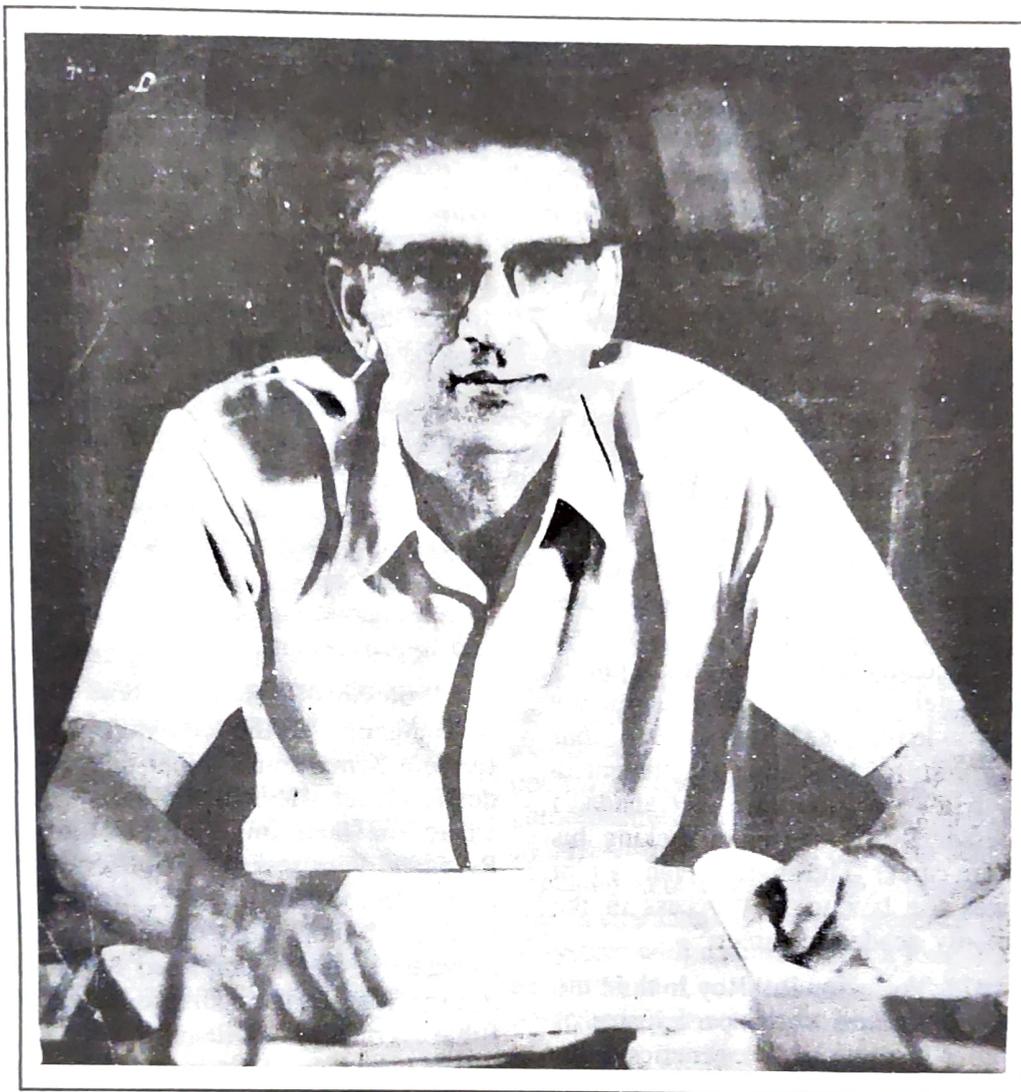


## OBITUARY



**Professor Ram Parikshan Roy  
(1920-1997)**

I deem it an honour to have been asked to write an obituary for Professor Ram Parikshan Roy with whom I learnt the first lessons of cytogenetics research, and whom I held in the highest of esteem ever. Since I never had the good fortune of being his student in a formal sense, I thought that among his colleagues and students there were several, who deserved and could be better qualified to write an obituary for this great cytogeneticist. However, during his last meeting with me, he wondered as to who would be writing an obituary for him, when he is no more, and also obliquely expressed his desire that I should be asked to do this job. Therefore, in writing this obituary I have the feeling of fulfilling one of his desires.

