



**A.V.V.M. Sri Pushpam College (Autonomous)**

**Poondi– 613 503, Thanjavur-Dt, Tamilnadu**

*(Affiliated to Bharathidasan University, Tiruchirappalli – 620 024)*

**3.7.1 Number of Collaborative activities per year  
for research/ faculty exchange/ student  
exchange/ internship/ on –the-job training/  
project work**

## **Collaborating Agency:**

**Dr. V.S. Narmatha, Associate Professor, Department of Biotechnology,  
St.Michael College of Engineering and Technology, Kalayarkoil,  
Sivagangai, Tamil Nadu.**



**Dr. V. AMBIKAPATHY**

Assistant Professor  
PG & Research Department of Botany and  
Microbiology  
AVVM Sri Pushpam College (Autonomous)  
Poondi-613 503, Thanjavur-Dt, Tamil Nadu, India.

**Dr. V.S NARMATHA**

Associate Professor  
Department of Biotechnology,  
Michael college of Engineering  
and Technology, Kalayar kovil,  
Sivagangai, Tamil Nadu, India



Date: 16-09-2018

**LINKAGE**  
**For the year 2018-2019**

**Between**

- |   |   |  |
|---|---|--|
| 1. Dr. V. Ambikapathy,<br>Assistant Professor<br>PG & Research Department of Botany<br>and Microbiology<br>A.V.V.M Sri Pushpam College<br>(Autonomous), Poondi – 613 503. | & | 2. Dr. V.S. Narmatha<br>Associate Professor,<br>Dept. of Biotechnology,<br>St. Michael college of Engineering and<br>Technology, Kalayar kovil,<br>Sivagangai, Tamil Nadu, India |
|---|---|--|

Considering the significance of the noble cause for the student community, we have come forward to collaborate with each other to exchange research knowledge, expertise, laboratory and library facilities to the process of scientific research and education in the field of Biological science. The parties (mentioned above as 1. & 2.) have had preliminary discussion in this matter and have ascertained areas of broad consensus. The parties now therefore agreed to enter in writing these avenues of consensus, under a flexible linkage, and this project aims to fill the gap between knowledge demand and subject expertise related to the mentioned field.

**Joint Responsibilities**

- Sharing of laboratory facilities, library resources, database etc.,
- Joint Publication of research articles, books, magazines, bulletins etc.,
- Jointly organizing conferences, seminars, symposia and workshops.
- Submitting joint proposals for research funding from agencies like UGC, CSIR, DST and TNSCST.
- Patenting Microbes, Plants patents Procedure, Product development and Novel equipments in Biological sciences (Indian and Foreign Patenting).

  
Dr. V. Ambikapathy

  
Dr. V.S. Narmatha





E-ISSN: 2278-4136  
P-ISSN: 2349-8234  
JPP 2018; 7(6): 1803-1805  
Received: 16-09-2018  
Accepted: 18-10-2018

**Narmatha VS**

Dept. of Biotechnology, St.  
Michael college of Engineering  
and Technology, Kalayar kovil,  
Sivagangai, Tamil Nadu, India

**Vennila S**

Dept. of Biotechnology, St.  
Michael college of Engineering  
and Technology, Kalayar kovil,  
Sivagangai, Tamil Nadu, India

**Rajanarayanan**

Dept. of Biotechnology, St.  
Michael College of Engineering  
and Technology, Kalayar kovil,  
Sivagangai, Tamil Nadu, India

**V Ambikapathy**

Dept. of Botany and  
Microbiology, A.V.V.M Sri  
Pushpam College (Auto) Poondi,  
Thanjavur, Tamil Nadu, India

