*J. Mex. Chem. Soc.* **2023**, *67(3)*
Special Issue
©2023, Sociedad Química de México
ISSN-e 2594-0317

# Special Issue Dedicated to Dr. Víctor Manuel Loyola Vargas

Felipe Vázquez-Flota*

Unidad de Bioquímica y Biología Molecular de Plantas, Centro de Investigación Científica de Yucatán, Calle 43 No. 180 Chuburná de Hidalgo, Mérida Yucatán, 97205.

***Guest editor:** felipe@cicy.mx

DOI: http://dx.doi.org/10.29356/jmcs.v67i3.2094

It has been a real pleasure to have served as the guest editor for this special issue of the Journal of the Mexican Chemical Society, honoring the long and fruitful scientific career of Dr. Víctor Manuel Loyola-Vargas (Fig. 1). This collection was prepared with contributions from a group of his former students, colleagues, and collaborators, whose research fulfill the journal´s scientific standards.

**Fig. 1.** Dr. Víctor Manuel Loyola-Vargas at his home office *(photo credit: Dr. Clelia de la Peña-Seaman)*.

Dr. Loyola, or Víctor Manuel as he prefers to be called, was born in Querétaro in 1948. He earned his BSc in Chemistry at the local university (Universidad Autónoma de Querétaro) in 1970, then pursued MSc and PhD studies at Chemistry Faculty (UNAM), in Nuclear Chemistry (1973) and in Biochemistry (1983), respectively. He had occupied positions at UNAM and at Centro de Investigación Científica de Yucatán (CICY) in Mérida.

Through over 50 years of dedication to science, Dr. Loyola's career has been recognized with important awards, including the "Premio en Ciencias Leopoldo Rio de la Loza" (1990) and the "Premio Nacional de Química" (1999). He was also awarded an International Presidential Fellowship by the Colorado State University, during his visit as invited professor from 2005 to 2008. Currently, Víctor Manuel is an emeritus professor at the SNI. His legacy displays so many angles making it difficult to choose those in order to cover the most relevant ones in the reduced space allotted for this semblance. However, I will try to emphasize those related to his scientific contributions, his role as a student mentor and his academic leadership

Although Víctor Manuel is mainly recognized as a biochemist, his early years in research (1971-1983) went by as a radiochemist at the Centro de Investigaciones Nucleares, UNAM. While in there, he studied the effects of gamma radiation on two processes involving plant derived products: wood impregnation with styrene and preservation of tropical fruits. As a biochemist, he was among the first in México to utilize in vitro plant cell cultures for metabolic studies at Dr. Estela Sánchez de Jiménez's laboratory. Such studies focused on primary plant nitrogen metabolism, mainly describing the action of enzymes involved in reducing mineral soil nitrogen and its latter incorporation into amino acids, encompassing aspects of protein chemistry, enzymology and metabolic interactions. Those studies were pursued on different species during the late 80's and 90's, leading to a better understanding of the primary nitrogen metabolism in terms of improving maize nutritious quality, the formation of alkaloids in Catharanthus roseus, and the metabolism of arginine in Canavalia ensiformis and Cocos nucifera [1-2]. Parallel to this, Dr. Loyola's laboratory was also among the first in Mexico to use in vitro cell technology for studying plant secondary metabolism, in particular the formation of monoterpene indole alkaloids in C. roseus. A number of strategies to increase alkaloid formation in diverse in vitro systems were developed after moving from UNAM to CICY, allowing to describe key points in the biosynthesis of these compounds [1]. Interestingly, this in vitro cell cultures approach hinted to the close relationship between both nitrogen assimilation and secondary metabolism to plant cell development and morphogenesis, which later

*J. Mex. Chem. Soc.* **2023**, *67(3)*
Special Issue
©2023, Sociedad Química de México
ISSN-e 2594-0317

turned into his main research interest. The biochemical networks triggered in response to plant cell regulators and leading to the phenomenon of somatic embryogenesis in Coffea has occupied most of his laboratory's efforts since the late 90's, recently adding proteomics and RNA sequencing to such analyses [3].