Professor Roy was one of those scientists who was not a mere cytologist involved only in counting chromosomes and preparing karyotypes, but was a cytogeneticist in a true sense. I enjoyed immensely discussing various aspects of cytogenetics with him during my visits to Patna and at several symposia, where we used to have time together in the evenings to chat in a rather informal manner. These discussions with him used to be very educative, so that after each discussion, I had with him in a meeting, I used to come back inspired and full of enthusiasm, reorienting my own on-going research programmes and preparing new programmes for the future, keeping in mind the discussion I had with him.

As many of my friends may know, I faced Professor R.P.Roy for the first time in an interview at Allahabad University in 1959, where I was a candidate for lecturership, and Professor R.P. Roy and Professor P. Maheshwari were the two experts. Ever since then, Professor R.P.Roy never missed an opportunity talking about this first meeting with me, where as he used to describe, he developed some kind of a fascination for me. Subsequently, after I joined as a lecturer at Gorakhpur University, Professor K.S. Bhargava, the then Head, Department of Botany there, requested Professor R.P. Roy to suggest a research project, which I could possibly undertake for a Ph.D. degree. Professor Roy asked me to work on meiosis in local grasses, which led me to survey grasses of Gorakhpur. Later, I worked on meiotic chromosome numbers in some grasses that led to a study of abnormal meiosis and apomixis in a number of grasses under the guidance of Professor R.P.Roy. I was therefore fortunate to have authored some of my early research articles particularly those on apomixis, jointly with him. Unfortunately, before I could submit my Ph.D. thesis, I had to leave for Canada in 1964, thus missing the opportunity of becoming his student in a formal sense. After my return from Canada, I approached Professor Roy once again seeking his advice for my future career. The advice given by him then and later was the key to my success in the remaining part of my academic career.

In the year 1972, Professor R.P.Roy invited me to deliver a series of lectures to the participants of an All India Summer Institute in Cytogenetics organized by him at Patna. In one of these lectures, I had a difference of opinion with Professor R.P.Roy. Later when he learnt that I was right he described this incident to all the participants as an example where a teacher could learn from his student. There are numerous such examples which speak high of the person in Professor R.P.Roy.

Incidentally, in 1995/96 I had the good fortune of meeting Professor R.P. Roy twice, once at Varanasi at a Symposium organized to felicitate Professor H.Y. Mohan Ram and later at NBRI, Lucknow, where we were together invited to be the experts for a meeting of a selection committee. At Lucknow, I spent some time with him on a morning in his room in the guest house. I had taken with me a copy of my latest book *Cytogenetics*, written for M.Sc./Ph.D. students and for research workers. I was keen to show this book to Professor Roy, who was one of

the few in the country, who could appreciate the effort that had gone into the book. Professor Roy spent more than two hours browsing through the book, making comments on the merits of the book and asking questions, where he thought I could improve. Alas, this was the last time I saw him, although in February, 1997 at the time of my retirement, he wrote several letters to me and to my colleagues expressing his helplessness and discomfort for not being able to attend the felicitation function arranged for me here at Meerut and also reiterating the feelings that he had for me.

Besides his academic eminence, Professor Roy was a good friend. During my associations with him for more than 35 years, whenever I visited Patna, Professor Roy would arrange for my stay at his residence rather than in a guest house. This used to give me further opportunity to discuss with him my research interests and to seek his advice for corrections and improvement.

Professor R.P.Roy was born on 1 January 1920, in Gangapur in the erstwhile Darbhanga district (present Samastipur), Bihar and had a brilliant academic career. He had his early education at Pusa, where the then Imperial Institute of Agricultural Research, with several scientists of international repute, was located. In 1937, he took admission as a first year biology student at Banaras Hindu University and in 1943 completed his masters degree in Botany with a distinguished career. He joined the Bihar Agriculture College, Sabour in 1945 but later in 1947, he started his teaching and research career in Science College, Patna University, which had only intermediate and B.Sc. pass course till 1948. Soon after joining Science College, Patna University, Ram Parikshan conducted a survey of local flora and brought out a monograph entitled *Trees of Patna*, which still continues to be an important reference material for studies on hardwood and tree plantations in Bihar. Later, in 1950, he was selected for the award of a Post-War Overseas Scholarship of the Government of India to enable him join the University of Cambridge as a contemporary of Dr. M. S. Swaminathan. At Cambridge, while working on cytogenetics of wheat and allied genera (*Triticum* and *Aegilops*), he earned a Ph.D. degree in cytogenetics and received training from men of eminence like R.A. Fisher, D.G. Catcheside, G.D.H. Bell, etc. His studies conducted at Cambridge on the genome analysis in the genera *Triticum* and *Aegilops* eventually led to elucidation

of the origin and evolution of bread wheat, particularly to the discovery of the progenitor of the B genome.

