
Dr. Estela Sánchez Quintanar

In my capacity as associate editor of the *J. Mex. Chem. Soc.*, I proposed to the editorial board of this journal an issue in tribute to Dr. Estela Sánchez Quintanar, a cornerstone of biochemistry in Mexico. This proposal was accepted. In this issue, former students, colleagues and friends have gathered around the issues that have been the interest of Estela throughout his long and fruitful career. Serve it as a token of friendship and gratitude.

Dr. Estela Sánchez Quintanar is a native from Mexico City. She studied Chemical Drug-Biology at the National School of Chemistry, National Autonomous University of Mexico (UNAM, 1950). Her master degree was held at the National Institute of Nutrition (NIN) under the direction of Dr. Guillermo Soberón Acevedo, becoming his first graduate student. Her doctorate was held at the University of Wisconsin, with a fellowship from the Rockefeller Foundation, where she received her degree in 1962 under the direction of Dr. William Cleland, the father of modern enzyme kinetics, with the thesis titled "Enzymatic acylation of α -glycerophosphate in rat brain", becoming the first Mexican woman to have a PhD in biochemistry. Later, she held a postdoctoral fellowship at the same University. More recently, Dr. Estela Sanchez has performed research stays as a visiting professor at the Graduate College of Chapingo; in the Molecular Biology Laboratory, at the University of Wisconsin, working with Dr. Bock, and at the Autonomous University of Madrid.

In 1962, Dr. Estela Sanchez returned to the NIN, where she began her research on the regulation of protein synthesis and the mechanisms involved in determining the lifetime of the ribosome using chicken erythrocytes as a model.

The scientific production of Estela is vast. She has published over one hundred research articles, where we can clearly see the evolution on thinking and research interests of Dr. Estela. Firstly, early in her career, next to Dr. Guillermo Soberón, her work was focused on the study of the liver and some enzymes such as deoxyriboaldolase, aldolase and aspartate aminotransferase. Her doctoral work with Dr. William Cleland was the first experimental evidence that the kinetic enzymatic theory for two or more substrates, recently proposed by her advisor, was correct.

At the beginning of the seventies Dr. Estela, with the vision that she has had throughout her career, changed her line of research and began a successful career in biochemistry and molecular biology of plants. Her first works were related to

the establishment of some models to address the problems she already had in mind, particularly the study of corn. Thus, she published along with her first students, in this new area, a series of articles about the effect of some plant growth regulators, especially auxins, on the induction of plant tissue culture, a field in which Dr. Estela was pioneered in Mexico.

Having established the different models, Dr. Estela began two work areas, the study of nitrogen metabolism and cell differentiation in plants. There are two major contributions in this field: the demonstration that glutamate dehydrogenase is an enzyme with a complex kinetics, which is actively involved in the assimilation of ammonia during extreme environmental conditions; and the discovery that dedifferentiated tissues retain a sort of biochemical memory. The first contribution was published in *Plant Physiology* and the second in *Planta*. Another topic of study was the enzyme ribulose 1, 5-bisphosphate carboxylase and the relationship that it has with the productivity on maize.

The studies that Dr. Estela did on cell differentiation were initiated by comparing the electrophoretic patterns of callus and corn seeds at the beginning of germination. Thereafter, her group discovered that acidic ribosomal proteins were phosphorylated in the presence of an auxin, and it may be an important mechanism for the regulation of protein synthesis. Currently, Dr. Estela's lab is actively working on the process of protein synthesis during the germination of maize and in the signaling pathways that regulate *Zea mays* growth.

Her teaching and research has also been accompanied by a strong leadership role. She founded the Department of Biochemistry of the Division of Graduate Studies in 1971, along with Drs. Javier Villaseñor and Alejandro Blanco. She has been head of the department three times, as well as head of the Division of Biochemistry and Pharmacy, Faculty of Chemistry at UNAM. She founded the Program in Clinical Biochemistry and she has also organized several national and international courses. The first National Meeting of Plant Biochemistry conducted in 1983 was under her direction.

Much of the academic career of Dr. Estela, after her PhD, has spent in the Faculty of Chemistry at UNAM, where she has given many lectures for graduate and undergraduate students, such as organic and inorganic chemistry, microbiology, applications of biochemistry and molecular biology, and biochemistry. Her teaching classes on enzyme kinetics are legend-

ary and for those who were her students, unforgettable. Other remarkable moments at Estela's lab were the meetings with her group on Friday at two o'clock in the afternoon, around food, drinks and interesting conversation with Dr. Estela, where her students learned from her experience, these meetings were a lasting memory.

Training of students has been a constant enjoyable work for Dr. Estela. More than 50 graduate students after completing their thesis in her laboratory, including 20 PhDs, now work as full professors in various research institutions of the country and abroad. Also, more than 60 students, undergraduate most of them, have benefited from her mentoring.

Among the honors Dr. Estela has received are the membership in the Mexican Academy of Sciences, the National

Prize for Chemistry Andres Manuel del Rio (1983) and the Corresponding Member Prize by the American Society of Plant Physiologists (1997). Also, she is a member of the National Research System (SNI) level III where she is an Emeritus Researcher and in 1999, the National Autonomous University of Mexico conferred her with the title of Emeritus Professor.

Currently, after more than 50 years in the laboratory Dr. Estela is still passionately working with her students sharing her stories and having her group meetings on Friday at two o'clock in the afternoon. Her friends, colleagues and former students wish that Estela continues with her active and fruitful career for many more years.

Victor M. Loyola-Vargas



Fig. 1. Dra. Estela Sánchez de Jiménez.