

IN CONVERSATION WITH DR. (MRS.) SUDHA NAGARKATTI, A PIONEERING BIOCONTROL RESEARCHER OF GLOBAL REPUTE

Dr. (Mrs.) Sudha Nagarkatti, one of the pioneers in biological control and the first Project Coordinator of AICRP on Biocontrol in India, is known for her inspiring leadership qualities and significant contributions to biocontrol of weeds and insect pests and also taxonomy of Trichogrammatids. She shares glimpses of her career journey with Dr. Kolla Sreedevi, Associate Editor, Indian Entomologist.



and gained tremendous experience. Later, she took a break and went to the USA where she joined the University of California, Riverside, California, for Ph.D. (1962-67) in Entomology/biological control and obtained the degree in 1967. Subsequently, she returned to Bengaluru and rejoined CIBC. She got married to Mr. Ashok Nagarkatti, an electrical engineer.

Dr. (Mrs.) Sudha Nagarkatti (nee Dr. V. Sudha Rao) born on 23rd January, 1937 in Bengaluru (then Bangalore), Karnataka, is the second child of late Dr. V. Prabhaker Rao (more popularly known as Dr. V. P. Rao) and Mrs. V. Premalata Rao. Dr. Sudha has two brothers and a sister. She did her SSLC at Kamala Bhai School, Bengaluru and then joined Mount Caramel College, Bengaluru and obtained her B. Sc. degree (with CBZ as optional subjects) from the then Mysore University. After her graduation, Dr. Sudha joined Commonwealth Institute of Biological Control (CIBC), Indian Station, Bengaluru where her father, Dr. V. P. Rao, who is considered as the 'Father of Biological Control in India,' was the Director. CIBC, a part of Commonwealth Agricultural Bureau (CAB), London, established its Indian Station in 1957 at Hebbal, Bengaluru, in the same premises where ICAR-NBAIR is presently located. Dr. Sudha had an opportunity to work on several biological control projects, most of them being of pioneering in nature,

During her time at CIBC, Dr. Sudha Nagarkatti held a leadership position and was associated with several biocontrol projects on weeds and insect pests. These projects were national in stature and explored the potential of biological control which was barely known then. She published several papers. Dr. Sudha also worked on the taxonomy of Trichogrammatids when a separate project on it was initiated at CIBC and path-breaking contributions came from her along with late Dr. H. Nagaraja. They provided new species descriptions and authentic species identification keys. This strengthened the taxonomy of Trichogrammatids and also placed CIBC, (thanks to Dr. Nagaraja and Dr. Sudha) as a dependable center for the authentic identification of the species in this group. Later, as the CIBC was heading for closure, Dr. Sudha Nagarkatti joined ICAR-Indian Institute of Horticultural Research (IIHR), Bengaluru, in 1977 as the Project Coordinator of All India Coordinated Research Project on Biological Control (AICRP

BC). With her vast knowledge and experience, she provided exemplary leadership in the early years, overseeing biocontrol operations across India. Thus, she laid a strong foundation for this all-India project. Initially, the programme was funded by the Department of Science & Technology (DST), Govt. of India, but from 1979 onwards, it received funding from ICAR alone. In addition to being the Project Coordinator, Dr. Sudha headed the Department of Entomology and Nematology at IIHR from 1980-1982. She resigned from ICAR-IIHR in 1983 and moved to USA to join her husband who has taken up a job there. While in the U.S., she continued her research in the field of Entomology, working on grape berry moth at the Grape Research Institute in Erie, Pennsylvania State University, and published several research papers until her retirement in 2001. She worked on several aspects of grape berry moth, including biological control with releases of native *Trichogramma minutum*, phenology, diapause induction and carbaryl resistance in populations of grape berry moth and also historical aspects and

projected interactions between climate change and insect voltinism in a multivoltine species. Dr. Sudha returned to India along with her husband in 2020 and got settled in Bengaluru.

Dr. K. Sreedevi (KS): *What motivated you to take Entomology as a profession?*

Dr. Sudha Nagarkatti (SN): It was my father, Dr. V. P. Rao's work that motivated me to take up Entomology and Biocontrol as my profession. I was deeply inspired by him, who worked on several aspects of agriculture in various locations, including the biological control of apple pests in Sikkim. During my student days, my father worked as a Plant Protection Officer and also as a Fumigation In-charge at the Delhi centre of PPQ&S, Govt. of India. In 1955, he joined CIBC and established the Indian Station of CIBC at Bengaluru. At that time, CIBC, with its headquarters being at Trinidad, had only two other centres, Rawalpindi (Pakistan) and Switzerland. After joining CIBC, my father travelled a lot on biocontrol assignments



The staff of CIBC, 1970: Seated L-R: Sundari, Apitha, Victor Karunan, Dr. T.R.Nagaraj*, Dr. P.R.Dharmadhikari*, Dr.V.P.Rao*, Dr.F.J.Simmonds* (Global Director who was on a visit), Dr.Sudha Nagarkatti, Sumithra Manjunath*, Dr.T.Sankaran*. Standing, 1st row,3rd from right: Dr. H. Nagaraja* (*late). Dr. T. M. Manjunath is in the back row wearing a tie. He has been associated with Dr. Sudha Nagarkatti since 1961 and, at 85, is still active in biocontrol and IPM. Photo courtesy: Dr. T. M. Manjunath.*

and worked in Ghana, West Africa, Cyprus, Fiji, Phillipines, Malaysia, etc.

