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Obituary

Obituary: Dr John Ingram Pitt



With deep sadness we report the passing of Dr John Pitt on 23 March 2022 after a long and hard battle against the lymphoma for a number of months. John was probably the most eminent scientist in the Food Mycology area, an expert on *Penicillium* taxonomy and pioneered research on spoilage moulds in a range of foodstuffs, much of his work in collaboration with Dr Ailsa Hocking. He also mentored many PhD students who have benefited from his expertise over many decades. Indeed, he was still working until very recently on the 4th Edition of his book on “Fungi and Food Spoilage” which will be published this year.

Dr Pitt was born on a small farm at Wamberal, on the Central Coast of NSW. Since he grew up on a farm, he had significant knowledge of fruit and vegetable crops although was not interested in continuing in the family tradition. He attended primary school at Erina Heights, NSW, and then Gosford High School. After matriculation, he moved to Sydney in search of work. He was fortunate to obtain a job with CSIRO Division of Food Preservation and Transport. He was not to know then that this would result in a lifelong career in applied science.

John joined CSIRO on the 1st March 1954, just before his 17th birthday, as a Junior Technical Assistant. He slowly moved up through all the research grades, becoming a Chief Research Scientist in 1992, at the age of 55. He was probably one of the only CSIRO staff members to achieve this feat from being a technical assistant. He pioneered work on the ecology of spoilage moulds in extreme environments, especially dried fruits/foodstuffs. He published numerous papers related to the ecology of spoilage moulds, especially *Penicillium* and *Aspergillus* species.

While working he was able to attend the fledgling University of New South Wales part-time, to complete his higher education, studying Food Technology. He was able to complete this degree in 8 years. His fascination with science resulted in him undertaking an MSc qualifying course at UNSW, and then a part-time MSc, entitled “Microbiological Problems in Prune Preservation”. This cemented his interest in the world of fungi. He subsequently carried out a full time PhD at the University of California, Davis, studying yeast taxonomy, and a postdoctoral year at

the USDA Northern Regional Research Center, Peoria, Illinois (NRRL), under Dr Clifford Hesseltine. This is where he became really fascinated in *Penicillium* taxonomy and the occurrence of mycotoxins in food chains. After this period he returned to CSIRO.

He established the FRR fungal culture collection at CSIRO, now a major collection specialising in fungi of importance in food and industrial applications. This collection became the basis for his text book “The Genus *Penicillium* and its teleomorphic States *Eupenicillium* and *Talaromyces*” (Academic Press, 1980). Later the 1st edition of “Fungi and Food Spoilage” (Academic Press, 1985) co-authored with his long-time colleague, Dr Ailsa Hocking, who joined him in CSIRO in 1974. Now the 4th Edition of this major text book is about to be published. This is used world-wide to educate graduate and post-graduate students and scientists about the importance of spoilage moulds, mycotoxins and their control. This research area has become even more important in the context of climate change and the food security and safety agendas.

In the 1970s to 1990s, Drs Pitt and Hocking carried out pioneering work on methods for isolating and identifying food-borne fungi, and on their physiology and ecology, with emphasis on species able to grow under extreme water stress, i.e., those that caused spoilage of dried, partially dried, or inadequately dried foods. Extensive studies were also carried out for the Australian Centre for International Agricultural Research (ACIAR) on the fungi occurring on dried Indonesian fish, and the fungi and mycotoxins that occur in all major Southeast Asian food commodities. He was involved in the establishment of many International Commissions including: International Commission for Food Mycology (ICFM), International Commission for *Penicillium* and *Aspergillus* (ICPA), WHO Food-borne Disease Burden Epidemiology Reference Group (FERG) and Joint FAO/WHO Expert Committee on Food Additives and Contaminants. He was also member of the International Commission on Microbiological Specifications for Foods (ICMSF), representing Food Mycology area.

The work on food mycology was complimented with mycotoxin research and the possible methods for minimising aflatoxins in peanuts. He addressed the serious problem with aflatoxins in Australian peanuts, and was able to use the ecological approaches to develop biocontrol by competitive exclusion of toxigenic strains of the producer species, *Aspergillus flavus* and *A. parasiticus*, with non-toxigenic strains. This approach has become of world-wide interest with several commercial products now available. He believed that biocontrol when combined with other approaches would be beneficial in reducing the exposure to such mycotoxins in both food and feed durable chains.

He completed 65 years of service to CSIRO in March 2019. He authored, co-authored, edited or co-edited 20 books, and published 250+ research papers and book chapters, 70 of them published since he

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officially retired in 2002. He was awarded many Honours during his life time. Examples include: NIH Fellowship, USDA (1968–1969); Distinguished Service Award by Australian Society of Microbiology (1991); Honorary Life membership of Learned Societies (Australian Society of Microbiology, Mycology Society of America, British Mycological Society); Centenary Medal (Commonwealth of Australia) for “Services to Food Science and Technology”.

In 1984, John Pitt, Doug King (USDA), Larry Beuchat and others organized the first workshop on Standardization of Methods for the Mycological Examination of Food (SMMEF I) in Boston, USA, in order to discuss suitable techniques and media for recommendations on the most appropriate ones for Food Mycology. In 1990 a second SMMEF workshop was held in Baarn (SMMEF II) which resulted in the publication of *Proceedings of the Modern Methods in Food Mycology* (1992), published by Elsevier. These two workshops were the impetus for the establishment of the International Commission on Food Mycology (ICFM).

John Pitt was also very active in teaching workshops in food mycology. Good examples include those in Brazil (with his colleague Marta Taniwaki, Institute of Food Technology, ITAL). He visited 10+ times and gave lectures to diverse and highly interested public from research institutes, universities, regulatory agencies, industry and

consulting companies who has the opportunity to interact with probably the world's foremost expert in food mycology. He also collaborated in projects on coffee, cocoa, brazil nuts, peanuts, helping to pinpoint then sources of fungi and mycotoxin contamination in these products. In the USA, he taught several workshops on the identification of *Penicillium* (2000, 2002, 2004) organized by The National Training Network of the Centres for Disease Control and Prevention in New Orleans, LA. In 2012, he collaborated in a workshop on Characterization and Identification of Spoilage-Causing Fungi with Emilia Rico, BCN Research Laboratories, before the International Association for Food Protection (IAFP) in Providence, RI. He also participated in Symposia at the IAFP in 2012 on “50 Years of Mycotoxins: A Retrospective and Prospective Examination”.

Overall, John had an enormous impact on food mycology and was passionate to improve food mycology methodology, particularly the use of appropriate media. He continued to attend and contribute to the International Commission for Food Mycology Workshops and to the Gordon Conferences on Mycotoxins and Phycotoxins for many decades. He will be sorely missed by colleagues, former PhD students and scientists globally.

Naresh Magan, Ailsa D. Hocking, Emilia Rico, Marta H. Taniwaki