

**Faculty Name:**

**Dr. Varalakshmi K N.**

Director - Research (Sciences)

Professor, Department of Biotechnology



**Specialization**

Animal Biotechnology, Cancer Biology.

**Education**

- 1997 - Ph.D., Bangalore University. Qualified in the **UGC NET**.
- 1986 – M.Sc. in Zoology, Calicut University

**Work Experience**

- 2009 - Professor, JAIN (Deemed-to-be University), Bengaluru
- 2003 - 2009 - Lecturer, Sri Bhagawan Mahaveer Jain College
- 1997 - 2003 - Guest Lecturer, Bangalore University

**Key Areas of Research interest**

**Cancer Biology**

- Screening natural compounds from plants and microbial sources for anticancer activity.
- Purification and characterization of anticancer compounds.

**Publications**

- D, Somasekhara., Dammalli, M. & **Nadumane, V.K.** Proteomic Analysis of Human Breast Cancer MCF-7 Cells to Identify Cellular Targets of the Anticancer Pigment OR3 from *Streptomyces coelicolor* JUACT03. *Appl Biochem Biotechnol* (2022). Scopus indexed. 0885-4513 (print); 1470-8744 (web). IF: 3.04 <https://doi.org/10.1007/s12010-022-04128-8>
- Shabana Parveen and **Varalakshmi KN.** BAX and p53 over-expression mediated by the marine alga *Sargassum myriocystum* leads to MCF-7, HepG2 and HeLa cancer cells apoptosis and induces *in-ovo* anti-angiogenesis effects. *Jordan Journal of Biological Sciences*, **15, (2)**: June 2022. 275 – 287. ISSN 1995-6673, [doi.org/10.54319/jjbs/150216](https://doi.org/10.54319/jjbs/150216).

- Bibechna Timsina and **Varalakshmi Nadumane\***. Decreased S Phase and G2/M Phase Cells by a Bioactive Fraction from the Hexane Extract of *Rhododendron arboreum* Leading to the Apoptosis of HeLa Cells *In-Vitro*. *Trends Sci.* **2022**; **19(14)**: 4963. **E-ISSN: 2774-0226**. <https://doi.org/10.48048/tis.2022.4963>
- Suresh, A., **Kilingar Nadumane, V.** The metabolite 5-methyl-1,3-benzenediol and its derivative methyl-2,4-dihydroxy-6-methylbenzoate from the lichen *Parmotrema tinctorum* with potent apoptotic and anti-angiogenesis effects. *3 Biotech* **11**, 346 (2021). <https://doi.org/10.1007/s13205-021-02883-9>
- Shukla M, Nadumane VK. Yellow pigment from a novel bacteria, *Micrococcus terreus*, activates caspases and leads to apoptosis of cervical and liver cancer cell lines. *J Appl Pharm Sci*, 2021; 11(08):077–084.
- Bopaiah BBK, Kumar DAN, Balan K, Dehingia L, Reddy MKRV, Suresh AB, **Nadumane Varalakshmi K.** Purification, characterization, and antiproliferative activity of L-methioninase from a new isolate of *Bacillus haynesii* JUB2. *J Appl Pharm Sci*, 2020; 10(10):054–061. ISSN 2231-3354. DOI: 10.7324/JAPS.2020.10106
- Shabana Parveen and **Varalakshmi K. N.** "Anti-angiogenesis and apoptogenic potential of the brown marine alga, *Chnoospora minima*" *Future Journal of Pharmaceutical Sciences* (2020) 6:19. <https://doi.org/10.1186/s43094-020-00039-9>. Springer Journal. ISSN: 2314-7253.
- N Israni, P Venkatachalam, B Gajaraj, KN Varalakshmi, S Shivakumar. Whey valorization for sustainable polyhydroxyalkanoate production by *Bacillus megaterium*: Production, characterization and in vitro biocompatibility evaluation. *Journal of Environmental Management* 255, 109884. 2020. doi: 10.1016/j.jenvman.2019.109884
- Prerana V, **Varalakshmi KN.** Modulation of Bax and Bcl-2 genes by secondary metabolites produced by *Penicillium rubens* JGIPR9 causes the apoptosis of cancer cell lines. *Mycology*, 2019. <https://doi.org/10.1080/21501203.2019.1707315>.
- Prerana V, **Varalakshmi KN.** "Purification and Characterization of a Protease Inhibitor with Anticancer Potential from *Bacillus endophyticus*JUPR15". *Current Cancer Therapy Reviews*, 2019; 15: 74-82. <https://doi.org/10.2174/1573394714666180321150605>
- Prerana V, **Varalakshmi KN.** Overexpression of p53 and Bax mediating apoptosis in cancer cell lines induced by a bioactive compound from *Bacillus endophyticus* JUPR15. *Process Biochemistry*, 73 (2018) 170–179. **IF: 2.9**. ISSN: 1359-5113. <https://doi.org/10.1016/j.procbio.2018.08.004>
- Megha Shukla and **Varalakshmi K N.** Apoptosis induction in cancer cell lines by the carotenoid Fucoxanthinol from *Pseudomonas stutzeri*JGI 52. *Indian J Pharmacol* **2018**; 50:116-122. **DOI: 10.4103/ijp.IJP\_725\_16**