KS: What inspired you to take biocontrol as your specialization and as a career option?

SN: As I said, besides my father's work, the indiscriminate and overuse of chemicals in agricultural fields which caused undesirable side effects on the environment and also destroyed a lot of beneficial insects including biological control agents had strongly influenced me to pursue this field. So, I wanted to do something that can encourage people to use biologicals and hence chose biological control as my career option.

KS: Can you please elaborate your experience during the career?

SN: When I started my career at CIBC, India had not carried out any extensive surveys for natural enemies of major pests and weeds and made any systematic research on the potential of biological control. This provided an opportunity to do some pioneering work and strengthen the areas where BC can percolate to all corners of the country. Weed control in India was not explored fully and it is a tricky area where the released insect should be target specific and should not affect the other non-target organisms. I was associated



Dr. Sudha Nagarkatti working in biocontrol lab at CIBC station, Bangalore

with the Parthenium weed control and enjoyed my weed control work at CIBC station, Bengaluru. I had worked on species descriptions of *Trichogramma*

along with my colleague, Dr. H. Nagaraja, a very talented artist who worked on *Trichogrammatids*. I am highly grateful for all his help in drawing the illustrations for scientific publications.

KS: Having known that you have described several species of *Trichogramma*, what's your opinion on taxonomy and biocontrol?

SN: I have worked on the taxonomy of *Trichogramma* along with biological control. For biological control, correct identification of natural enemies is crucial and essential. I worked on the identification of the *Trichogramma* species through morphological characters and in the process was able to describe a few new species too. I feel biocontrol and taxonomy will go hand in hand as many of the insect resources are utilized as biocontrol agents and will supplement and complement each other.

KS: Which one would you give priority when both family and profession demand your presence?

SN: My parents' support to my family was immense. So, I was able to work with full concentration as long as I was in India with CIBC and IIHR. But, once my husband had decided to leave for the US for work, I thought I should give priority to family and moved to US along with him. He, being an electrical engineer, had better opportunity there and I supported him and also thought that we can provide better opportunities for our 12-year-old daughter and we settled in US. There I joined California Institute, which was way ahead in biological control and joined Grape Research Station and worked on biological control of insect pests and weeds. This has allowed me to pursue my career in biological control. I feel that though I have given priority to my family, I never left my passion for biological control. There comes the balance of personal and professional lives. Balancing family and profession is not so easy. Luckily, I had my family support and thanks to my sister, Mrs. Shyamala Nirodi, who used to take care of my daughter, Sona during my touring time when I worked with CIBC

and IIHR and helped me a lot during my official tours and ventures.

KS: *Any tough time, you can recall during this journey?*

SN: In December 1983, when I was all set to leave for the US, my father passed away two days before my scheduled departure. He dropped me at the bus stop to go to IIHR to submit my resignation and while driving back home, he collapsed in the car due to cardiac arrest. That was a big shock for me. At the same time, my sister Shyamala suffered temporary limb paralysis due to shock and it added to the woes. It was a very tough time that I ever faced. I postponed my travel and moved to California in January 1984.

KS: *What is the most satisfying and proud moment in your career?*

SN: I am happy and proud that I worked on biological control at a time when it lacked adequate professional expertise in this area. A lot of touring within India and abroad has given me a lot of exposure and experience to take forward biological control. I am highly satisfied with the job done and career pursued.



Dr. Sudha Nagarkatti standing to the left of Dr. V. P. Rao (person in tie at the centre)

KS: *Can I have your message to youngsters?*

SN: Pursue your Passion! No fun in being at one place and stuck to a place. Avail opportunities to tour going all over the country and world and gain lot of experience with the people and knowledge around. Dr. Sudha did a lot of touring in India and abroad and

enjoyed her career.

KS: *Can I hear about your hobbies other than your profession?*

SN: I enjoy cooking and people say that I am a very good cook (and smiled), I do a lot of gardening and singing is my greatest hobby.

Smt. Shyamala, sister of Dr. Sudha while conversing supplemented saying that Dr. Sudha along with her husband Shri Ashok used to sing duet songs several times during various Indian Gathering in US.



Dr. Kolla Sreedevi, Associate Editor, IE with Dr. Sudha Nagarkatti

Dr. Kolla Sreedevi expresses sincere thanks to Dr. Sudha, Smt. Shyamala, Mrs. Sona (daughter of Dr. Sudha Nagarakatti) for all their cooperation and support in conducting this interview. Also thanks are due to Dr. T. M. Manjunath for his valuable inputs.