SPECIMEN FORMAT FOR THESES OF MONTH

Faculty	:	ZOOLOGY – SCIENCE
Department	:	ZOOLOGY
Branch/ Area:	:	ZOOLOGY/ CANCER BIOLOGY
Sub Subject Heading:	:	CANCER BIOLOGY
Candidate's Name	:	SREEJAYA. S.B.
Candidate's Address with email	:	Ravivilas Muthukulam. South. P.O. Alappuzha. Dist. Kerala – 690506. sreejayasb@gmail.com
Title of the thesis	:	EVALUATION OF THE ANTICANCER PROPERTIES OF ACORUS CALAMUS .L RHIZOME USING *INVITRO, INVIVO* AND *INSILICO* MODELS.
(i) In Roman Script (ii) In roman Script		-
Nomenclature of Degree:	:	Ph.D
Month & Year of Enrolment:	:	JUNE 2011
Month & Year of Registration:	:	JUNE 2011
Month &Year of Submission:	:	JANUARY 2015
Month &Year of Award	:	FEBRUARY 2016
Name of Supervisor	:	DR. K.S. SANTHY
Designation of Supervisor	:	Associate Professor, Dept. of Zoology
Centre/department/school in which research was conducted	:	Avinashilingam University , Zoology Department
University's Name & Address	:	Avinashilingam University, Coimbatore

Abstract

Objectives:

- To evaluate the anticancer activities of methanolic extract of *Acoruscalamus* (MEAC) rhizomeagainst the Daltons Ascites Lymphoma (DAL) cell lines.
- To estimate the cytotoxic potential of MEAC rhizome in breast cancer cell lines, MCF-7 using MTT assay.
- To study the DNA repair proficiency of MEAC on cultured lymphocytes of breast cancer patients using the Cytokinesis Block Micronuclei (CBMN) assay and chromosome sensitivity analysis.
- To evaluate the secondary active constituents from MEAC rhizome using GC-MS.
- To evaluate the Ligand based drug designing for breast cancer target protein using isolated compounds of *Acoruscalamus rhizome.*

Salient findings:

Antitumor activity :The antitumor activity of MEAC rhizome was determined by injecting DAL cell suspension into the peritoneal cavity of the animals. After inoculation of DAL into the mice, treatedthem with MEAC (100 and 200mg/kg) and a standard drug 5-florouracil (10mg/kg) were continued for 14 days. Evaluation of the effect of drug response was made by the study of tumor growth response including increase in life span, hematological parameters, biochemical estimations, antioxidant assay of liver and kidney and in vitro cytotoxicity

Antitumor activity of MEAC in breast cancer cell lines by MTT assay: Result showed a growth inhibition in a dose dependant manner when treated with MEAC with IC50 value of 52.07 ug/ml.

DNA repair proficiency of MEAC on cultured lymphocytes of breast cancer patients: With regard to mutagen sensitivity study, there was a significant variation observed within the treatment subjects. Among the breast cancer patients, all the treatment groups were found to be sensitive whereas the healthy subjects were hyposensitive. Three different concentrations of MEAC against lymphocyte cells of breast cancer patients were analyzed for the genotoxicity. Treatment with MEAC in a dose dependent mannercan decrease the chromatid and chromosome type aberrations. This study emphasizes the possibility of the reduction of chromosomal aberration (CA) and anti mutagenic nature of MEAC.

Evaluation of the secondary active constituents from*Acoruscalamus* rhizome: The present study screened 14 volatile compounds from the *Acoruscalamus*. L. rhizome

Evaluation of Ligand Based Drug Designing for breast cancer target using the isolated compounds of*Acoruscalamus*. The 14 molecules from*Acoruscalamus* has been taken for this study to inhibit the breast

cancer proteins such as BRCA-1, BRCA-2, PTEN, HER-2, ERBb2, ATM and CHECK-2. Out of the 7 proteins, the interaction profiling ERBb2, PTEN, CHEK-2 and ATM proteins interacted with a higher glide score ie greater than -4.

ERBb2 proteins has higher interaction profile and more protein conformational stability with [(2R)-2-[(IS)-1-hexadecanoyloxy-2-hydroxyethyl]-4-hydroxy-5-oxo-2H-furan-3-yl] suggests that this ligand can act as a potential drug for breast cancer.

Examiners

Internal Examiner : M. Krishnan
Chair, School of Environmental Biotechnology
Insect Molecular Biology Lab
Department of Environmental Biotechnology
Bharathidasan University
Trichy

External Examiner : Dr. Manoj Mishra
Director, Cancer Biology, Research & Training
Director, Fresh form B/O Programme
Dept. of Biological Science
Alabama State University
9/5 S Jackson Street
Montgomery , AL 3601 - 0271