- Shirisha Rao, Varalakshmi K N. **2016**. Evaluation of the anticancer potential of coffee beans: An *in vitro* study. *Indian Journal of Traditional Knowledge*, 15 (2): 266-271, **ISSN: 0972-5938**
- Shirisha Rao and **Varalakshmi K N**. *Tamarindus indica* Bark Extract and a Bioactive Fraction Induce Apoptosis in HeLa and PA-1 Cells. *Indian Journal of Pharmaceutical Sciences*, 2016; 78(6):725-731
- Bibechana Timsina and **Varalakshmi K N**. Purification and Purification and Evaluation of Bioactive Fractions for Anti-Cancer Potentials from the Flowers and Leaves of *Nyctanthes arbour tristis* L- *Chiang Mai Journal of Science*.2016;43(1) 100-111.
- Prashanthi K, Sandeep S, Varalakshmi KN. *In vitro* Anticancer Property of Yellow Pigment from *Streptomyces griseoaurantiacus* JUACTION 01. *Brazilian Archives of Biology and Technology* **2015**; 58(6): 869-876.
- Apoorva Prabhu, Prerana V, Bharath G, **Varalakshmi K N**. "Induction of apoptosis in the cervical cancer cell line HeLa by a novel metabolite extracted from the fungus *Aspergillus japonicus* Saito". *Turk J Biol* 38: 922-929, **(2014)**. <https://doi.org/10.3906/biy-1404-86>.

#### BOOK chapter:

- Nadumane VK\*, Venkatachalam P, Gajaraj P. *Aspergillus* applications in Cancer Research. In: Gupta VK, editor. In New and Future Developments in Microbial Biotechnology and Bioengineering. 2016. pp. 235-247.

#### PhD Guidance:

Completed: 06

Ongoing: 06

#### Projects (External funded/Internal):

##### Projects Funded by External Funding Agencies (2013-2016)

- **PI- Dr.Varalakshmi KN**. "Potential of selected microbial pigments as cancer therapeutics: an evaluation on human cancer cell lines". Funded By **DST** (Budget: Rs.**31.28 Lakhs**).

##### Projects completed (Funded by JGI):

1. Microbiostatic and cytotoxic effects of herbal extracts and cosmetics (PI: Dr. Varalakshmi K N and Co-PI: Dr. Sangeetha CG) – (2009 – 2011)
2. Isolation & Production of Entomopathogenic Fungi (PI: Dr. Varalakshmi K N and Co-PI: Dr. Kumudini Belur Satyan) - 2006
3. Production of Fungal Amylase by SSF (PI: Dr. Varalakshmi KN and Co-PI: Dr. Kumudini Belur Satyan) – 2005

**Membership in professional bodies:**

- Life member of Indian science Congress Association
- Life member of Lichenological society of India and
- Life member of Mycological Society of India

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