

OBITUARY

With sudden demise of Prof. Dr. Johnpaul Muthumary on 15.11.2018 in Chennai, following a brief illness at the age of 68, India lost one of its most distinguished and celebrated mycologists. Her departure from this physical world is a permanent loss to family members, former students, colleagues and fellow mycologists. A soft spoken, compassionate and fondly known as 'Muthumary madam' to her students and colleagues, she was most amiable to everyone in Chennai university circle and mycological fraternity across India and abroad.

Early Life and Education

Borne on 08.02.1951 to late S. John Paul, a retired Army personnel, and Mrs. Paul Thai, a housewife, in Parakramapandi near Srivaikuntam, Tuticorin District, Tamilnadu, Dr. Muthumary did her early education in Victoria Girls Higher Secondary School, Tuticorin Melur and B.Sc. in St. Mary's College, Cruz Puram, Thoothukudi, Tamilnadu. Dr. Muthumary completed M.Sc. (Botany) with a 1st Class from Madurai Kamaraj University, Tamilnadu, in 1974 and worked on a topic entitled "Studies on Coelomycetes: Contribution to monographic account of *Septoria* spp. in India", at Centre for Advanced Studies in Botany, under the guidance of late Prof. C.V. Subramanian, she was awarded Ph.D. (Botany) from University of Madras, in 1982. Submitted a magnum opus entitled "Biodiversity of South Indian Coelomycetes and their potential for Taxol production", Prof. Muthumary was conferred with prestigious degree of D.Sc. (Botany) from University of Madras in 2009.

Professional Life and Research Interests

Dr. Muthumary joined CAS in Botany, University of Madras, as Lecturer in 1982 and became Reader in 1990 and Professor in 1996. On superannuation, she retired from service in 2011 but continued to work in the CAS Botany as UGC-BSR Faculty Fellow during 2011-2013 and Emeritus Professor during 2013-2016. Internationally recognized specialist on taxonomy of tropical coelomycetes, Prof. Muthumary was an expert not only in identification of these fungi but also maintenance in pure culture form. In later years, she developed expertise on screening coelomycetes, mushrooms and micro-algae for bio-molecules useful as anticancer drugs. Using animal models, she tested cytotoxicity of fungal taxol in cancer cell-lines. Prof. Muthumary taught basic and applied mycology to post-graduate students for nearly three decades in CAS Botany, University of Madras. Working on varied topics, 25 scholars took Ph.D. under her guidance (List enclosed). She supervised 80 M.Phil. and 120 M.Sc. dissertations on diverse mycological topics. Prof. Muthumary wrote two authoritative books on coelomycetous fungi, viz. "Monograph of *Septoria* species in India" (1999) and "Indian Coelomycetes" (2012); book-chapters, viz. "Biodiversity of Coelomycetous fungi from Tamil Nadu", in *Frontiers of Fungal Diversity in India* (2003) and "Fungal endophytes", in *Advances in Applied Plant Sciences* (2006); and published about 100 papers in various national and international journals. Prof. Muthumary had a Patent (No.



**Prof. Johnpaul Muthumary
(1951-2018)**

1391/CHE/05 dated 30-9-2005) titled 'New Microorganisms useful for the preparation of Taxol process for their preparation and an improved process for the preparation of Taxol from the novel microorganisms', under UICICI, to her credit.

Prof. Muthumary worked on several sponsored research projects and contributed immensely to development of mycology in India. These projects included UGC-sponsored (5) (i) "Studies on South Indian Coelomycetes" (1983-85); (ii) "Ultrastructure and Cytology of plant pathogenic and appendaged conidial fungi" (1994-97); (iii) "Studies on Biodiversity and Ecology of *Phyllosticta* (Coelomycetous) species in Tamil Nadu and preparation of a regional genetic resources collection of various species" (1999-2002); (iv) "Screening Endophytic Fungi from Medicinal Plants for production of bioactive compounds" (2003-2008); (v) "Fungal endophytes of medicinal plants in Tamil Nadu Forests" (2003-2008); DST-sponsored (2): (vi) "Studies on Biodiversity and Ecology of Coelomycetous fungi in southern India and preparation of a regional genetic resources collection of various species" (1999-2002); (vii) "Biodiversity of Fungal Population from Vegetable Oil refinery with special reference to Sun flower Oil" (2002-2005); and MOEF-sponsored (1): (viii) "Fungal endophytes of medicinal plants in Tamil Nadu Forests. (2004-2007).

Coelomycetes are one of the most difficult groups among fungi to work with. This is more so in understanding the

developmental morphology of conidium formation (conidial ontogeny) concerned, whether it is holoblastic, enteroblastic or tetric. Unlike hyphomycetes where conidiophores, provide additional criteria for identification, in coelomycetes it is mostly based on the conidiogenous cells and conidial variations. Hence very few mycologists have ventured to unravel the taxonomy of this group in India and Prof. Muthumary painstakingly continued her research pursuits on coelomycetes. She provided inputs from electronic microscopic studies to developmental ontogeny of coelomycetes. Those students worked in close proximity narrate that she had an uncanny method of holding the specimen on to nailside of the thumb of one finger and taking very thin hand sections of pycnidial fruit bodies with a razor-blade in another hand. Her hands used to function like an ultra-thin microtome!

