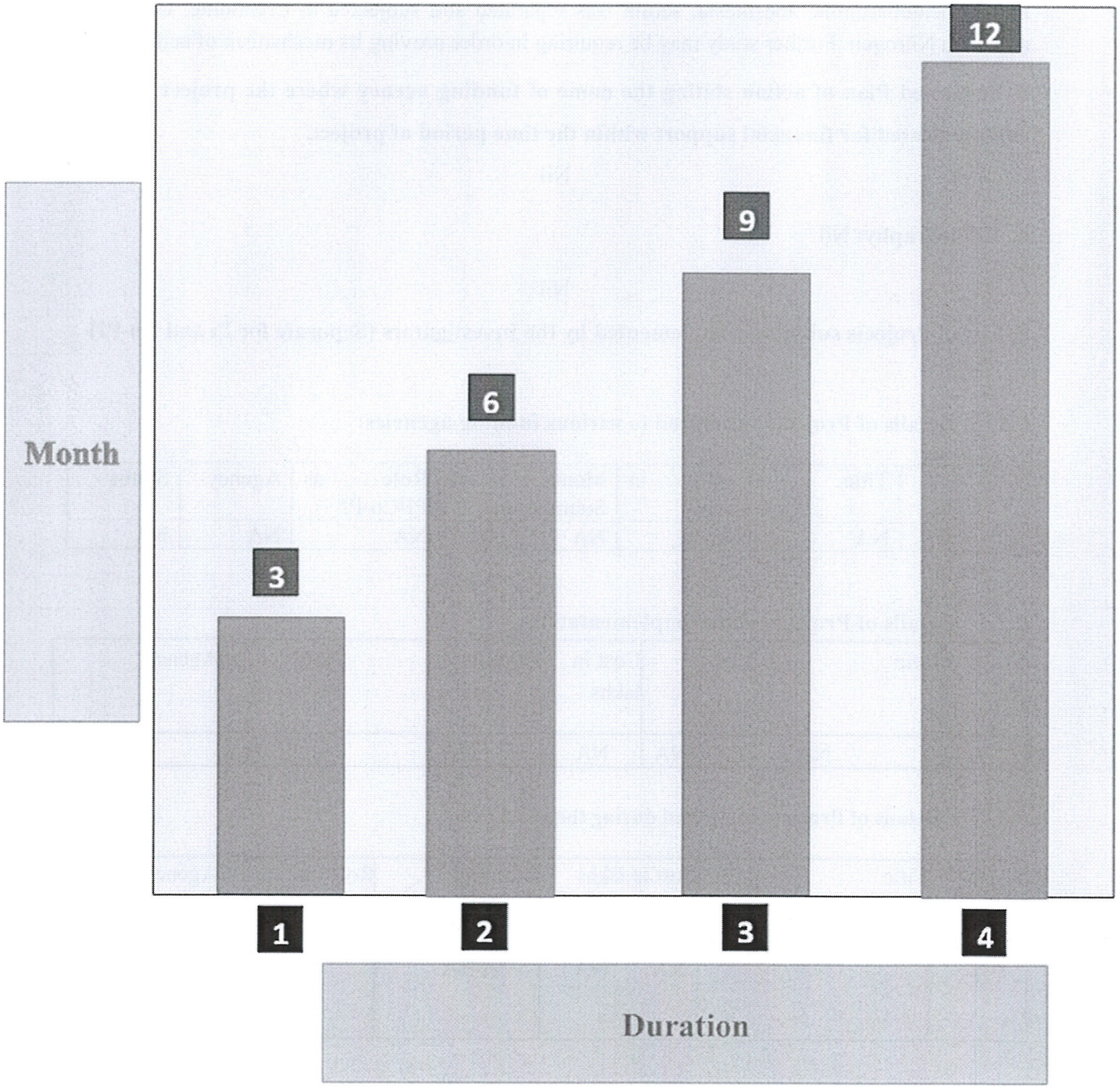
Ethylene Glycol Induced Urolithiasis Model: Ethylene glycol induced hyperoxaluria model was used to assess the antilithiatic activity in albino rats. Animals were divided into four groups containing six animals in each. Group I served as normal control and received regular rat food and drinking water ad libitum. Ethylene glycol (0.75%) in drinking water was fed to Groups II-V for induction of renal calculi till 28th day. Group II served as uro lithiatic control, received drinking water and group III received standard antiurolithiatic drug, Cystone (750mg/kg weight) from 15th day till 28th day [12]. Groups IV and V served as curative regimen received ethanolic leaf extract of Ipomoea reniformis (200 and 400 mg/kg, respectively) from 15th day till 28th day once daily by oral route.

