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. R. Kalaivani Assistant Professor, Noorul Islam Centre for Higher Education, Kumaracoil, Kanniyakumari

Dr. S. V. BAKIYA LAKSHMI
Assistant Professor
Department of Biotechnology
AVVM Sri Pushpam College (Autonomous)
Poondi-613 503, Thanjavur-Dt, Tamil Nadu
India.

Dr. R. KALAIVANI
Assistant Professor
PG& Research Department of Biotechnology
Bon Secours College for Women,
Vallam – 613006, Thanjavur – Dt, Tamilnadu
India.

Date: 04.07.2019

LINKAGE

For the year 2019-2020

Between

1. **Dr.S. V. BAKIYA LAKSHMI**
Assistant Professor
Department of Biotechnology
A.V.V.M Sri Pushpam College
(Autonomous), Poondi – 613 503,
Thanjavur Dt.

&

2. Dr.**R. KALAIVANI**
Assistant Professor
PG& Research Department of Biotechnology
Noorul Islam Centre for Higher Education
Kumaracoil – 629 180, Kanyakumari Dt.

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 Biotechnology. 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.

4/7/2019
Dr.S. V. BAKIYA LAKSHMI

Dr.S.V.BAKIYA LAKSHMI, M.Sc.,Ph.D.,
Assistant Professor
Department of Zoology & Biotechnology
A.V.V.M.Sri Pushpam College (Autonomous)
Poondi - 613 503, Thanjavur (Dt)
Tamilnadu, India.

Dr.R. KALAIVANI 04/07/2019

Dr.R.KALAIVANI M.Sc.,M.Phil.,
Asst. Professor,
Department of Botany & Biotechnology
Bon Secours College for Women
Thanjavur- 613 006.

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AN INTEGRATED APPROACH ON STUDY OF NUTRITIONAL AND *IN VITRO* ANTI CANCEROUS PROPERTIES OF TRADITIONAL PIGMENTED RICES AGAINST MCF7 CELL LINE

[*]R Kalaivani, *S V Bakiyalakshmi and R. Nandhini

[*]PG & Research Department of Biotechnology, Bon Secours College for Women, Thanjavur, (Bharathidasan University), TamilNadu, India.

[*]PG & Research Department of Zoology and Biotechnology, A.V.V.M Sri Pushpam College (Auto), Poondi, Thanjavur, (Bharathidasan University) TamilNadu, India.

[2]Trainee chemist, Pharmproducts PVT. LTD, Thanjavur, Tamilnadu, India

Abstract

Rice is one of the most important cereals and more than two lakh varieties of rice have been grown commercially throughout the world and it is a staple food in Asian countries. Hence, the present study is intended to evaluate the medicinal properties of the traditional varieties especially pigmented rice such as brown rice, black kavuni and sivappu kavuni and assessed the cell toxicity effect on the breast cancer cell line MCF-7. In this study, a concentration-dependent scavenging activity was observed in selected rice samples with a maximum activity of 96% had been achieved which stepped into anti-tumor activities by *in vivo*, and to develop the drug for to inhibit the metabolic activities of cancer cells.

Keywords: Brown Rice, Black Kavuni Rice, Sivappu Kavuni Rice, cell toxicity, anti-tumor activity, MCF 7 Cell line

INTRODUCTION

Rice is the princess among the cereals. It is the life driven source for half of population in India and 2004 was announced as the international year of rice by the United Nations. Rice is the edible starchy grain and staple food. Since historical era, consuming rice as the food and cultivating more than 2000 types of rice varieties have been one of the rituals in different parts of the world. It is not only the source of nutrient but also possesses lot of medicinal properties those were proven in Ayurveda. In the roots date back thousands of year, Indian traditional system of treatment mentioned the term, Navarakizhi which is one of the ore exotic treatments offered with rice by practitioners.

The medicinal rice values are documented in the Charaka Samhita (700BC) and the Samhita (400BC) (Savitha and Ushakumari, 2015). The pigmented rice varieties has flavonoid pigments such as anthocyanin and procyanivins which reduce the atherosclerotic plaque formation, inhibit aldose reactivity, decrease hyperlipidaemia and suppress cancer cell (Wannisa Vichit and Nisakorn Saewan, 2015). Based on the region where it is planted, the rice differs in composition of favourable sources like phenolic, vitamins, and antioxidants. Especially, pigmented rice varieties such as brown rice, red rice, and black rice contain enriched nutritional qualities and serve as a good source of antioxidant. In the technology driven world, an instant healthy life is the demand of mankind. Food with natural antioxidant and polyphenols to reduce the oxidation process occurring in the cells is the need of the hour (Norliza et al., 2017). Li et al., *2011* reported that anthocyanin plays a major role in reducing cholesterol and prevent the cardiovascular disease, it also possesses antidiabetic, anticancer, anti-inflammatory and antimicrobial properties. Poonindin-3-glucoside and cyanindin-3-glucoside, the major compounds are involved in actions of inhibition/ penetration of cells on different cancer are present in black rice. The carotenoids are the compounds that used to decrease the formation of cancer cell and heart disease (Saravavan Ponnappan et al., 2017).

Breast cancer states 87,090 lives in India every year and it accounts for 27 % of all cancers in women. It is impacting 21 lakh women globally per annum and 1,62,468 new cases are being added in India every year. The incidence rates in India began to rise in early thirties and high in the age group of 50