## The challenging perspective antimicrobial activity of *Phyllanthus reticulatus* against clinical microbes

Narmatha VS, Vennila S, Rajanarayanan and V Ambikapathy

### Abstract

Traditional medicine is an important source of potentially useful compounds for the development of phytotherapeutic agent. Antimicrobials of plant origin have enormous therapeutic potential in the treatment of infectious diseases while simultaneously mitigating many of the side effects that are often associated with synthetic antimicrobials. In the present investigation suggested that the effect of antimicrobial activity of *Phyllanthus reticulatus* against clinical microbes were performed. In the experiments of the test plant *Phyllanthus reticulatus* leaf and flower extract with different solvent of aqueous, ethanol, ethyl acetate and petroleum ether were treated against the bacteria like *E. coli*, *Enterococcus* sp., *K. pneumoniae*, *Staph. aureus*, *Salmonella* sp., *Vibrio cholera*, and *Proteus* sp. and fungi such as *Aspergillus flavus*, *A. niger*, *A. terreus*, *Penicillium* sp., *P. chrysogenum*, *Rhizoctonia solani*, and *Trichoderma* sp. were performed respectively. However the antimicrobial properties of *Phyllanthus reticulatus* leaf with methanolic and ethyl acetate extract of maximum zone inhibition and excellent performance when compared to other solvent of aqueous and petroleum ether extract. It can be concluded that the plant used to discover natural products that may serve as lead for the development of new biomedical applications.

**Keywords:** *Phyllanthus reticulatus* bacteria, fungi, antimicrobial

### Introduction

Plants are an integral part of human life. Humans depend on plants for various purposes such as food, shelter, cloth, construction, dyes and medicine. Traditional medicinal practitioners from various parts of the world and used plants for treating several diseases and disorders. It is estimated that about 2 and 3<sup>rd</sup> of population of world depends on traditional medicine to meet the primary healthcare. Plants are used singly or in certain formulations. Traditional medicinal practices have been widespread in various countries. Plants play a crucial role in traditional medicinal practices such as Ayurveda, Unani and Siddha. Therapeutic potential of plants are ascribed to the presence of various secondary metabolites such as alkaloids, polyphenolic compounds and terpenes. Extracts and purified constituents of plants have shown to exhibit a wide array of biological activities such as antimicrobial, antioxidant, anti-inflammatory, anticancer, larvicidal and analgesic activity. Natural products including plants provide lead compounds for synthesis of therapeutic agents by pharmaceutical companies. Compounds such as morphine, quinine, taxol, vincristine, nicotine, vinblastine and digoxin are of plant origin (Poojari *et al.*, 2009) [13] and (Koohsari *et al.*, 2015) [8].

Medicinal plants have become part and parcel of our day to day life. These medicinal plants are commercially important and if managed properly they will earn more revenue to the country where they grow. One such medicinal plant is *Phyllanthus reticulatus*, a multipurpose plant, providing a range of medicinal uses and other commodities for the local people as well as a possibly edible fruit. Commonly this plant grows as a weed.

Plant-based antimicrobials represent a vast untapped source for medicines and further exploration of plant antimicrobials is needed enormous therapeutic potential. They are effective in the treatment of infectious diseases while simultaneously mitigating many of the side effects of synthetic antimicrobials (Lwu *et al.*, 1999) [7]. They may act as lead compounds for the pharmaceutical industry or as the base for the development of new antimicrobials (Aiyelaagbe, 2001, Aiyoro *et al.*, 2008) [2]. *Phyllanthus niruri* Linn belongs to family Euphorbiaceae, commonly known as Stonebreaker (Eng.) due to its antilithic property. Various bioactivities such as antidiabetic (Okoli *et al.*, 2011) [11], anti-hepatotoxicity (Ravikumar *et al.*, 2011) [14]. Antilithic, anti-hypertensive, and anti-hepatitis B (Bagalkotkar *et al.*, 2011, Naik and Juvekar, 2003) [3, 10] have been reported. Several studies have confirmed

### Correspondence

**Narmatha VS**

Dept. of Biotechnology, St.  
Michael college of Engineering  
and Technology, Kalayar kovil