Awards, Honours and Visits Abroad

Prof. Muthumary won many awards and honours. She was selected to British Council Fellowship for doctoral scholars and worked at Commonwealth Mycological Institute, Kew, London in 1979. She was a Commonwealth Academic Staff Fellow at Imperial College of Science Technology and Medicine, London in 1988 and learnt various Electron microscopic techniques. Prof. Muthumary was conferred with 'Life-time Achievement Award for Woman Scientist' in Life Sciences for 2011, an award instituted by Science city, Department of Higher Education, Government of Tamilnadu. She attended 11th International Congress of Cytochemistry & Histochemistry, organised by Royal Microscopical Society, York, U.K, in 2000. She also attended the 7th International Mycological Congress (IMC7) held in University of Oslo, Norway in 2002 and presented a paper on Indian coelomycetes.

Prof. Muthumary was member of several professional scientific bodies. These included Mycological Society of India (1982-), Botanical Society of India (1986-), Association of Microbiologists of India (1987-), Royal Microscopical Society, UK (1989-90) and British Mycological Society (1989-91). She served as the Secretary of Mycological Society of India (2003-10) and Association of Microbiologists of India (2003-06). She was President of Mycological Society of India in 2008.

A Tribute

An excellent teacher and dedicated researcher, Prof. Muthumary was a wonderful human being. Affectionate and soft spoken, she was very kind and helpful to students, colleagues and friends, alike. With passing away of Prof. Muthumary, mycological fraternity lost a great teacher and a dedicated researcher.

Prof. Muthumary is survived by her husband Sri. N. Ponnambalam, former DGM, Bharat Sanchar Nigam Ltd., Chennai, and children K.S.N.P. Prabhu, working as Asst Manager in Ford India and Sivasankar in Apple, USA. We express deep condolences and pray Almighty to provide strength to her family to tide over this irreparable loss. It is a personal loss to all her friends, former colleagues, research scholars and members of Mycological Society of India and

we are sure all of them would join in paying rich tributes to this departed noble soul.

Ph.D. Degrees awarded under the guidance of Prof. Muthumary:

S. Masilamani. 1992. Taxonomy, developmental morphology & ultrastructure of some Indian Coelomycetes.

J. A. Jayachandra. 1994. Studies on developmental morphology of conidiomata and conidiogenesis in some Coelomycetes.

P. Ebenezer. 1998. Studies on sporulation in three species of *Pestalotiopsis* Stey.

M. Murugan. 1999. Developmental morphology and ultrastructure of some Indian Coelomycetes.

S. Sashirekha. 2004. Investigation on anticancer drug taxol and related compounds from some south Indian Coelomycetes.

R. Pandian. 2004. Taxonomic studies on different species of *Pestalotiopsis* grown in artificial culture media employing morphometric characteristics and statistical analysis.

G. Kathiravan. 2004. Studies on biodiversity of coelomycetes with special reference to production of Taxol from some species.

K.P. Kannan. 2004. Biodiversity of endophytic mycobiota from selected medicinal plants and some Gymnosperms.

N. Banu. 2004. Studies on mycobiota from sunflower oil refineries with reference to mycotoxins from the fungi and the feed and oil samples.

R. Senthilkumaran. 2004. Investigations on the morphometric data of some south Indian species of *Phyllosticta* and their Polysaccharides and taxol.

V. Bhuvanawari. 2005. Studies on fungal endophytes from some medicinal plants with special reference to taxol production by endophytic Coelomycetes.

V. Gangadevi. 2005. Studies on fungal endophytes from some medicinal plants and screening selected Coelomycetes for taxol production.

R. Karthikeyan. 2009. Investigations on Endophytic Mycobiota of Selected Medicinal Plants from Tamil Nadu Forests.

Balamurugan. 2009. Investigations on the Coelomycetes collected from Tamilnadu with special reference to taxol production.

M. Pandi. 2009. In-vivo and In-vitro studies on anticancer activity of taxol isolated from an endophytic fungus *Botryodiplodia theobromae* Pat.

R.Vennila. 2010. Studies on Therapeutic Efficacy of

Taxol, an Anticancer Drug Isolated from an Endophytic fungus *Pestalotiopsis pauciseta* Sacc. Vm1 on experimentally induced Breast Cancer in Sprague Dawley Rats.

S. Visalakchi. 2011. Detection and Characterization of Taxol and Other Bioactive compounds produced by Endophytic fungi isolated from medicinal plants.

S. Kamalraj. 2012. Biodiversity of Coelomycetous fungi in Tamil Nadu, India: Isolation, purification and Characterization of Antimicrobial and Anticancer compounds from *Pestalotiopsis* spp.

K. Nithya. 2012. Investigations on Bioactive compounds from endophytic fungus *Phomopsis* sp. NKJM01 isolated from *Plumeria acutifolia* Poir.

S. Srimathi. 2012. Antimicrobial and anticancer properties of endophytic fungus *Chaetomium atrobrunneum* Ames isolated from *Michelia champaka* L.

K. Srinivasan. 2012. Studies on fungal endophytes producing anticancer and immunomodulatory exopolysaccharides.

S. Yogeswari. 2013. Molecular characterization of some coelomycetous fungi with special reference to

bioactive compound production from *Monochaetia karstenii* (Sacc. & Syd.) Sutton.

G. Jayanthi. 2013. Investigations on *Phomopsis* spp. with special reference to isolation, purification and characterization of bioactive compounds.

R. Neelavathy. 2014. Investigations on endophytes and screening for antimicrobial compounds from *Colletotrichum theobromicola* Delacr.

M. Arul Kumar. 2017. Studies on anti-fungal and anti-cancer role of fungal lectin from cultivated edible *Pleurotus flabellatus* (Berk. and Br.) Sacc.

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