

IN MEMORIAM

IN MEMORIAM – RAOUL M. CONSTANTINEANU, PHD
SENIOR RESEARCHER (C.S. I), ENTOMOLOGIST
(JULY 28, 1938, IAȘI – JANUARY 08, 2024, IAȘI)



Professor **RAOUL M. CONSTANTINEANU**, a remarkable and emblematic figure in Romanian entomology, a naturalist passionate about knowledge and research, proving great diligence in the field as well as in laboratory work, left us at the venerable age of 86.

He experienced the satisfaction of conducting research in the study of **Ichneumonidae** hymenopteran insects, a highly important subject, of great value and significance with outstanding results, in almost all ecologically significant regions of the planet: Europe, the Near East, the Far East (China, South Korea), the USA, including Hawaii, Brazil, South Africa, etc. Equally valuable as his printed works is his substantial contribution, alongside his father Professor Mihai I. Constantineanu, PhD, to creating the largest private collection of ichneumonids in

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Europe, a research subject focused on the diversity, taxonomy, and systematics of these insects in Romania and Europe.

Dr. Raoul Constantineanu left behind a huge void in the study of insects in the fauna of Romania, the most significant ichneumonologist after the contribution of his father, Mihai I. Constantineanu.

Raoul M. Constantineanu was born on July 28, 1938, in the city of Iași, his parents were Lavinia Grația Constantineanu, his mother, a geography teacher, and Emeritus Professor Mihai I. Constantineanu, his father, one of the most important Romanian entomologists, with a globally recognized scientific work and the founder of the most significant Romanian school of Entomology. He attended the “Costache Negruzzi” High School from 1949 to 1955 and pursued university studies from 1955 to 1960 at the “Alexandru Ioan Cuza” University of Iași, Faculty of Natural Sciences – Geography, specializing in Biology – Zoology in the five years study program, graduating in 1960 as top of his class.

His scientific research, initiated and developed by his illustrious father, focusing on parasitoid hymenopterans, particularly ichneumonids, began during his student years and continued uninterrupted until his final days.

Dr. Raoul M. Constantineanu began his research and his university teaching career as an instructor (1960–1964), under the supervision of Professor Dr. Sergiu Cărăușu, the renowned specialist in Marine Biology, in the Department of Zoology, Faculty of Biology–Geography, of the “Alexandru Ioan Cuza” University of Iași, teaching subjects such as Entomology, Biogeography, and Hydrobiology.

In 1964, he transferred to the Center for Biological Research in Iași (Institute of Biological Research – I.C.B. since 1990), where he carried out his entire research activity until retirement in 2001. Here, he covered all hierarchical levels, from Junior Researcher, in 1964, to Senior Research Scientist (C.S.I) from 1992 to 2001. In 1973, he defended his doctoral thesis *Contributions to the Study of Tryphonoids (Hymenoptera, Ichneumonidae) in Romania* at the “Alexandru Ioan Cuza” University in Iași.

At Institute of Biological Research Iași, he held leadership positions: Head of the Biological and Genetic Control Laboratory (1994–1997), Head of the Entomology Laboratory (1997–1998), and Head of the Taxonomy Team (1998–2001). Concurrently, Dr. Raoul Constantineanu served as Associate Professor (1997–1998) at the Faculty of Biology from “Alexandru Ioan Cuza” University, and in the period 2001–2005 he was Professor at the Faculty of History–Geography at “Mihail Kogălniceanu” University in Iași, teaching courses in Environmental Pollution and Protection, and Biogeography.

Raoul Constantineanu dedicated his life to entomological research focusing on the taxonomy, ecology, and biology of parasitoid hymenopterans, particularly the Ichneumonidae family. These are entomophagous insects that maintain natural balance by controlling phytophagous insects in both natural and human-altered ecosystems. His research aimed at establishing the foundation for biological and integrated pest management.

To accomplish these research purposes, Dr. Raoul Constantineanu dedicated his entire life to ensuring up-to-date documentation in the field. He achieved this goal through study trips, fieldwork, studying major collections of ichneumonids worldwide, as well as by reviewing the specialized literature. Additionally, throughout his professional life, he participated in 15 of the most important international entomology congresses and symposia, as well as in over 60 national scientific events. He established direct contacts with specialists, exchanged ideas, developed collaborations, made scientific presentations and many more. His one-year Fulbright-Hays postdoctoral fellowship (1975–1976) enabled him to explore biological pest control activities in the United States, the world's foremost location for such research, spanning 12 universities, research institutes, and museums.

Universities: California – Berkeley (as Associate Researcher in Biological Pest Control of Harmful Insects), Riverside and Davis; Ann Arbor and East Lansing (Michigan); Gainesville (Florida); Honolulu (Hawaii).

Institutes: American Institute of Linguistics at Georgetown University (Washington DC), where he also received a diploma in English language and American culture and civilization; American Institute of Entomology at Ann Arbor, Michigan.

Museums and entomological departments: Bernice P. Bishop Museum (Honolulu), National Museum of Natural History at the Smithsonian Institution, Washington DC. Moreover, he visited and worked with the largest collections of ichneumonids in the world: Henry Keith Townes Collection at Ann Arbor (Michigan), Gerd Heinrich Collection at Dreiden (Maine), and Bishop Museum in Honolulu (Hawaii), among others.

