

CURRICULUM VITAE (Abbreviated version / March 2008)

Miguel JORDAN Zimmermann was born in Germany, Dresden 1942; married, with 3 children. He is Agricultural Engineer (1966) from Universidad de Chile, Santiago. He obtained his Ph.D degree (Dr. Agr.) in Germany, Justus Liebig University, Giessen (1975). Later he become Associate Prof. at the Ecology Dept. Fac. Biological Sciences, Univ. Católica de Chile, Santiago (1978) continuing activities in teaching and research until 2008. Thereafter (2008-2015), he worked at the University Mayor in Santiago being appointed as full-professor since 2009. Home address Julia Bernstein 296-A, La Reina, Santiago. Contact: Email mjordanz@gmail.com

Studies/Degrees

- High School, Lyceum "José Victorino Lastarria"; Santiago, 1956-1960;
- College: Faculty of Agronomy, Univ. of Chile, Santiago, 1961-1965;
- Agricultural Engineer, University of Chile, 1966.
- Course "Agrarian Structure and Rural Development". Interamerican Institute of Agricultural Sciences and ICIRA, 1965, Santiago.
- Radioisotopes Manipulation, Practical course. Catholic University of Chile, 1969.
- Religious Sciences Studies (Diplomate). Catholic University of Chile. Course: "Theology for Laymen-1968-1970".
- Doctorate in Agronomy. (Ph.D). Justus-Liebig-Universität, Giessen, 1975.
- Named "Scientific Collaborator". Fachbereich Angewandte Biologie, Justus- Liebig-Universität. 1974-76.
- Post-Doctorate. Institut für Obstbau, Justus Liebig Universität, Giessen, Federal Republic Germany, 1975-1976.
- Associate Professor, Biological Sciences Institute, in charge of the Plant Physiology and other regular courses, at the Catholic University, University of Chile., 1978. Theses tutoring starting 1977.
- Head, School of Biotechnology, Universidad Mayor, Santiago, Chile, 2008-2014.
- Full Professor. Universidad Mayor, Santiago, Chile.

Relevant Academic Activities

- 1971-75. Grantee, Doctorate Program, Giessen, West Germany.
- 1977-94. Member of the Grants Committee, German Academic Exchange Program (DAAD). German-Chilean Cultural Institute.
1978. