Professor Edmundo Alfredo Rúveda

A Tribute

Professor Edmundo Alfredo Rúveda (EAR) was born in Corrientes (Argentina) on March 18th 1934. I first met him in 1969, a few months before finishing my undergraduate studies in chemistry. In fact our appointment was to evaluate the possibility of my entering the Ph.D. Program at the School of Pharmacy and Biochemistry of the University of Buenos Aires. He had just joined the Organic Chemistry Department there (as Associate Professor) after a two years post-doctoral stay in England. Through this meeting I was extremely impressed by his enthusiasm and the easy way in which he presented his research interests. Our association has continued since then –as Ph.D. student, senior member of his Research Group, and later as fellow chemist, colleague admirer and friend. I feel highly privileged to contribute to an issue of ARKIVOC dedicated to him.

EAR obtained his degree in Pharmacy and later in Biochemistry from the School of Pharmacy and Biochemistry of the School of Medicine of the University del Litoral in Rosario. By the end of 1958 he moved to Buenos Aires (on a teaching assistantship salary!) to experience his first training in research. He was working under the direction of Prof. Alejandro Paladini, (Department of Biological Chemistry, School of Pharmacy and Biochemistry, University of Buenos Aires) in one of Paladini's projects**,** the isolation of the alkaloids from Aspidosperma**.** The really decisive year in EAR's life was 1960. Following Paladini's advice he applied to the Argentine National Research Council (CONICET) for a fellowship to work in a more chemistry related field. This became possible due to the return to Buenos Aires of Dr. Guillermo Iacobucci

(a former research fellow from Robert B. Woodward's group) who became his research adviser. When the fellowship was awarded, EAR went all the way and proposed to his all time sweetheart Nina (after all, he would be getting a real paycheck at the end of the month!). Thus, March 1961 found him as CONICET fellow, and a happily married man entering the Ph.D. Program of the University of Buenos Aires. After Iacobucci's decision to return to the USA, EAR finished the program under the supervision of Professor Venancio Deulofeu (considered the founding father of organic chemistry research in Argentina who had a crucial influence in EAR's scientific development), earning his degree in 1963. The next year, EAR joined Professor Alan Battersby's group at the University of Liverpool as a Rockefeller Foundation fellow. After spending two years in England, working mostly in the biosynthesis of alkaloids, he returned to Buenos Aires. In 1967 he applied for, and was granted, a position as Associate Professor and joined the Organic Chemistry Department at the School of Pharmacy where he began the consolidation of his research group working in the field of natural products isolation and characterization

At the end of 1971 EAR met Professor Ernest Wenkert whose interest, at that time, included the applications of ^{1}H and ^{13}C High-resolution NMR to natural products structure elucidation. EAR′s group was currently working in the chemistry of cyclic peptide alkaloids and the possibility of using this new technique was certainly very appealing. Consequently, a fruitful collaboration with Wenker's group flourished. In 1973 EAR was appointed full Professor at the Organic Department and during this year he spent six months as a Post-doctoral Associate in Professor Wenkert's laboratory at the University of Indiana in Bloomington. That experience, I believe, was what prompted EAR into seriously considering an incursion into organic synthesis. The projects were becoming realities and a series of interesting possibilities began to open for EAR′s research group.

Unfortunately, fate chose that time to step in and everything went sour. The political situation in Argentina had been deteriorating and by the end of the year it turned chaotic, affecting everybody's life, even within the University, in such a way that to accomplish any serious research became almost impossible. EAR's group, like many others, began to disintegrate. Those were times of despair, sorrow and painfully hard decisions. EAR decided to leave academic life and took a job with Pfizer Laboratories while considering the alternative of moving to Brazil, were he was offered a Professor position at the Institute of Chemistry of the University Estadual of Campinas (UNICAMP). He finally accepted the offer and moved to Campinas, with his family, in 1975.

The Institute of Chemistry at UNICAMP in 1970 was (and still remains) an exceptional and unusual place for doing research in Chemistry regarding its equipment and human resources. Therefore, this was a crucial period in EAR′s consolidation as a natural products chemist as well as providing experience in the use of all the analytical tools that were then available to him (GC; MS and NMR spectroscopy). During his stay at the UNICAMP he finally had the opportunity to explore the partial synthesis of natural products. The five years that EAR spent working at UNICAP brought him great academic growth, professional experience and many good friends. He has fond memories of his students and colleges of that time.

