

Dedicated to my

Maa and Deuta

Declaration

I, **Pitambar Baishya**, hereby declare that the present thesis, entitled “**Studies on antiproliferative and proapoptotic efficacy of *Etlingera linguiformis* and *Smilax ovalifolia* using preclinical lung cancer model**”, is the record of work done by me under the supervision of **Dr. Anand Ramteke**, Professor, Department of Molecular Biology and Biotechnology, Tezpur University, Tezpur. The contents of the thesis represent my original works that have not been previously submitted for any Degree/Diploma/Certificate in any other University or Institutions of Higher Education.

This thesis is being submitted to Tezpur University for the Degree of Doctor of Philosophy in Molecular Biology and Biotechnology.

Place: Tezpur University, Tezpur

Date:

(Pitambar Baishya)



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Napaam, Tezpur-784028, Sonitpur, Assam, India

Certificate

This is to certify that the thesis entitled, “**Studies on antiproliferative and proapoptotic efficacy of *Etlingera linguiformis* and *Smilax ovalifolia* using preclinical lung cancer model**”, submitted to the School of Sciences, Tezpur University in partial fulfillment for the award of the degree of Doctor of Philosophy in Molecular Biology and Biotechnology is a record of research work carried out by Mr. Pitambar Baishya under my supervision and guidance.

All help received by him from various sources has been duly acknowledged.

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September, 2022



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Certificate of the External Examiner

This is to certify that the thesis entitled “**Studies on antiproliferative and proapoptotic efficacy of *Etlingera linguiformis* and *Smilax ovalifolia* using preclinical lung cancer model**” submitted by **Mr. Pitambar Baishya**, Department of Molecular Biology and Biotechnology, School of Sciences, Tezpur University in partial fulfillment for the award of the degree of Doctor of Philosophy in Molecular Biology and Biotechnology has been examined by us on _____ and found to be satisfactory.

The committee recommends the award of the degree of Doctor of Philosophy.

Supervisor

(Prof. Anand Shankar Ramteke)

Date: _____

External Examiner

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Date: _____

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LIST OF ABBREVIATIONS

LC	Lung Cancer
NSCLC	Non-Small Cell Lung Cancer
SCLC	Small Cell Lung Cancer
ROS	Reactive oxygen species
VEGF	Vascular endothelial growth factor
NO	Nitric oxide
PDT	Photodynamic therapy
HTS	High throughput screening
WHO	World Health Organization
HIV	Human immunodeficiency virus
PD-1	Programmed cell death protein 1
IHC	Immuno histochemistry
EMT	Epithelial Mesenchymal Transition
VATS	Video-assisted thorascopic surgery
PS	Performance status
SBRT	Stereotactic body radiation therapy
SABR	Stereotactic radiotherapy
EGFR	Epidermal growth factor receptor
ALK	Anaplastic lymphoma kinase
B[a]P	Benzo[a]pyrene
CAN	<i>Etilingera linguiformis</i>
LEX	<i>Smilax ovalifolia</i>
DMEM	Dulbecco's Modified Eagle Medium
RPMI-1640	Roswell Park Memorial Institute
FBS	Fetal bovine serum
DMSO	Dimethyl sulfoxide
PI	Propidium iodide
FITC	Fluorescein isothiocyanate
Rh123	Rhodamine 123

DCFDA	Dichloro-dihydrofluorescein diacetate
AO	Acridine orange
EtBr	Ethidium bromide
Hr LCMS	High Resolution Liquid Chromatography Mass Spectroscopy
PBS	Phosphate buffer saline
RT	Room temperature
MMP	Mitochondrial membrane potential
OHRLCMS	Orbitrap high resolution liquid chromatograph mass spectrometer
CFSE	Carboxyfluorescein diacetate succinimidyl ester