

G. Rangaswami (1925–2005)

The passing away of Govindachetty Rangaswami on 7 September 2005, in a tragic road accident, just about four weeks prior to the planned celebrations of his 80th birth anniversary, in Coimbatore has been a great loss to the scientific community in the area of agricultural sciences. Rangaswami was a combination of a plant pathologist, agricultural microbiologist and a technocrat known for his organizational abilities and as a builder of agricultural institutions in South India.

GR, as he was known to his students and well-wishers, was born in 1925 in Kuttapatty village, Salem district, Tamil Nadu into a middle class family. He graduated from the Agricultural College, Coimbatore in 1946. After doing post-graduate studies on an antifungal antibiotic produced by *Bacillus subtilis* (bulbiformin) at the Indian Agricultural Research Institute, New Delhi, he went to USA and obtained a Ph D degree at the Rutgers University under the guidance of the Nobel Laureate S. A. Waksman. His doctoral research was related to the isolation, characterization and elucidation of properties of mycothricin, a new polypeptide antibiotic of the streptomycin group. On returning to India, GR's interest was naturally towards an understanding of the use of antibiotics in the control of plant diseases, since his earlier published papers were on the blast disease of rice. He had studied the distribution of stomata and silica in relation to rice blast disease, including varietal differences. The two areas of plant pathology which interested him in the earlier days were the bacterial diseases of plants and soil actinomycetes, especially of the *Streptomyces lavendulae* group.

Basically GR was interested in plant diseases, as evidenced by his three books on pythiaceous fungi, bacterial diseases and diseases of crop plants in India, but his eagerness to develop agricultural microbiology fructified when he joined the Annamalai University in Chidambaram, where he was instrumental in starting an agricultural college in 1959, leading to the award of the B Sc degree in agriculture. He developed an agricultural microbiology department and advocated the concept of holistic approach towards understanding useful as well as harmful aspects of microorganisms in agriculture.

GR attracted a number of students for Master's as well as Ph D degrees which helped him to pursue his first love towards plant diseases and also branch off to diverse

fields such as root nodule symbiosis, free-living nitrogen fixers like *Azotobacter chroococcum*, root knot nematodes, rhizosphere and phyllosphere microbiology, plantation crops, microbiology of composting, anaerobic digestion of cellulose in biogas production and bacterial fertilizer production. In short, GR's interest fanned over the entire gamut of microbes and plants including mushroom cultivation. GR published several papers in association with his students on a number of subjects. His stint at the Annamalai University was a stepping stone to his ascendancy in the field of agricultural education in India.



GR's appointment as Dean of the Faculty of Agriculture at the University of Agricultural Sciences, Bangalore in 1965, was another opportunity for the enthusiastic scholar to shape the curriculum and fashion teaching in agriculture on the lines of the trimester system. A department of agricultural microbiology came into being at the University of Agriculture at Hebbal during GR's tenure. He wrote a book on agricultural microbiology from his experience on teaching the subject.

By that time, recognizing his ability as an able science administrator, GR was called upon to establish an Agricultural University in Coimbatore, which he did in 1971. He took over as the founder Vice-Chancellor and continued there successfully for two full terms. The university witnessed phenomenal expansion during his tenure.

During the years in Bangalore and Coimbatore, students of GR began investigating the interaction between soil microorganisms in the root region (rhizosphere) and various crops. The findings revealed that rhizosphere microflora can be altered by spraying chemical nitrogen sources on the leaf, thereby implying that host-mediated transport of chemicals to the root

region influenced the number and activity of microorganisms near the root zone.

GR's interest was also focused on symbiotic and non-symbiotic nitrogen-fixing microorganisms. He was concerned about the indiscriminate use of chemicals in agriculture, whether they are fertilizers or pesticides. Therefore, units solely devoted to production and quality control of *Rhizobium*, *Azotobacter* and *Azospirillum* inoculants were developed in the agricultural universities of Bangalore and Coimbatore under GR's guidance. In fact, Tamil Nadu has been the biggest user of biofertilizers. Many of his students investigated the occurrence and benefits of phosphate mobilizing arbuscular mycorrhizal (AM) fungi, especially in millets and more particularly the synergistic beneficial effects of *Rhizobium* and AM fungi in root nodulation and productivity of leguminous crops.

GR had the ability to mobilize national as well as international funds to develop a wide range of projects in agricultural science. His services beyond South India began when he assumed charge of the National Academy for Agricultural Research Management (NAARM) of the GOI in Hyderabad between 1978 and 80; Advisor to the Agriculture of the Planning Commission in 1980 and Technical Advisor to the Agriculture of the Commonwealth in the UK, in 1981.

As one of the past Presidents of the Association of Microbiologists of India, GR reorganized the working of the Association and enacted rules to bring in order to an otherwise chaotic situation existing in the organization prior to his intervention. He was also the President of the Indian Phytopathological Society of India and was elected as a Fellow of the Indian Academy of Sciences, Bangalore in 1961. Recognizing his services to the Agricultural Universities in Bangalore and Coimbatore, GR was conferred honorary doctorate degrees by these universities. Tamil scholars conferred upon him the title of 'Ariviyal Maamani' in 1977 and even after retirement, he wrote a book *My Life with Microbes and Agriculture*.

The agricultural scientific community, especially his students, admirers and family members, will surely miss GR.

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