



**Dr. Adrian Gillespie
1956-2003**

It is with great sorrow that we report the early death of Dr Adrian Gillespie at the age of 46. He was well known both for his work in the 1980s on insect pathogenic fungi at the Glasshouse Crops Research Institute (GCRI), Littlehampton, UK – now Horticulture Research International - and later until he died for his biocontrol projects at Chr. Hansen's BIO-Systems, Denmark

Born and raised in Teignmouth, on the idyllic south coast of Devon, England, Adrian attended Teignmouth Grammar School, 1968 – 1975. He then graduated in Keith Charnley's group in Applied Biology at the University of Bath, 1979. With a grant for 1979 – 1982, Adrian became a PhD student at the GCRI under the supervision of Denis Burges and Richard Hall, linked with John Manners' group at Southampton University. His PhD investigated the potential of fungi to control the glasshouse leafhopper, *Hauptidia maroccana*, and the onion thrips, *Thrips tabaci*. These studies were extended to include the rice brown planthopper, *Nilaparvata lugens*. As a result of his PhD studies he developed a great interest in the microbial control of pests, using fungi, that became the basis of a highly productive career.

From 1983 – 1984 Adrian moved to industry to work as a researcher for Dunlop in Birmingham, UK, being project executive for the development of *Bacillus thuringiensis* subsp. *israelensis* for mosquito control – a valuable extension of his experience. It included bioassays, field trials, product registration and formulation, as well as the development of controlled release formulations of chemical pesticides and pheromones.

He rejoined GCRI in January 1985 on a European Union funded post that enabled him to resume work on his favoured topic, entomopathogenic fungi. He soon took up a permanent job on the core staff and enthusiastically joined our group policy of applying for as many grants as possible. This enabled him to lead research on the use of *Verticillium lecanii* to control aphids on

glasshouse chrysanthemums and whiteflies on both cucumbers and tomatoes, the potential of fungi to control the black vine weevil, *Otiorynchus sulcatus*, EU funded research on the use of fungi to control jassids and delphacids on rice in S. E. Asia (with Nigel Hywel Jones), and a WHO research project on control agents of mosquitoes. During this time he also co-supervised three PhD students: on fungal control of vine weevil (student Ed Moorhouse, supervised with Keith Charnley at Bath), strain development in *V. lecanii* (student David Chandler, with Jim Heale at Kings College London) and interactions between entomopathogenic fungi and rice pests (student Jaime Jimenez, from Colombia). Adrian also worked with Jaime (by then a PhD) on an investigation of the potential of fungi to control the coffee berry borer, *Hypothenemus hampei*, funded by the Colombian Coffee Growers Association.

The philosophy at the GCRI was to look for pest problems in environments amenable to the use of fungi, to run practical trials and to back these up with fundamental studies to investigate difficult aspects. Adrian showed great ingenuity in devising new methods and approaches, always a strong point in later years. Denis spent many happy hours discussing all aspects of his work, including integrated systems in which a variety of biological agents played a role, together with methods in outdoor situations and the broader contexts of invertebrate pathology. He became skilled as an entomologist while breeding his insects and investigating their biology.

Equipped with a pleasant personality, a wry sense of humour and a lively, helpful disposition, Adrian was a valued member of Denis' team, devoted to his work. His social life developed with that of the rest of the group and much fun was had by all. By 1984 he had met his wife Josephine (she typed his thesis) and they started their family. Adrian was convinced that some pests could be controlled by fungi in their own right. In July 1989, he announced that he intended to put his money where his mouth was: he would leave the security and stability of a government research job for the relatively uncertain world of industry. He joined Chr. Hansen and moved with his family to Denmark. Chr. Hansen is one of Denmark's largest biotech companies with enzymes for cheese production as one of the major products. Since the mid-eighties the company expanded its interests into biological control and established a branch to develop them. Adrian was a core person in this development during his first years in Denmark. Glasshouse facilities for production of predators and parasitoids were established in Karlebo and a range of beneficial agents for glasshouse growers became commercially available for the first time in Denmark.

The fungus *Verticillium lecanii* was also commercialised by the company as the product series "Microgermin". A notable improvement was the application by dipping the small plants into a fungus suspension, a prophylaxis which had several advantages over the commonly used spraying with a conidial suspension. Adrian established a cooperation with Jørgen Eilenberg's research group at the Royal Veterinary and Agricultural University at Bulosvej. Adrian and Jørgen jointly supervised Susanne Vestergaard for her PhD thesis on biological control of thrips (*Frankliniella occidentalis*) with fungi (mainly *Metarhizium anisopliae*). Chr. Hansen paid half of all costs for this work, which considered both basic and applied aspects. Adrian always fully appreciated that different requirements can arise between university research and industry. He worked to ensure that all participants were satisfied so that international scientific publications as well as product development were accomplished efficiently. However, the commercialisation of biological control agents was (and still is) not an easy business and in 1994 Chr. Hansen decided to cancel the production and sales of predators, parasitoids and *V. lecanii*. Nevertheless, Adrian continued for some years the co-operation on *Metarhizium* with the university team, but the main objectives for his work shifted gradually towards another system for microbiological control, the control of gastrointestinal nematodes in cattle and other husbandry animals with the pathogenic fungi *Arthrobotrys oligospora* and later *Duddingtonia flagrans*. Somehow the concept for this work fitted more exactly with the target system of the mother company, viz, domestic animals and dairy

production. The co-operation included another group at the university, featuring zoologists, veterinary parasitologists and microbiologists (Peter Nansen, Jens Wolstrup, Jørn Grønvold, Michael Larsen and Svend Aage Henriksen). This cooperation was also very fruitful and resulted in a range of scientific publications on mode of action, production and field testing of the fungi. The work included travel opportunities for Adrian, which he always enjoyed due to his ability to establish new contacts and friendships all over the world.

Adrian and his family became truly integrated into the Danish life style. He learned the language to such extent that, in between times, he started to forget the correct English expressions. His family in England was surprised when he once asked for the “grass cutting machine” (a direct translation of the Danish word) instead of the “lawn mower”. He understood and told jokes in Danish and was known for his ability to create a good and cordial atmosphere in his laboratory, yet always working hard and professionally to achieve the goals. Adrian was a family man, enjoying all aspects of life: playing games, maintaining a bird aviary, cooking good food for family and friends etc. Some years ago, however, the marriage broke up and Adrian took over the main responsibility for bringing up his three children Nicola, Anna and Michael.

Despite the obvious difficulties of being a single parent, Adrian managed to balance family and career commitments, and the work on *Duddingtonia* continued. The field testing was constantly expanded to new areas abroad, for example as far away as New Zealand. At the time of writing, the prospects for a commercial development seem promising, but - as with much biocontrol – several obstacles are still to be overcome.

His ties to insect biocontrol were maintained in many ways and Adrian was, for example, a popular external examiner for MSc and BSc theses. Each year he was also the external examiner in a university course on biocontrol of both insect pests and plant diseases. For such work, a fair person with a broad perspective and deep insight was needed: Adrian had all these qualities. There was always a good atmosphere when he was used as external examiner.

By the sudden death of Adrian from a heart attack microbial control has lost an innovative person, dedicated to develop organisms to serve agriculture and husbandry. We have lost a mentor for up and coming scientists, a highly esteemed scientific colleague, a good friend and a dedicated father. Although Adrian has gone, he lives on in his three children Nicola (19), Anna (16) and Michael (12). We wish to thank all those who helped to prepare this obituary.

Denis Burges
Jørgen Eilenberg