



Proceedings of International Conference on Frontiers of Cancer Biology and Biotechnology for Next-Gen Innovations (ICFCBNI 2025)

ISBN: 978-93-49712-49-2

Organized by
Association of Cancer Education and Research (ACER)
School of Life Sciences
B. S. Abdur Rahman Crescent Institute of Science and Technology
Vandalur, Chennai
In association with
W. M. Keck Center for Cellular Imaging,
University of Virginia, USA
November 14 & 15, 2025

Proceedings of ICFCBNI 2025

November 14 & 15, 2025

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**International Conference on Frontiers of Cancer Biology
and Biotechnology for Next-Gen Innovations
(ICFCBNI 2025)**

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Index Page

S. No.	Title	Abstract No.
Invited Abstracts		
1	Investigation of Metabolism in Live Cancer Cells and animal: Two-photon FLIRR Microscopy and Machine Learning Analysis <i>Dr. Ammasi Periasamy</i>	Invited Abstract - 01
2	Potential of plasmid DNA and RNA interference-based therapeutic approaches for cervical cancer <i>Dr. R. Ilangovan, Ph.D.</i>	Invited Abstract – 02
3	The Utility of Preimplantation Genetic Testing for Aneuploidies (PGT-A) in Assisted Reproduction <i>Dr. Sargunadevi Sivanantham</i>	Invited Abstract – 03
4	Understanding Mitochondrial Bioenergetics in Prostate Cancer by Multiphoton FLIM <i>Shagufta Rehman Alam, Horst Wallrabe and Ammasi Periasamy</i>	Invited Abstract – 04
5	Microbes in frozen frontiers: Our journey to the Arctic and Antarctic Ocean for Actinobacterial Research <i>Dr. Radhakrishnan Manikkam</i>	Invited Abstract - 05
6	Innovations in Regenerative Medicine <i>Dr Raghu Babu P</i>	Invited Abstract - 06
Oral & Poster Presentation Abstracts		
7	Green Synthesis and Characterization of Magnesium Oxide Nanoparticles using <i>Millintonia hortensis</i> leaves extract and its Antimicrobial Activity <i>Shema Begum, Shazia Jamal, Jainaf Nachiya</i>	FCBNI-001
8	Orthopaedic Biomaterials: A comprehensive review <i>Priyanka Kumari, Sonal Jaiswal, Amit Prabhakar</i>	FCBNI-002
9	Integrating Genetic Prevalence and Demographic Determinants into Pharmacometric Modelling to Predict 6-Mercaptopurine Toxicity in Acute Lymphoblastic Leukemia: A Review <i>Jayalakshmi Venugopal</i>	FCBNI-003
10	Association of selective VDR and Vd pathway gene polymorphisms with diffuse large B-cell lymphoma (DLBCL) <i>Annuja Anandaradje and Sandhiya Selvarajan</i>	FCBNI-004
11	Lipid accumulation in the oleaginous yeast <i>Rhodotorula minuta</i> as a potential source for biodiesel production <i>Kumar Gaurav</i>	FCBNI-005
12	Coumarin-Derived CDK4 Inhibitors as Potential Therapeutics for NSCLC: Insights from Structure-Based Computational Modeling <i>Arulmozhi N M and Thiyagarajan Gopal</i>	FCBNI-006
13	Bioactivity Studies of Environmentally Benign Magnesium Oxide Nanoparticles Using <i>Fusarium subglutinans</i> , a Root Endophyte of <i>Plectranthes vettiveroides</i> <i>Surochis Jaison and Suma S</i>	FCBNI-007
14	Mesenchymal stem cell-based delivery of nanoparticles for targeted cancer therapy <i>Akshaya Priya R and D Sankari</i>	FCBNI-008