Assessment of Antiurolithiatic activity: Urine Analysis - All animals were kept in individual metabolic cages and urine samples of 24h were collected on 28th day. Animals had free access to drinkin g water during the urine collection period. A drop of concentrated hydrochloric acid was added to the urine before being stored at 4°C. Urine was analyzed for calcium [13], phosphate [14] and oxalate [15] contents.

Serum Analysis: After the experimental period, blood was collected from the retro-orbital under Phentobarbitone (45mg/kg) anesthetic conditions. Serum was separated by centrifugation at 10,000x g for 10 min and analyzed for creatinine [16], uric acid [17] and urea nitrogen [18].

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

S. No	Activity/ mile stolen	1st 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**


Month
3
6
9
12
1
2
3
4
Duration

4.3 Expected outcome within the time period of See Money Scheme

The effect of Ipomoea reniformis on ethylene glycol induced urolithiasis in rats was studied and the urine (Calcium, Phosphate and Oxalate) and serum (Creatinine, Uric Acid and Urea nitrogen) parameters. The ethanolic leaf extract of Ipomoea reniformis studied for its antiurolithiatic activity against ethylene glycol induced urolithiasis in rats. From the results it was concluded that, Ipomoea reniformis leaf extract exhibited antiurolithiatic activity, and it may be due to the presence of flavonoids. Blood was also withdrawn through retro-orbital puncture under phentobarbitone anesthesia; serum was separated and subjected to Creatinine, Uric acid and Urea Nitrogen. Further study may be requiring in order proving its mechanism of action.

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
	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
	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
	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.	Sridhar VR1, Jayakumar P2, Arun Seetharaman1, **Jaikumar S3***	Sedative effect of Lawsonia inermis root extract on phenobarbitone induced sleeping time in mice	European Journal of Molecular Biology and Biochemistry	3(3)	113-115	2016
2.	Sridhar VR1, Jayakumar P2, Arun Seetharaman1, **Jaikumar S3***	Influence of tabernae corymbosa root extract on Central nervous system mediated muscle Coordination in experimental animal	Acta Biomedica Scientia	3(4)	223-226	2016
3.	Sridhar VR1, Arun Seetharaman1 Jayakumar P2 and **Jaikumar S3***	Anticonvulsant Activiy Of Oleogum Resin Extract Of Commiphora Wightii Against Pentylenetetrazole Induced Convulsion In Mice	International Journal of Pharmacy & Therapeutics	7(2)	53-56	2016
4.	Buvanaratchagan A1, Jayakumar P2 and **Jaikumar S3***	Evaluation of antibacterial activity of pedalium murex fruit and its influence in dermatological infections	International Journal of Phytopharmacology	7(2)	77-79	2016

a) Co-Principal Investigator

S. No	Author names	Title of paper	Name of Journal	Vol (Issue)	Page no.	Year
1.	Asokan BR1, Jaikumar S2*, **Somasundaram G2**	Anti-Diarrhoeal Activity of Ethanolic Leaf Extract of Luffa Acutangula against Castor Oil Induced Diarrhoea in Rats	Scholars Academic Journal of Biosciences	5(11)	809-811	2017

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	Others 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:

1. **Dr. B R Ashokan** Professor in Pharmacology, Aarupadi Veedu Medical College and Hospital, Puducherry **Mobile No**: 82485 60347 **E-mail id:** brashokan@gmail.com	2. **Dr. S. Sengottuvelu** Professor in Pharmacology Department, Nandha College of Pharmacy, Erode - 638052 **Mobile No**: 9994426689 **E-mail id:** sengt@rediffmail.com

CERTIFICATE FROM THE INVESTIGATOR

Project Title: Antiurolithiatic Effect of Ethanolic Leaf Extract of Ipomoea reniformis Against Ethylene Glycol Induced Urolithiasis in Experimental Animals.

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-2015.
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-2015, BIHER, and Chennai.

Name and signature of
Principal Investigator

Name and signature of
Co-Principal Investigator

Date: 27.01.2017
Place: Pondicherry

Forwarded by Head of the Department

Signature of the Head

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

PROJECT EVALUATION FORMAT

Recommendation sheet

Name of the Principal Investigator	Dr. S. Jaikumar
Name of the Co-Principal Investigator	Dr. Somasundaram G
Name of the Department	Pharmacology
Title of project	Antiurolithiatic Effect of Ethanolic Leaf Extract of Ipomoea reniformis Against Ethylene Glycol Induced Urolithiasis in Experimental Animals.
Recommendation of the evaluation committee (Recommended/Revision/Not Recommended)	Recommended
Financial allocation recommended	Rs. 100000/-

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	Other's consumables	10000
	Total	**1,00,000**

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

Internal Quality Assurance Cell * IQAC Pondicherry-02 * SLIMS

(Dr. G. Jayalakshmi).