In 1953, after his return from Cambridge, U.K., Professor Roy joined Patna University as Professor & Head, Department of Botany, the position on which he continued till his retirement on December 31, 1981. During this period he also worked periodically as Dean, Faculty of Science. During the period of his stay at Patna University, Professor Roy created a strong school of cytogenetics giving training to a number of students (including myself; I used to visit him from Gorakhpur University during holidays). Some of these students occupy distinguished positions in India and abroad. Due to his untiring efforts, the Department of Botany of Patna University was recognized as UGC Centre of Special Assistance that was later elevated to an Advanced Centre. He worked as Coordinator, UGC Centre of Special Assistance in Cytogenetics, till his retirement and later also worked as CSIR Emeritus Scientist. Unfortunately, the traditions and the research atmosphere created by Professor Roy could not be sustained after his retirement, despite his best efforts in this direction. This was particularly due to untimely demise of Professor Umakant Sinha (who was trained in UK on fungal genetics with G. Ponteconvo, FRS), who was appointed and persuaded by Professor Roy to shift from Delhi University to Patna University as Professor of Botany, so that he could succeed him after his retirement.

In early fifties, after joining Patna University as Professor & Head, Department of Botany, and later, Professor R.P. Roy initiated cytogenetical studies in several groups of plants. These studies included the following: (i) Cytogenetic studies of Indian hardwoods included studies conducted by Professor Roy on timber yielding families (Dipterocarpaceae and Lecythidaceae) leading to publication of results on karyotypic features of species like *Shorea robusta*, *Dipterocarpus alatus*, *Hopea odorata*, *Shorea talura*, *Vatica grandiflora*, *Barringtonia acutangula* and *Careya arborea*. (ii) Cytogenetic studies on mosses and ferns, included significant contributions in the fern genus *Adiantum*, where hybridization studies were undertaken for gaining an in-depth understanding of *A. caudatum* complex. These studies were extended for undertaking a cytological survey of the ferns of Kathmandu. (iii) Cytotaxonomical and cytogenetical studies were conducted in legumes (including pulses)

and grasses, and led to valuable publications on the cytogenetics of genera like *Trigonella*, *Indigofera*, *Phaseolus*, *Oryza*, *Dichanthium* and *Rottboelia*.

In early 1960s, Professor Roy initiated an important and ambitious research programme on cytogenetics of Indian cucurbits, belonging to the following genera: *Trichosanthes*, *Lagenaria*, *Momordica*, *Luffa*, *Cucumis*, *Citrullus*, *Coccinia*, *Edgaria*, *Melothria*, *Gomphogyne*, *Sechium* and *Cyclanthera*. The most important contribution resulting from these studies was the elucidation of a chromosomal basis of sexual dimorphism in *Coccinia indica*. By raising a hierarchy of polyploids and trisomics, Professor Roy was successful in establishing the relative roles of X and Y chromosomes in sex determination. Specific segments of Y chromosome responsible for the manifestation of maleness were also identified.

The study on dioecy in cucurbits allowed Professor Roy to suggest that evolution of dioecy in this group of plants followed the three stages: (i) The first step (exemplified by *Luffa echinatia*, *Momordica dioeca* and *Melothria heterophylla*) involved genic control of dioecism without any heteromorphy of chromosomes. (ii) In the second step, characterized by *Trichosanthes dioica*, incipient sex chromosomes appeared to be responsible for dioecy. (iii) The third step is characterized by the presence of a distinct X/Y system with a short X and a long Y chromosome, as found in *Coccinia indica*. This system is now described in several text books.

During 1970s, Professor R. P. Roy became interested in tissue culture and established a well equipped tissue culture laboratory at Patna University. This laboratory became known due to Professor Roy's valuable contributions on anther culture in *Solanum surattense* and other Solanaceous/Cucurbitaceous taxa. The micropropagation of prolific fruit-bearing female lines in *Momordica dioica* and *Trichosanthes dioica* was also demonstrated and the relative roles of auxins and cytokinins in explant regeneration was studied in several monoecious cucurbit taxa.

