



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)



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Chennai - 600 073. Tamil Nadu.

Ref. No.SMS-2015-O-04

Date: 17.08.2017

TO

Mr. C. Naveen Kumar
Assoc. 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-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: A Comparative Study on Normal Symptomatic Medication with *Andrographis Paniculata* (Nila-Vembu) Extract on Platelets Count in Thrombocytopenia Patient affected from Dengue Fever

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

Approved on: 02.08.2017

Payment details:

Voucher No.39

Dated: 30.08.2017

With Regards

Dean-Research

Sharath University

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

CASH / PAYMENT VOUCHER

Date 30/08/2017

V.No. 39

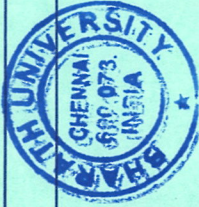
Debit _____ Amount _____

Rs.

PAID TO Dr. C. Narenkumar

RUPEES One Lakh Only

TOWARDS Seed Money Scheme - 2015



[Signature]

Authorised by

Finance Manager

Cashier/Accountant

[Signature]

Payee's Signature

PROPOSAL SUBMISSION

1. 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

2. Details of Principal Investigator

Name : Dr. R. Sri Kumar
Designation : Associate Professor
Highest Qualifications : Ph.D.
Department : Microbiology
E-mail : rsrikumar_2003@yahoo.in
Contact No : 9442500300
Date of Joining : 02.01.2012

Technical details

1. Introduction:

Dengue is caused by infection with one of four dengue virus serotypes (DENV-1, 2, 3 and 4) belongs to the Flaviviridae family. The majority of dengue infections are asymptomatic but a proportion manifest as a non-specific febrile illness progress to severe disease. The virus is transmitted by *Aedes aegypti* mosquito that bites during daylight hours. The clinical symptoms of dengue infection seem to be the consequences of both virus- and immune response-induced damage. Dengue display antibody epitopes that are unique to each serotype and epitopes that are shared between serotypes. Despite the cross reactivity, antibodies only prevent reinfection by the same serotype (homologous serotype) and individuals are susceptible to a second infection with a different serotype (heterologous serotype) increases the risk of dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS). Increasing in human population, rapid urbanisation, and international travel create suitable conditions for the mosquito vector *A. aegypti* to spread to new areas, causing major epidemics. Dengue epidemics become endemic over 100 countries including Asia 1. DHF has recorded major cases resulting in hospitalization and death among children in regions stretching from Asia to Africa. Traditional medicinal plants have been reported to have antiviral activity and some have been used to treat viral infections. *Alternanthera philoxeroides* belongs to family Amaranthaceae showed strongest inhibitory effect on dengue virus 4, *Andrographis paniculata* belongs to family Acanthaceae showed highest antiviral inhibitory effect on DENV-1 5, *Azadirachta indica* belongs to the family Meliaceae showed inhibitory effects on virus 6, *Gymnogongrus griffithsiae* belongs to family Phylloporaceae showed inhibitory properties against DENV-2 7, *Rhizophora apiculata* belongs to family Rhizophoraceae exhibited inhibitory activity and an inactivated viral particle activity 8, *Psidium guajava* belongs to family Myrtaceae, leaf extract has been tested in vitro and showed to inhibit the growth of dengue virus. *Andrographis paniculata* belongs to family Acanthaceae, fast-growing, shrub. The extracts of *Andrographis paniculata* contain 14-deoxyandrographolide, andrographolide, neoandrographolide and 14-deoxy-11, 12-di-dehydroandrographolide 9-11. Nila-vembu extract is now being widely used as a treatment for Dengue fever in many countries 12. The present study was designed against dengue viral to investigate the potential of nila vembu extract induced to increase in platelet counts.

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

Tang LIC, Ling APK, Koh RY, Chye SM, Voon KGL. Screening of anti-dengue activity in methanolic extracts of medicinal plants. *BMC Complement Altern Med* 2012; 12: 3.

Approximately 2.5 billion people are now at risk of Dengue, and about 50 million infections globally occur annually. Over 100 million cases of DHF and at least 500,000 cases of DHF and approximately 18,000 deaths occur each year 2. Despite its lethal consequences, the staggering numbers of those affected are increased by the fact that, at present, there is no specific antiviral treatment or vaccine for Dengue fever. Early diagnosis and strict hospitalization often

save the life of patients. Other's strategies include the use of plants with bioactive substances that have toxic properties to the vector or insecticidal properties. A safe, low-cost, and effective vaccine to control Dengue fever is needed, especially in the most affected countries. Therefore, the search of highly selective but non-toxic antiviral compounds is urgently needed in view of the spread of dengue disease throughout the World. About 80 % of the population in Asian and African countries depends on traditional medicine as their primary health care. Natural products have become the main source of test material in the development of antiviral drugs based on traditional medical practices 3.

2.1. International Status:

Dengue virus is a group of four serologically distinct flaviviruses responsible for the most important emerging viral diseases in tropical and subtropical areas globally. As there is no specific treatment or vaccine exists for dengue fever yet, present study was designed by supplementing nila vembu extract along with the normal symptomatic medication. Though various studies related to nila vembu extract on dengue fever was documented 13,14, but none of the studies compared the normal symptomatic medication with nila vembu extract on dengue fever induced alteration in the platelet count which was compared in this study made unique. In the present study nila vembu extract was used as complementary drug along with the normal symptomatic medication in febrile illness patients. As per the Safety studies based on Organization of Economic Cooperation and Development (OECD) guidelines for acute, subacute and chronic toxicity conducted on nila vembu extract was found to be safe for human consumption

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

Subject: Patients infected with Dengu virus (abrupt decline in the platelets counts) was admitted in Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry, India from June 2016 to May 2017 was selected for this study and Institutional Ethics Committee approval was obtained. Dengue viral infection was confirmed by observing the platelet count decreased (less than 150000 platelets per microliter of blood) from normal level. Totally 86 patients who are all accepted were enrolled in this study and divided into two groups of 43 patients in each group. In

which one group administered with nila vembu extract as complementary drug along with normal symptomatic medication. Before screening all participating patients received full verbal and written details of the study and obtained informed patient consent. The inclusion criteria of both gender age of above 10 years with fever, platelet count less than 150000/ μ l were included. All pregnant and lactating women's and patients with less than 10 years old, blood transfusion (whole blood or components) within last 3 months, history of allergic drug reactions, platelet transfusion made for those platelet level drops significantly below 20000/ μ l were excluded in this study.

Fresh healthy mature *Andrographis paniculate* shrubs were collected and full plant were washed in running tap water. The plant material was identified and authenticated by Dr. A. Kadavul, Ph.D (Botanist), Govt. Tagore Arts and Science College, Puducherry, India. Then leaves were chopped into small pieces, from which 50 gram was weighed and grinded until a uniform pulp is made. To which 50ml of sterile boiled cool drinking water and 25gram of sugar/sucrose was added and mixed well. After 30 minutes pulp was squeezed to collect nilavembu extract juice. About 25ml of nila vembu extract juice was administered orally twice a day (Morning and evening) for 07 consecutive days (1 week). Platelet count the 3ml of blood samples were drawn in 3ml K3 EDTA collection tube before and after 7 days of nila vembu extract administration. Blood sample was placed for auto enumeration of platelet count in the automated cell counter. The automated cell counter is maintained as per manufacturer's instructions. Cell counter was calibrated according to manufacturers' specifications regularly. The manual platelet count was also done by peripheral smear staining method by trained technicians. Mean average from automated and manual was interpreted.

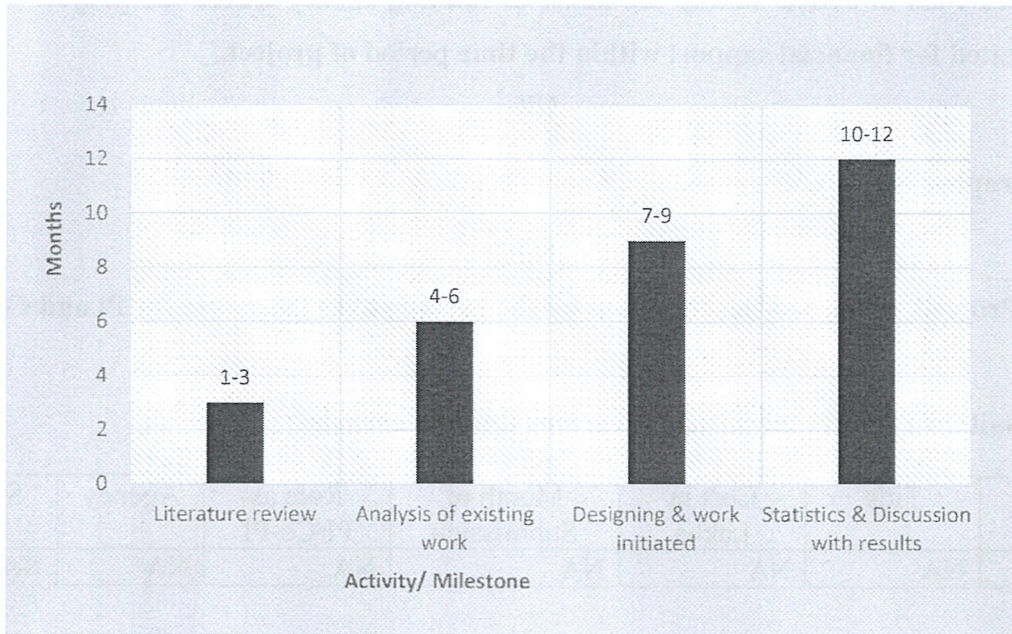
Statistical Analysis

All data were expressed as Mean \pm Standard Deviation. The Statistical significance was evaluated by One-way Analysis of Variance (ANOVA) using SPSS package 16.0 version, when there was a significant difference, Tukey's multiple comparisons were performed by fixing the significance level at $p < 0.001$.