S. No.	Title	Abstract No.
15	Formulation, Physicochemical Characterization, and Biological Assessment of Zinc Oxide-Based Curcumin-Loaded Polymeric Films for Wound Healing <i>Satheesh Selvaraj and Ankush Chauhan</i>	FCBNI-009
16	Isolation and characterization of lectin from medicinal mushroom <i>Ganoderma applanatum</i> and evaluation of its antiproliferative activity in HT-29 colon cancer cells <i>S. Kumaran</i>	FCBNI-010
17	Unveiling Immunoreactive Antigens of <i>Paragonimus westermani</i> by immunoproteomic approaches: Implications for Human Pulmonary Paragonimiasis Diagnosis in Endemic Regions of Northeast India <i>Archana Deka, K. Reka Devi, Kanwar Narain</i>	FCBNI-011
18	Neuroprotective Effect of <i>Myristica fragrans</i> Extract Against Aluminium Chloride–Induced Neuroinflammation in Zebrafish Larvae <i>Chandhini Jeyashanker and Ashok Kumar Pandurangan</i>	FCBNI-012
19	Aqueous extract of <i>Drynaria quercifolia</i> rhizome inhibits the progression of Triple-Negative Breast Cancer <i>Karunya Jenin Ravindranath and S. Hemalatha</i>	FCBNI-013
20	Sustainable Microbial Production of Carotenoids Using Agricultural Resources <i>Nithya Sree S and I. Faridha Begum</i>	FCBNI-014
21	Sustainable Production of Bioplastic Film from Chicken Feather Keratin Using Novel Bacterial Strains <i>Nazar N and I. Faridha Begum</i>	FCBNI-015
22	Flower Waste as a Resource: Formulation of a Sustainable Leachate-Based Fertilizer <i>Muhammad Khalifa A and I. Faridha Begum</i>	FCBNI-016
23	Optimizing Microbial Strategies for Polyhydroxybutyrate Production using Agro-Industrial Waste <i>Ariharan S and I. Faridha Begum</i>	FCBNI-017
24	Analysis of histological biomarkers in cancer detection <i>Kirtipriya and Punit Kumar</i>	FCBNI-018
25	Biodegradation of microplastic by novel bacteria: A biotechnological solution to plastic pollution <i>Mohammed Rija Thoufeeq and I. Faridha Begum</i>	FCBNI-019
26	Allicin-infused PLGA Composite Scaffolds for Enhanced Osteogenic Activity in Osteoporotic defect: An <i>In-silico</i> & <i>In-vitro</i> Study <i>Saranya V and S. Gowtham Kumar</i>	FCBNI-020
27	Applications of Natural Pigments: A special Emphasis on screening and applications of new Pigment Xanthomonadin <i>Narendra Salunkhe, Satish V Patil</i>	FCBNI-021
28	The Physician's Role in Cancer Clinical Trials: Bridging Innovation and Patient Care <i>Himesh and Punit Kumar</i>	FCBNI-022

S. No.	Title	Abstract No.
29	Development of a Monoclonal Antibody-Based Silver-Enhanced Diagnostic Platform for Rapid Detection of Drug-Resistant Pathogens: Implications for Cancer Care-Associated Infections <i>Vaishali Verma</i>	FCBNI-023
30	Synthesis and Characterization of ZnO-CuO nanocomposites from the Endophytic Fungus <i>Nigrospora oryzae</i> for Sustainable Applications <i>Udaykiran Rajareddy and Suma Sarojini</i>	FCBNI-024
31	Development and evaluation of a polyherbal toothpaste with antimicrobial activity against oral pathogens <i>Bhujithra M, Srilakshmi S, Sakthi Priyadarsini S, Kabilan G, Srikanth P</i>	FCBNI-025
32	Toxicity and chromatographic analysis of textile dye degradation using a Nanocomposite <i>Keerthana Vedhantham, Karthikeyan Ramalingam</i>	FCBNI-026
33	Phytochemical analysis and antioxidant potential of <i>Rosa damascena</i> extracts <i>M Gayathri and R. Vidya</i>	FCBNI-027
34	Comprehensive analysis of phytochemicals and antioxidant properties of quinoa seed extracts <i>Swathisree K and R. Vidya</i>	FCBNI-028
35	Anticancer and antibacterial potential of magnesium oxide nanoparticles loaded with vinblastine sulphate <i>Sathasivam, Marimuthu, Chandra Lekha, Divya, Arunkumar, Kishore Gopalakrishnan</i>	FCBNI-029
36	Role of Nano-Osmolytes in Neurodegenerative Diseases: Molecular Pathology <i>Arjini R and Sheeza Khan</i>	FCBNI-030
37	<i>In Silico</i> Docking Analysis of Peptide Ligands with HLA-DRB1 Using AutoDock Tools <i>S. Baagil Mohideen and Naseer Hussain</i>	FCBNI-031
38	Fungal Co-Cultivation Enhances Sesquiterpenoid Biosynthesis in <i>Aquilaria malaccensis</i> Callus Cultures: A Sustainable Approach to Agarwood Production and Its Antiproliferative Activity <i>K. Mercy Madhumitha and J. Anbumalarmathi</i>	FCBNI-032
39	Investigating the Role of Nucleolin in Oral Cancer and Establishing its Potential as a Novel Biomarker and Therapeutic Target <i>Kruthika Prakash, K.N. Aruljothi</i>	FCBNI-033
40	Unearthing anti-tuberculosis metabolites from <i>Streptomyces</i> sp. HS2C5 isolated from the Indian Himalayan Region <i>Ranjani Singaraj and M. Radhakrishnan</i>	FCBNI-034
41	Sustainable Extraction of Microcrystalline Cellulose from Agro - Industrial Residues <i>Hairun Samiha MQ and I. Faridha Begum</i>	FCBNI-035
41	Biotransformation of Waste Carbon Sources into Single-Cell Oil <i>Roshini M and I. Faridha Begum</i>	FCBNI-036

