



THE FUTURE OF *BOTANICAL SCIENCES* A REFLECTION ON THE 75TH ANNIVERSARY OF *BOTANICAL SCIENCES*

The community of botanists in Mexico (and in the world) is celebrating the 75th anniversary of the journal *Botanical Sciences*, formerly *Boletín de la Sociedad Botánica de México*. The first thought that comes to my mind is the word *acknowledgments*. Thank you to the pioneers and the first botanists who believed in the construction of a scientific society devoted to the study of plants and the creation of the scientific journal of the Society. The vision of our teachers and mentors of starting an unlimited project but without clear horizons is incredible in 1944 when support of scientific activity in Mexico was almost nonexistent. As the great Prof. Maximino Martínez wrote in the first issue of the *Boletín de la Sociedad Botánica de México* (Martínez 1944):

De sobra es conocido que el pueblo mexicano, constituido por heterogéneos grupos étnicos y habitando un vasto territorio de maravillosos recursos, ha vivido en una condición semi-colonial, porque tales recursos, sin ponderación ilimitados, permanecen latentes, mal conocidos y peor aprovechados. [It is well known that the country of Mexico is constituted by heterogeneous ethnic groups living in a vast territory of wonderful resources, who have lived in a semi-colonial condition, because such resources, without unlimited weighting, remain dormant, poorly known and, worst exploited].

Since then, all issues of the *Boletín de la Sociedad Botánica de México* (1944-2012) and *Botanical Sciences* (2012-2019) are replete with interesting papers documenting the rich and vastness of plants in Mexico. Thanks to this effort and other institutional initiatives, Mexico is recognized as one of the richest countries of biodiversity in the world. This richness is easy to state, but Mexican and foreign botanists have walked the “*vast territory of wonderful resources*” as described by Maximino Martínez to discover and describe the richness of Mexican plants. Many many years of this long journey were shared by renowned botanists, students and plant lovers. Furthermore, the archives of the *Boletín de la Sociedad Botánica de México* contain hundreds of papers covering topics spanning from floristic surveys and taxonomic descriptions of new taxa, to studies on anatomy and structural biology, physiology, all fields of ecology, and ethnobotany, among many others aspects of plant biology. The development of plant sciences in Mexico is incredible, and I do not want to imagine whether all the papers produced by Mexican botanists in all fields would have been published in *Botanical Sciences*. Ultimately, we must recognize the efforts of the great community of botanists exploring the most

insignificant corners of a marvelous country called Mexico searching for new plant species or attempting to understand their adaptation or ecological roles in a plant community.

In this collective journey, I would like to honor a great botanist, the greatest in my humble opinion, who leads by his example, in the exploration of Mexican plants, who taught us the love of nature and the importance of completing the study of Mexican flora. I am referring here to Dr. Jerzy Rzedowski, a brilliant, generous and honest person and one of the best botanists in the history of this science in the last century. He was awarded the Millennium Botany Award in 1999 at the International Botanical Congress, which is the largest international conference in fields related to plant sciences. Dr. Jerzy Rzedowski has consistently worked for our society and has provided support with his personal donations to the publication of the *Boletín de la Sociedad Botánica de México*. Thank you Dr. Jerzy Rzedowski.

The *Botanical Sciences* is an international journal facing several problems like many other journals. During the last 75 years, the scientific community in Mexico has exerted huge efforts to maintain and improve the quality of the journal. I would like to thank to all the chief editors and members of the editorial committees in different times, for their generosity to accomplish an extraordinary work for improvement *Botanical Sciences*.

I had the opportunity and honor of being Editor in Chief of the Journal during its 50th anniversary. At that time, we started a debate to transform the *Boletín de la Sociedad Botánica de México*, into a more international journal with a modified presentation, increasing the contributions and improving the quality of the journal, among many other issues. We changed the presentation of the journal (see numbers 54 and 55), and retrospectively, I can say that a “new era” of the *Boletín* was initiated at that moment. The process was not easy because our senior botanists showed strong opposition, but ultimately, we were all satisfied with the new *Boletín*. We also wanted to change the name, but this change was not approved by the Society Assembly.

This debate permeated to other Mexican publications such as *Anales del Instituto de Biología Serie Botánica*, *Acta Botanica Mexicana*, *Polibotánica*, and other minor publications. Later, as a President of the Society, I proposed to all the responsible to combine all these journals into a single journal. We were unable to convince them, and I still feel a strong frustration of not having achieved that agreement. It is likely that we were not celebrating the 75th anniversary but the 25th of a unique and stronger international journal rooted in a region with one of the richest flora in the world.