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

S. No	Activity/ mile stolon	1 st Year			
		1-3 month			
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

Over all the present study suggest that supplementation of nila vembu extract with normal symptomatic medication will regain the platelet count within 7 days of regimen, by which reduce the hospital stay and recover quickly when compared with the normal symptomatic medication. Further studies warranted to identify and isolation of the active compound from nila vembu extract and mechanism of action should also be explored through better designed in large clinical trials.

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

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.	Naveen kumar C1, Srikumar R2, Swathi S3, Chidambaram R4, Muthukrishnan G5, E Prabhakar Reddy6	Phytochemical Analysis and Antifungal Activity of <i>Ganoderma lucidum</i>	Indian Journal of Public Health Research & Development,	9(120)	130-135	2018
2.	Naveen Kumar C, Sri Kumar R, Swathi R, Prabhakar Reddy E, Chidambaram R.	Role of <i>Ganoderma lucidum</i> against trizole drugs resistant <i>Aspergillus</i> species	International Journal of Research Pharmaceutical Sciences	9(4)	1189-1195	2018
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.C, Swathi.S	Detection of MBL Producing <i>Pseudomonas aeruginosa</i> in Tertiary Care Hospital, Pondicherry	International Journal of Recent Scientific Research	5(8)	1460-1463	2014
6.	Janani.S Sandhyarani T, Jayarani.K, Sai Ravikiran B, Naveenkumar.C	Microbiological Profile and Spectrum of Drug Susceptability In Asymptomatic Bacteriuria Among Antenatal Women	Universal Research Journal Of Medical Sciences	1(1)	13-16	2014

a) Co-Principal Investigator

S. No	Author names	Title of paper	Name of Journal	Vol (Issue)	Page No.	Year
1.	Geethavani Babu, Balamuruganvelu S, Saleel VMaulingkar, R Srikumar , Sreenivasalu Reddy V, Senthamizhan VS	Incidence Rate and Antibiotic Susceptibility Pattern of Listeria Species in High Risk Groups	National Journal of Laboratory Medicine	6(2)	MO11-MO15	2017
2.	Naveen Kumar C1, Ponniah M2, Srikumar R3* , Vijayakumar R4, Chidambaram R4, Jayalakshmi G1, Prabhakar Reddy E5, Manoharan A6, Sai Ravi Kiran B5	Incidence of Dengue Fever in Febrile Patients and Co-Infection with Typhoid Fever in South India	Annals of Medical and Health Sciences Research	7:	111-113	2017
3.	S Latha, R Venkataramanan, R Srikumar , RV Kumar	Effect of Triphala on noise stress induced alteration in glucocorticoid and carbohydrate metabolism.	International Journal of Pharma and Bio Sciences	6(2)	1-15	2015

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:

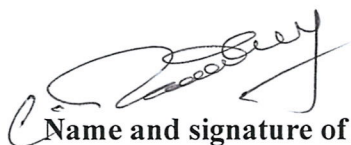
<p>1. Dr. Florida, Research Scientist, Sree Balaji Medical College and Hospital, Chennai Mobile No: 9940027169 E-mail id: biozonediagnostics@gmail.com</p>	<p>2. Dr. Suba, Professor in Microbiology, Rela Transplantation Institute, Chennai Mobile No: 9962526457 E-mail id: subamicro@gmail.com</p>
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CERTIFICATE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

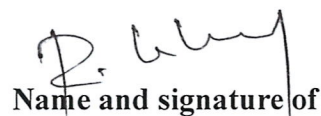
Project Title: Comparative Study on Normal Symptomatic Medication with Andrographis Paniculata (Nila-Vembu) Extract on Platelets Count in Thrombocytopenia Patient affected from Dengue Fever

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

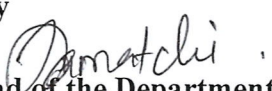
Principal Investigator


Name and signature of


Co-Principal Investigator

Date: 24.07.2017

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. C. Naveen Kumar
Name of the Co-Principal Investigator	Dr. R. Srikumar
Name of the Department	Microbiology
Title of project	Comparative Study on Normal Symptomatic Medication with Andrographis Paniculata (Nila-Vembu) Extract on Platelets Count in Thrombocytopenia Patient affected from Dengue Fever
Recommendation of the evaluation committee (Recommended/Revision/Not Recommended)	<i>Recommended</i>
Financial allocation recommended	<i>Rs - 1,00,000/-</i>

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



ym
(Dr. G. Jayarajeshwari)