In 1980 EAR accepted a new challenge and he moved again to return to his Alma Mater (now School of Biochemistry and Pharmacy) at the National University of Rosario. He was hired to create and organize the entire Organic Chemistry Department. At the same time through an agreement between the University and CONICET, an Institute directed to do research in organic synthesis (IQUIOS) was also created. Now, this deserves a special comment. Organic Chemistry in Argentina has always been associated with natural products chemistry**,** with groups in several universities working mainly in isolation, structure elucidation and characterization of compounds isolated from plant material. On the other hand, Organic Synthesis was neither developed nor very popular in Argentina in the eighties, except for Benjamin Frydman's group working on the synthesis of porphyrins and a few groups attempting some Medicinal Chemistry work (small structure variations for structure & relationship studies). One of the major drawbacks regarding the work in synthesis was (and still remains!) the difficulties and delays (over six months) in obtaining the chemical reagents when needed (certainly no overnight delivery here!). That was the reason why the idea of creating an Institute of Organic synthesis was regarded as a risky business. Nevertheless, EAR took the risk and, knowing that building a tradition in organic synthesis was crucial if the newly born Institute was to succeed, he worked very hard at it.

Professor Rúveda's previous experience at UNICAMP paid off! Thus, his experience in natural products (that gave us access to very precious starting materials) and functional group interconversion, were applied successfully into the initial synthetic projects developed in the IQUIOS and resulted in a series of very rewarding natural products partial synthesis. Through the years the Institute has developed and its chemistry flourished to become a reference in synthetic chemistry in the country.

As expected, the original synthetic approaches were replaced by more direct routes: from a simple and efficient synthesis of 3-oxo-2,6,6-trimethylcyclohex-1-ene-1-carboxylic acid, a key synthon for rac-strigol, to an intramolecular Michael-Aldol condensation approach to the construction of advanced intermediates in the synthesis of Forskolin, and more recently, the resolution and absolute configuration of a tricyclic lactone, a potentially useful precursor of highly functionalized terpenoids, or a concise synthesis of (+)-cassiol.

It is worthwhile to mention that organic synthesis has become increasingly popular in our country. The number of works in that field presented in our National Organic Chemistry meetings have increased exponentially during the last ten years; EAR and the IQUIOS take a great deal of the credit for this**.**

Throughout his long Academic career, EAR has produced more than 100 original scientific publications (from classical natural product structure elucidation and characterization by **13C** NMR, absolute stereochemistry determination, synthesis of natural terpenoids to petroleum markers) and reviews together with a large number of pedagogical articles. He acted as adviser of 22 students in different graduated programs in Argentina and Brazil, resulting in many high level chemistry professionals, research scientists and university professors acting successfully in both Countries.

EAR also acted as a member of the National Research Council starting as Research Assistant up to the highest position of Superior. He has been frequently appointed to integrate many of its evaluation Committees and acted in many administrative roles including Head of the Organic Department and Director of the Institute.

His work has been widely recognized and has been awarded the Country most prestigious Awards (The Konex Foundation Platinum award for Organic Chemistry 1993 edition; The Enrique Zappi Organic Chemistry Award from the National Academy of Exact, Physical and Natural Sciences in 1994; The "Venancio Deulofeu" award from the Argentina Organic Chemical Society 1996) and has been nominated Member of the most prestigious Scientific Societies: National Academy of Sciences, Cordoba (Argentina); National Academy of Exact, Physical and Natural Sciences, Buenos Aires (Argentina); Latinamerican Academy of Sciences.

In addition to his scientific qualities EAR also possesses exceptional teaching abilities. All those who ever attended his classes or lectures surely enjoyed and will remember them fondly. This particular skill is present not only in the classroom but also in his everyday activities: seminars, informal discussions, and even in the way he writes the reports for projects and proposal evaluations. Due to his clarity in judgment, equanimity and wisdom, he is frequently referred to as "El Maestro" by his peers.

In the personal front, EAR & Nina have survived through all the travels and troubles. They have a daughter (Carolina, born while they were in England) and a son (Edmundo Jr.). They have provided EAR with five precious "natural products" his grandchildren: Agustín, Ignacio, Fernando, Lucía and Martín. EAR sips "mate" every morning, reads tons about the history of science (chemistry related of course!) loves old movies (Lawrence of Arabia and the Bridge Over Kwait River are his favorites) and Frank Sinatra's singing. He has a sharp and mischievous sense of humor and it is a pleasure to have a relaxed conversation with him (chemistry will always pop in naturally!). He is a big fan of Boca Juniors (Argentina's most popular football club) and loves his team almost as much as he loves Robert B. Woodward's work!

Selected Publications of Edmundo A Rúveda

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