Another research area which attracted the attention of Professor Roy in the 1970s was the use of Q and C<sub>7</sub>-banding techniques. The use of this new technique in plant systems had just started then, becoming popular in early 1970s, and Professor Roy used it in three species of *Crinum* (*C. asiaticum*, *C. latifolium* and *C. moorie*) resolving interspecific variation in the amount and disposition of heterochro-

matin/repetitive segments in the chromosomes. Fluorescence microscopy was also used by him to study the crossing barriers in interspecific crosses within the genus *Momordica*. In 1980s, a Vicker's microdensitometer-cum-interferometer (for estimation of nuclear DNA and dry mass) was also procured at Patna University with the efforts of Professor R. P. Roy, but this could not be put to any major use, due to the retirement of Professor R. P. Roy in 1981.

Due to the distinguished career and significant research contributions made by Professor Roy and his group at Patna, for many years Patna University was recognized as one of the best centres of research in plant cytogenetics. Therefore, later it was sad to see that department without Professor Roy. During later years of his life, I visited Professor Roy at his residence more than once, but did not feel motivated to visit the University, as if Professor Roy was the only attraction in that department.

Professor R.P. Roy was a member of various bodies for the development of biological sciences at the national level and served on the Selection Committees of various universities. He also worked on the panels of various granting agencies like UGC, CSIR, ICMR, ICAR and DBT. Professor Roy thus played a significant role in the development of biological sciences in the country. This entailed a lot of travel, but he generally did not like to travel for remunerative assignments like examination work. In fact, in later years of his career, he never claimed any remuneration for examining a number of Ph.D. theses of the students of his colleagues elsewhere, since he could not refuse some of these assignments.

Professor Roy also received a number of honours and awards, besides the prestigious Post-War Overseas Scholarship awarded to him in 1950 for undertaking Ph.D. work at Cambridge, U.K. He was elected to the fellowship of National Academy of Sciences, Allahabad in 1966 and was elected President of the Biological Section of this Academy in 1976. He was also a fellow of Indian Botanical Society, Indian Society of Genetics and Plant Breeding and the Society of Cytologists and Geneticists. He was also elected a fellow of the Indian National Science Academy (INSA), New Delhi in 1968, served as a member of its Council for a full term (1972-74) and was also a member of the Sectional Committee VI (Plant Science) of this Academy twice (one of these three years term was as member convenor). He was elected

President, Botany Section, Indian Science Congress (1972) and also served as President, Indian Botanical Society (1977). He was also the recipient of the prestigious Birbal Sahni Gold Medal (1974), Jawaharlal Nehru Fellowship (1975) and CSIR Emeritus Scientistship (1982).

Professor R. P. Roy was Founder President of the Society of Cytologists and Geneticists (1965) and was also the Founder Secretary of Bihar Association for the Advancement of Science (1973). He edited the *J. Cytol. Genet.* for 14 years, since its inception and was a member, editorial boards of several scientific journals like 'J Indian bot Soc' and 'Bio-science'.

In concluding the obituary for Prof. R. P. Roy, I only wish and hope that some of our younger cytogeneticists will carry the torch of plant cytogenetics research further in our country, since unfortunately the interest in this research area is fast disappearing. Even those who are pursuing research in plant cytogenetics, wish to do molecular cytogenetics, sometimes without even looking at the chromosomes under the microscope. The exciting current developments in the field of cytogenetics like FISH, McFISH, PFGE, artificial chromosomes, microdissection & microcloning would have certainly fascinated Professor Roy, had he lived into the 21st century. I also like to take this opportunity to offer my heartfelt sympathies and condolences to Mrs. Roy (whose hospitality I frequently enjoyed, whenever I visited Patna), who must have played her own significant role towards the scientific contributions of Professor Roy in a variety of ways rather indirectly. She lost her life long partner, their children lost their beloved father, but scientists, particularly the cytogeneticists, lost an eminent scientist, who was a friend and guide to many of us. He will certainly continue to live in research contributions he made and in the minds of those (like me), whom he helped and/or inspired, but the state of Bihar without him would never be the same again. One would only expect that some younger scientists of the state will take it up as a challenge and will try to come upto his expectations.

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