

## In Memoriam: Maria Rosa Miracle (1945-2017)

Dear Colleague,

It is with great regret we must report that our friend and colleague Dr. Maria Rosa Miracle sadly passed away on 21<sup>st</sup> May 2017, after an illness of over one year. May she rest in peace.

Maria Rosa Miracle was born on 2<sup>nd</sup> June 1945 in Barcelona. She studied at the University of Barcelona where she was awarded both her BSc degree (honours) and, in 1974, her PhD (cum laude).

As a former PhD student of Dr. Ramon Margalef she conducted field work at Lake Banyoles (Girona) studying along several years the seasonal succession, distribution and patchiness of zooplankton, supervised by Dr. Margalef, then completing her PhD dissertation after a two years research stay at the University of California, Davis, with Dr. Charles Goldman as supervisor of the stay.

Upon returning to Spain she spent several years, until 1979, at the University of Barcelona as Associate Professor, developing mainly two projects financed by Research Scholar Government Public Works: the "Study on Pyrenean Lakes" and a "Study on the Spanish Mediterranean coastal lagoons". In 1979 she joined the University of Valencia as Senior Professor of Ecology, setting up the Limnology Research Team there, and progressing to Chair on Ecology in 1981, following her academic activity until her retirement on the first of September 2015. Thereafter, she continued as Emeritus Professor at the University of Valencia.

During more than forty years, Maria Rosa Miracle was an unflagging worker with her activity completely devoted to research and academic purposes. She served as the Head of the Ecology Department at the University of Valencia between 1981-1987 and 2003-2010, as the President of the Academy of Environmental Biology, India, from 1987 to 1990, and as President of the Iberian Limnological Association from 1994 to 2002. She supervised more than 20 PhD students most of which are nowadays university professors, scientists, or environmental managers on public or private entities, as well as more than 20 Master Theses. She was also Principal Investigator or participant in over 20 Spanish-funded research projects, over 10 European or International Projects, and 18 technical studies and reports. She authored or co-authored more than 200 indexed scientific published papers, 21 book-chapters or books, and organized 16 International Congresses or Workshops. She also authored over 250 congress communications. This is just a numerical summary of forty years of professional activities.

In addition to the study many of Spanish lakes (mainly karst lakes), wetlands and lagoons, she also visited and studied aquatic ecosystems in many other countries, collaborating with some of the most reputed limnologists around the world. Among others, she shared research with Henri Dumont, performing a limnological expedition to the Argelian and Tunisian Sahara in 1976 and a study of primary production in marginal lakes associated with River Niger in 1993; with Charles King, on rotifer popu-



lation dynamics and experimental laboratory studies on zooplankton survival in 1979; and with Bland Finlay at the Windermere Laboratory on a study of microaerophilic and anoxic environments in 1983, and electron microscopy studies of ciliates and bacteria at the oxic-anoxic interfaces in 1992. She also conducted research with Peter Tyler on the study of interfaces and chemoclines in the stratified lakes of Gordon river in Tasmania in 1987; with Wayne Wurtsbaugh, studying the eutrophication of a basin in the Great Salt Lake in 2002; with Keve Kiss, of the Hungarian Academy of Sciences, developing an Spain-Hungary integrated project for plankton studies from 2005 to 2007 and, most recently, with Victor Alekseev, of the Russian Academy of Sciences, jointly studying the cyclopoid groups of confusing identification by comparison with specimens from type locality in 2011, as well as conducting a study of microcrustaceans at the shoreline of the Lake Baikal and wetlands near Irkutsk in 2012.

Similarly, reputed senior scientists have visited Maria Rosa's laboratory to study the Albufera de Valencia and other shallow lakes in the Mediterranean coast, including most of the above mentioned but also Brian Moss and S.S.S. Sarma. Another limnological area of her interest, the stratified solution lakes of Arcas and the karst area at Cañada del Hoyo with the internationally well-known meromictic Lake La Cruz (both systems in Cuenca, Spain), was visited by her with other senior scientists such as Dr. Jakob Zopfi and Prof. Raymond Cox, to mention some additional to the already mentioned collaborators.

All her scientific and academic achievements were only possible through her lively and passionate attitude towards the challenges of the new, the uncommon and the unknown, with a desire and disposition to increase the knowledge of extreme or strange environments wherever they might be encountered, seeking those inland waters, lakes, wetlands in Europe, America or Africa even getting to the barely reachable Saharan or fluvio-marginal lacustrine waters at the Niger Delta.

In addition to her achievements in Academia, the most remarkable feature about her character is that she was a hard worker and a very good and gentle person. Maria Rosa was all her life a great supporter of Spanish Limnology and will be missed by her colleagues and all who has known her.

Eduardo Vicente and Antonio Camacho