Retrospectively, I still think that we could make an extra effort to join the Mexican journals related to biodiversity in a single stronger journal. Is this currently possible? This is still an open and interesting question for scientists interested in biodiversity in Mexico.

In another important reflection of that moment, we started to realize that the increasing rate of deforestation and destruction of natural forests places at risk our interest in protecting and maintaining the natural richness of the country. Although this was not a new issue, it was something that alarmed the scientific community, and thus, many botanists started to dedicate time to the conservation, restoration and management of natural forests. The *Boletín* was not prepared for this phenomenon, resulting in the publication of many potential publications in other international journals or books.

We are moving forward to an exciting new era of scientific activity, and era that is very challenging because we still need to discover the unknown and fascinating world of the great biodiversity of Mexican plants. This world includes the fine details of plant anatomy, genomic basis of numerous interesting structures, multivariate modes of biotic interactions, plant community structures, landscape ecology and genetics to underlying the patterns of dispersion and gene flow, application of the ecosystem or community ecology to the restoration of depauperate forests, uses of many technological advances in geography like GPS and satellite images, plant genomics and adaptive genomics, richness and diversity of chemical compounds and their roles in biotic interactions, and phylogenetic hypotheses of plants in the world diversity context, among many many other new fields of research, probably not in terms of the scientific names of the plants or their geographic distribution but in the physiological mechanisms of plant adaptation to the diverse ecosystems.

We are poised to witness the birth of many new fields in the botanical sciences, as we have seen in the past few years. New fields such as the genomics of adaptation, phylogenomics, proteomics, environmental engineering, socio-ecology, bioinformatics and big data would help us to understand many new biological processes but are also important for the recognition of multidimensional life crisis. Living creatures are disappearing at alarming rates, and a biodiversity crisis has evolved into a humanitarian crisis with unknown trajectories. Human beings are in danger, but the Earth as a planet is also endangered.

My last reflection is to determine how *Botanical Sciences* can attract publications in so many new emergent fields in this new era of information and knowledge. We have the dream and the desire to see *Botanical Sciences* as a truly in-

ternational and renowned journal for plant scientists, wherein Mexican scientists could have a useful platform to disseminate knowledge that we are creating every day. Additionally, the impact of scientific evidence in strengthening protected areas and providing solutions for societal sustainability for a better life needs to be elucidated.

I wish for the *Boletín* to experience another 75 years of continuous publication as a leading journal in Plant Sciences. However, to survive, it is very important that the editorial line of *Botanical Sciences* has the flexibility, intelligence and generosity to understand the specific context of the international policies of scientific publications. In other words, adaptation to the changing and dynamic world of science is essential to survive in the coming years.

Finally, I would like to finish this editorial by again citing the insightful thinking of Prof. Maximino Martínez (*op. cit.*):

La compleja diversidad de nuestras condiciones orohidrográficas, de altitud y latitud y, en fin, climatológicas, explica la variedad inmensa de nuestra flora, la que a su vez es índice de la condición económica social de las agrupaciones humanas. Vastas regiones desoladas pueden ser objeto de increíble transformación si debidamente se estudian aplicando la técnica científica para promover la producción y para lograr el acercamiento estrecho de los habitantes, a fin de que si llegan horas más aciagas, nos encuentren más unidos (p. 9). [The complex diversity of our oro-hydrological conditions, of altitude and latitude and, anyway, climatological conditions, explains the huge variety of our flora, which in turn is an index of the social and economic condition of the human groupings. Vast desolated regions can be objects of incredible transformation if properly studied, applying the scientific technic to promote the production and to achieve close union between its inhabitants, so that if more fateful hours arrive, to find us more united].

Difficult times will be faced in the next years with an associated unprecedented humanitarian and environmental crisis. We must come together to face the future challenges to sustain life on our planet.

Reference

- Martínez M. 1944. Investigaciones botánicas en México. *Boletín de la Sociedad Botánica de México* 1:7-9.
DOI: <https://doi.org/10.17129/botsoci.916>

Ken Oyama
Escuela Nacional de Estudios Superiores
Unidad Morelia. UNAM.
Former President of the Botanical Society of Mexico
(Sociedad Botánica de México A.C.)
Former Editor in Chief *Boletín de la
Sociedad Botánica de México (Botanical Sciences)*