A.V.V.M. Sri Pushpam College (Autonomous)
Poondi– 613 503, Thanjavur-Dt, Tamilnadu
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3.7.1 Number of Collaborative activities per year for research/ faculty exchange/ student exchange/ internship/ on –the-job training/ project work

Collaborating Agency:

Prof. AnisAhamed Prince Sultan Research Chair for Environment and Wildlife, Department of Botany, College of Sciences King Saud University, Saudi Arabia

Dr. A. PANNEERSELVAM
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Prof. ANIS AHAMED
Prince Sultan Research Chair for Environment and Wildlife,
Department of Botany and Microbiology, College of Sciences
King Saud University (KSU), Riyadh, Saudi Arabia

Date: 24.10.2019.

LINKAGE

For the year 2019-2020

Between

1. Dr.A.Panneerselvam,
Associate Professor and Head (Rtd.,)
PG & Research Department of Botany and Microbiology
A.V.V.M Sri Pushpam College
(Autonomous), Poondi – 613 503.

&

2. Prof. Anis Ahamed
Prince Sultan Research Chair for Environment and Wildlife,
Department of Botany and Microbiology,
College of Sciences, King Saud University
(KSU), Riyadh, Saudi Arabia.

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. A. Panneerselvam

Prof. Anis Ahamed

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Original article

Molecular perspective and anticancer activity of medicinal plants

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ABSTRACT

To evaluate phytochemical constituents from the methanolic extracts of medicinal plants *Aloe castellorum* and *Aloe pseudorubroviolacea*. The cytotoxic activity of *Aloe castellorum* and *Aloe pseudorubroviolacea* leaf extracts against Human colon cancer cell line (HCT-116) was also assessed. The two medicinal plant extracts having significant cytotoxic activity, meanwhile the methanolic extract of *Aloe castellorum* shows higher cytotoxic activity than *Aloe pseudorubroviolacea* extract. The *Aloe castellorum* shows remarkable activity against respective cell line than control. The characteristic chemical constituents of *Aloe castellorum* and *Aloe pseudorubroviolacea* leaf extracts were recognized from Gas chromatography and Mass spectrometry (GC–MS) technique. The molecular docking studies also support the cytotoxic activity.

1. Introduction

The aloe species are commonly applied for ethnomedicine plus pharmacological potential for evaluate various ailments, injuries, digestive ailments, infection also anti plasmodial, antimicrobial, anthelmintic in addition anti-inflammatory, activities of particular of the species has been established provided that reason for their use in ancestral medicine (Watt and Breyer-Brandwijk, 1962, Amoo et al., 2014). The Aloe extracts are medically important and their application have been used to treatment of skin cancer, arthritis, eczema, heart attacks, burns, psoriasis, digestive problems, leukemia, high blood pressure and diabetes (Hossain et al., 2013, Maharjan and Laxmipriya, 2015). The Aloe emodin (AE), a naturally derived from plant anthraquinone, is described to have potential antiproliferative activity in different cancer cell lines (Suboj et al., 2012). As diverse of *Aloe* species would have different phytochemical compounds due to interspecies difference and changing soil conditions as well as climate, direct correlation of biological activity would be incorrect (Botes et al., 2008, Maharjan and Laxmipriya, 2015) therefore essential to concentrate on aloe species particularly *Aloe pseudorubroviolacea* and *Aloe castellorum* due to no previous studies recorded.

United States is recorded that second leading cause of death by cancer related (ACS, 2019). The Colorectal cancer (CRC) recorded that the third utmost common cancer in the worldwide. WCRF (2012) as well as the second most common cancer through CRC in Saudi Arabia (Mosli and Al-Ahwal, 2012; Zubaidi et al., 2015). In position first among men (10.6%) and woman among third (8.9%) (Al-Ahwal et al., 2013), the death rate from CRC is 8.3%. CfAG (2014) in Saudi Arabia stated that World Health Organization (WHO). Furthermore, retrieved data from the Saudi Cancer Registry (SCR; http://www.scr.org.sa/) showed rising in CRC occurrence between 2001 and 2006, and very nearly increase twofold between 1994 and 2003. Furthermore, Patients in Saudi are likely to present at a more advanced stage and at a younger age matched with Western countries (Aljebreen, 2007; Sibiani et al., 2011; Mosli and Al-Ahwal, 2012). Hence we attempted to evaluate phytochemical constituents from the methanolic extracts of medicinal plants *Aloe castellorum* and *Aloe pseudorubroviolacea* with cytotoxic activity of Human Cancer cell line HCT 116.

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