S. No.	Title	Abstract No.
43	Biosynthesis of selenium nanoparticles by <i>Planococcus</i> sp. S9-27 from the high Arctic region and its antimicrobial and antioxidant properties <i>Kishore Kumar A, Merline Praicy J, Ranjani S, Sai Mahesh Kumar S, Manigundan K, Parli V Bhaskar, Radhakrishnan M</i>	FCBNI-037
44	Phytochemical profiling, isolation and anticancer activity of marine halophyte against lung cancer <i>Pavithra R and Mohd Shahanbaj Khan</i>	FCBNI-038
45	Computational insights into Fucoidan and Carrageenan Binding with BRAC1 and HER2 in Breast cancer: A Molecular Docking study of Anticancer Potential <i>B. Jegadeshwari and R. Rajaram</i>	FCBNI-039
46	Exploring the Metallo-therapeutic Spectrum of Siva Thambira Chenduram in Cancer Treatment – A review <i>B.Abarna, R.Madhavan</i>	FCBNI-040
47	Screening of natural products as an efflux pump inhibitor and synthesis of its antibiotic conjugates: a novel approach to treat MDR bacteria. <i>Kiran Marathe</i>	FCBNI-041
48	Investigation of Cytotoxic and Apoptotic Activities of <i>Osthole</i> from <i>Luisia tenuifolia</i> Blume Whole Plants on A431 Skin Carcinoma Cells with Its Underlying Mechanisms <i>Sakthi Priyadarsini Sethuraman</i>	FCBNI-042
49	Deciphering the Chemomodulatory Potential of <i>Kalanchoe laciniata</i> (L.) DC. through Phytochemical-Target Interactions and Anticancer Network Signatures. <i>Anish Ruban S and Parimelazhagan Thangaraj</i>	FCBNI-043
50	Formulation and Preclinical Assessment of <i>Breynia retusa</i> -Encapsulated Polymeric Nano-Micelles for Targeted Ovarian Cancer therapy. <i>Vetri Velavan S and Parimelazhagan Thangaraj</i>	FCBNI-044
51	Redox–Metabolic Potential and Phytochemical Profiling of <i>Miliusa nilagirica</i> Extract: Cytoprotective and Toxicological Evaluation in Murine Models <i>Francis Jegan Raj and Parimelazhagan Thangaraj</i>	FCBNI-045
52	Bridging the Clinic and the Lab: The Translational Role of Circulating Tumor DNA (ctDNA) Liquid Biopsies in Real-Time Cancer Management <i>Pranav Gupta and Punit Kumar</i>	FCBNI-046
53	<i>Caenorhabditis elegans</i> model of parkinson's disease: The neuroprotective impact of α -terpineol on ohda exposure <i>C. Divya and Namasivayam Elangovan</i>	FCBNI-047
54	Understanding the role of molecular markers of lung cancer <i>Vandana Kumari and Punit Kumar</i>	FCBNI-048
55	Study on Protective Effects of Earthworm (<i>Eudrilus eugeniae</i>) Coelomic Fluid on Ciprofloxacin Treated Zebrafish (<i>Danio rerio</i>) Embryos <i>Priyadarshini S and Crosswin S</i>	FCBNI-049
56	Drug review on siddha drug- <i>Thengai saaram</i> <i>K. Leelavinothini and S. Sanjana</i>	FCBNI-050

Abstract No.: FCBNI-027

Phytochemical analysis and antioxidant potential of *Rosa damascena* extracts

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Rosa damascena (Damask rose) is a common medicinal herb prized for its fragrance and its therapeutic activities in traditional medicine. The current preliminary study sought to investigate the phytochemical composition of *R. damascena*. Phytochemical screening of the plant extract was carried out using four different solvents: water, ethyl acetate, methanol, and chloroform. The qualitative analysis revealed the presence of various bioactive compounds known for their antioxidant and anti-inflammatory potentials. Tannins were detected in the aqueous, ethyl acetate, and methanolic extracts, but were absent in the chloroform extract. Glycosides, terpenoids, cardiac glycosides, and saponins were not detected in any of the solvent extracts. Volatile oils were present only in the chloroform extract, while steroids were observed exclusively in the ethyl acetate extract. This study evaluated the antioxidant activity of different solvent extracts using various in vitro assays compared with standard antioxidants. The assays were performed at concentrations of 0–250 µg/mL. The IC₅₀ values obtained were 70.718 µg/mL for the SOD assay (water extract), 77.78 µg/mL for the hydroxyl radical scavenging assay (ethyl acetate extract), 235.158 µg/mL for the H₂O₂ assay (methanol extract), 105.262 µg/mL for the DPPH assay (methanol extract), 71.496 µg/mL for the ABTS assay (methanol extract), and 57.073 µg/mL for the NO assay (Chloroform extract). Initial in-vitro results indicate that *R. damascena* extracts possess high antioxidant activity and moderate cholinesterase inhibitory action, which could find a potential therapeutic use in the retardation of cognitive decline while the result look promising, clinical trials are needed to validate the efficacy and safety of *R. damascena* or its nanoparticles as an adjunct strategy in the management of Alzheimer's disease.

Keywords: *Rosa damascena*; Damask rose; Phytochemical screening; Antioxidant activity; Neuroprotection; Alzheimer's disease