Another relevant aspect in Dr. Loyola's career has been his involvement in teaching and student formation. This aspect includes the direction of over 150 theses, with nearly 40 and 20 of them, for MSc and PhD degrees, respectively, as well as numerous courses and lectures, mainly in graduate programs. Besides the sole numbers, Víctor Manuel actually enjoys teaching and interaction with students. His lab is usually crowded with students, from undergrads to doctorates, and he frequently hosts visitor students of institutes from different parts of México. He closely follows the personal development of each of his supervised students. This could be the reason behind why several of his former students decided to follow successful independent academic careers, not just in México, but also abroad.

On top of the previously described activities, Dr. Loyola has also vast executive and managerial experience. His efforts in organizing and starting the CICY's graduate program in 1993, resulted fundamental in the later development of this Center. He was able to persuade the professorial staff of the importance of getting involved in this task, for which some had certain doubts, since teaching was only a minor endeavor in Federal Research Institutes, such as CICY, back in the day [4]. Today, CICY's alumni count by the hundreds and many of them occupy important positions in the academy and industry.

Leaving aside the professional aspects, colleagues and students describe Víctor Manuel as a truly science-devoted person. This description includes all aspects of the process, from getting involved in lab experiments to the philosophy underlying the scientific work. He has never been shy when talking about the history and philosophy of science, either in casual conversations or in conferences, always finding the connections between science and art. It must be said that working under his supervision brings the opportunity to develop self-discipline, critical thinking, and global vision.

This note cannot be finished without mentioning Dr. Loyola's enthusiastic support to the Mexican Chemical Society and, especially, to this Journal. This special issue is presented as a little token of recognition to his career and achievements. We (the contributors, the journal's editor and myself), hope this purpose has been fulfilled.

## Acknowledgments.

I greatly appreciate the participation of all the authors, referees and members of the editorial staff in assembling this special issue. Special thanks to Drs. Rosa Ma. Galaz-Ávalos, Hugo Méndez-Hernández, Ma. Lourdes Miranda-Ham, (Centro de Investigación Científica de Yucatán, Retired), Rosario Muñoz-Clares (Facultad de Química, UNAM), and Rafael Rojas-Herrera (Facultad de Ingeniería Química, UADY) for sharing their opinions and thoughts on Dr. Loyola-Vargas.

## References

1. Vázquez-Flota, F.; Loyola-Vargas, V.M. *In vitro Cell Dev. Biol.-Plant.* **2003**, *39*, 250-258. DOI: https://doi.org/10.1079/IVP2002398.
2. Aguilar Sánchez, N.C.; Vázquez Flota, F.A.; Ramos Díaz, A.L.; Cano-Sosa, J.F.; Nahuat Dzib, S.L., in: *XX Años de Biotecnología en el Sureste Mexicano y su Aporte a la Sociedad*, Lugo, R.; Caamal-Velázquez, J.H.; Cano-Sosa, J., Eds., Sociedad Mexicana de Biotecnología y Bioingeniería Delegación Sur Sureste; Mérida Yucatán, **2022**, 2-23.
3. Loyola-Vargas VM., in: *CICY: Treinta Años de Labor Científica y Educativa*, Del Castillo, L.; Robert, M.L.; Larqué, A.; Higuera, I., Eds, CICY, Mérida Yucatán, **2010**, 83-95.
4. Quintana-Escobar, A.O.; Méndez-Hernández, H.A.; Galaz-Ávalos, R.M.; Elizalde-Contreras, J.M.; Reyes-Soria, F.A.; Aguilar-Hernández, V.; Ruíz-May, E.; Loyola-Vargas, V.M. *Plants.* **2021**, *10*, 2607. DOI: https://doi.org/10.3390/plants10122607