

BAGEPALLI RAMACHANDRA SESHACHAR

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B. R. Seshachar



BAGEPALLI RAMACHANDRACHAR SESHACHAR

(1908-1994)

Elected Fellow 1953

EARLY EDUCATION

BAGEPALLI RAMACHANDRACHAR SESHACHAR was born on the 9th of January 1908. He took his BSc degree from Mysore University in 1926. He got first class. He was the topper of the class and was awarded a Gold Medal. He took his MSc from Calcutta University in 1931. He got his DSc from Madras University in 1940.

CAREER

Professor Seshachar joined as a Lecturer in Zoology in Mysore University in 1926. He rose to the level of Head of the Department of Zoology in 1946 and continued in that position till 1960. He then shifted to Delhi University and served there as Head of the Department till he retired in 1971. He was instrumental in organizing a series of seminars in his department on cell biology during his tenure. He worked during 1948- 49 as a Harrison Research Fellow in the University of Pennsylvania and also as a Visiting Professor in the Columbia University, New York. He visited Great Britain under the sponsorship of British Council during 1956 and was associated with King's College, London as a Visiting Professor. The same year he visited USA as a Rockefeller Foundation Fellow. He visited Czekoslovakia in 1961 as a delegate to the First Photozoology Conference. He again visited the U.S. and Europe as a Rockefeller Foundation Fellow. In his capacity as Vice President of the International Ecological Conference he visited the US in 1963. Besides he visited the Netherlands, UAR, USSR, Hungary, Switzerland, France Bulgaria, Egypt and Italy on professional missions several times.

RESEARCH WORKS

Professor Seshachar's main interests were in Cytology, Cytochemistry and Cytozoology. His earlier work was on Cytology of Gymnophiona (amphibia). From 1942, he worked in the area of Cytochemistry of Ciliate Protozoa. His work on nucleic acids and apodan sperm has attracted considerable attention all over the world.

The problem of nuclear apparatus of ciliates is a central one in the understanding of our knowledge of cell phenomena, normal as well as malignant.



Specifically, the nature of the macronucleus, which having the same origin at the micronucleus, pursues a totally different path of differentiation and development, enlarges its size, undergoes a modification of form and loses its faculty of mitotic division and is of supreme interest. Often it buds off nuclear bodies into the cytoplasm. Every one of these phenomena exhibited by the normal Ciliate micronucleus finds its parallel in the malignant cell and a study of the former will doubtless lead to the understanding of the latter. This can only be on a chemical basis and a study of the content of the nucleic acids and proteins. A few ideas were expressed in papers published in *Current Science*, *Nature* and *American Naturalist*. On the basis of these published papers, the University of Pennsylvania offered him the Harrison Fellowship in 1948 and later on University of Columbia. In these two places Professor Seshachar did qualitative and quantitative understanding of the micronucleus of the Ciliate, *Chilodonella uncinatus*. Three papers embodying the various aspects were published in leading journals.

Protein determination and also further photometric work on Ciliate Protozoa, by which the detection and estimation of minute amounts of proteins and nucleic acids was made, for the first time in Delhi University.

Professor Seshachar's earlier work was connected with the Cytology and development of germ cells of the Gymnophiona, a group of highly interesting Amphibia, of restricted distribution but of great phylogenetic importance. Of the 17 genera present throughout the world, three occur in India, *Ichthyophis*, *Uraeotyphlus* and *Geganophis*. The gametogenesis, chromosomes and their evolution, origin of gem cells and cytochemistry were studied in all these genera. These studies constitute the only work on these aspects of the Gymnophiona and no further contributions have since been made on this group. The occurrence of the homologue of the Bidder's organ in these animals has been reported for the first time and is a finding of great interest.

Since 1946, Professor Seshachar was concerned largely with cytology, cytochemistry and differentiation in the ciliate protozoa. Many gaps in our knowledge of these areas exist and during his career several contributions were made to our understanding of the cytology of these unicellular organisms. He studied the cytochemistry of the macronucleus and micronucleus with a view to understanding their relationships and the nature of their differentiation. He was the first to employ the photometric methods for the determination of their DNA content and establish a relationship between the amount of DNA and ploidy. The macronucleus of the ciliate was thus shown to be highly polyploidy, containing several hundred times more DNA than the micronucleus, from which it is differentiated. More recently, he has shown that the macronucleus contains greatly elongated chromosomal filaments, electron microscope studies have also been made which indicated that the macronuclear chromosomes are amongst the most unique



found in any animal. Professor Seshachar actively participated in the professional activities of the Indian Academy of Sciences, Bangalore during his life time. Prof Seshachar was one amongst prominent photozoologists of the world during his time.

AWARDS AND HONOURS

Professor Seshachar was elected a Fellow of the Indian National Science Academy in the year 1953. He was also elected Fellow of the Indian Academy of Sciences the same year. He was the President of INSA in 1971 and 1972. He was a foundation fellow of the Zoological Society of India, Fellow, International Society of Cell Biology and a Fellow of the International Photozoological Society. He received INSA Sunder Lal Hora Medal in 1965 for his outstanding research in Biology. All India Cell Biology Conference (AICBC) has instituted BR Seshachar Memorial Award in his honour. Besides MES degree College in Malleswaram, Bangalore has instituted BR Seshachar Endowment Scholarship for deserving students.

Professor Seshachar was a delegate to the first Photozoological Conference in Prague (1961), second in London (1965) Vice President of the International Zoological Congress in Washington (1963), Member, Science delegation from India to USSR (1967), delegate to the General Assembly of IUBS, Switzerland (1967), leader of the Indian delegation to the third general assembly of the International Biological Programme, Bulgaria (1968) and was a delegate to SCIBP to visit US, UK and Canada (1970).

SESHACHAR AS A PERSON

Professor Seshachar was always of the view that scientists are not being rewarded for their output. As President of INSA he observed in 1972 (Impact of Science on Society, Vol XXII, No.1/2, 1972) ' The scientists are, by and large, second class citizens in India and if some are admitted to the inner enclosure, it is not so much because they are the most outstanding scientists, but largely because they have the right connections.

Competent scientists take leave of their work and scurry around, waiting at the pleasure of the powerful. When, as it ultimately happens, a few of them happen to be chosen for special consideration, independence disappears and yesmanship results.

One of the tragedies of Indian science is the absence of independent thinking and fearless expression of views. As long as science lacks these qualities it must remain ineffective.

Professor Seshachar passed away on 24th January 1994 after a distinguished career in Science.



EPILOGUE

In my capacity as Editor, INSA Biographical Memoirs, during the last five years, I approached many of my colleagues to write Professor Seshachar's memoirs, but did not succeed. Even though I do not belong to the field of Zoology, I have myself taken the initiative to write this article based on the material available at my disposal.

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