During these documentation and research activities, Dr. Raoul Constantineanu compiled a collection of over 5,000 ichneumonid specimens collected in Washington DC, California, Arizona, Michigan, Florida, Maine, Hawaii, etc., enriching the large collection established by Prof. M. I. Constantineanu, his father. At the same time, he brought back to Romania a collection of over 2,000 publications (books, scientific journals, articles), representing the latest data in the field. These publications were used in research at I.C.B. Iași as well as in other specialized institutes across the country. Similar results were achieved through likewise contacts established in Europe as well as in other parts of the world (16 universities, museums, and collections of ichneumonids in Hungary, former Czechoslovakia, China, Israel, Germany, Ukraine, Russia, England, Spain).

During his numerous working visits, R. Constantineanu established contacts, exchanged experiences, and collaborated with dozens of researchers, educators, and research leaders, including top personalities of the time from around the world, such as: Professor Dr. Huffaker, Professor Dr. L. Caltagirone, Professor Dr. E. Oatman, Professor Dr. Van den Bosch, Dr. Karl Krombein, Dr. R. Carlson, Dr. H.K. Townes from the USA, as well as from Europe (Dr. Kasparyan, Dr. J. Papp, Dr. Vl.

Martinek, Dr. Helena Birova, Dr. Manes Wysoky, Dr. J. Oehlke, Dr. Fr. Koch, Dr. Sh. Hassan, Professor Dr. K. Horstmann, Dr. R. Hinz, Dr. Valentina Tolkanitz, Prof. Dr. N.D. Zerova, Dr. M. Fitton).

Dr. Raoul Constantineanu's main research focus was the diversity, taxonomy, and systematics of ichneumonids in Romania. His contribution to enriching this field included the first scientific discovery in Romania's fauna of a new genus – *Moldacoenitus* – and 20 new species. Additionally, Romania's ichneumonid fauna was significantly enriched with the subfamily (Spudaeinae), 32 genera, and 325 species. Many of these taxa, new to Romania's fauna or new to science, were the result of specialized research in national parks (Retezat, Valea Cernei, Ceahlău, Cheile Bicazului – Harghita) and nature reserves (Valea lui David in Iași, Codrul Secular Slătioara, Golul Alpin Todirescu and Poiana Stampei in Suceava, Danube Delta Biosphere Reserve in Tulcea, etc.).

Another research area focused on the biology and ecology of ichneumonids, yielding significant and novel scientific results regarding the overwintering of certain species in their adult stage and the parasitoid complexes of defoliating moth species in broad-leaved forests and other tree and shrub species such as, *Lymantria dispar*, *Malacosoma neustria*, *Rhyacionia buoliana*, *Yponomeuta mahallebella*, *Archips podana*, etc.

New trophic relationships were also discovered involving predators of harmful phytophagous hosts. Research on the faunistic diversity of ichneumonids was extended with important outcomes in countries like Moldova, Lithuania, etc.

Lastly, studies on the distribution of reported species in Romania contributed to understanding their biogeographic affinities and enriched knowledge of the biogeographic characteristics of the ichneumonid fauna.

The field of history of Biological Control was not absent from Dr. Raoul Constantineanu's interests, as illustrated by two studies of particular importance: "Biological and Integrated Pest Management" in 1996, in collaboration with Professor Dr. Irina Teodorescu, and "Achievements and Perspectives of Worldwide and National Biological Control", in 1984 (written as sole author).

The results of his scientific research were published in 135 scientific articles and nine books. These findings were included in 72 research projects divided into 160 phases (scientific reports) in national (50) and local (21) programs. Raoul Constantineanu served as Director for 19 national and 18 local projects.

His research and teaching activities were recognized by the American Institute of Linguistics at Georgetown University in Washington, USA, with a diploma for proficiency in the English language and knowledge of American culture and civilization. Additionally, the Romanian Academy awarded the "Grigore Antipa" Prize, in 2002, for the monograph "Family Ichneumonidae, subfamilies Cteniscinae, Tryphoninae, Thymaridinae, and Sphinctinae", *Fauna României, Insecta*, 9 (12): 1–268, 2000, authored by M.I. Constantineanu, R.M. Constantineanu, Irinel Gh. Constantineanu.

Dr. Raoul Constantineanu was a member of international and national scientific and professional societies and organizations, including: the *International Society of Hymenopterology* based in the USA since 1982; the *Scientific Association "TABIECOM"* in Chişinău, Republic of Moldova, since 1995 as a founding member; the *Association of Former Fulbright Scholars* since 1993; the *Romanian Society of General and Applied Entomology (S.O.R.E.G.A)* since 1994 as a founding member and general secretary; the *Romanian Lepidopterological Society* in Cluj-Napoca since 1995; the *Association for Ecosanogenesis in Romania*, Braşov, since 1995 as a founding member; the *Romanian Society for Life Sciences "PROBIOS"* since 1997; Member of the Editorial Board of the Academic Collection "Fauna României" since 1988; Member of the *Advisory Board of the Cambridge International Biographical Center* since 1988.

Throughout his research career, his wife and life-time collaborator, Dr. Irinel Constantineanu, was a constant aid in fieldwork, laboratory work, as well as in publishing the outcomes of research.

Dr. Constantineanu, colleague, friend, and collaborator of ours as well as of many other Romanian and foreign entomologists, unfortunately passed away when he could have still produced valuable scientific contributions. However, he left us a remarkable legacy consisting of numerous publications, articles, and books, alongside with the enrichment of the vast collection of ichneumonids – a true scientific treasure and a monument of national importance.

Our dear colleague, we fondly think of you, of your journey and destiny towards eternity, and we pray to the Almighty to give you peace, rest and eternal comfort.

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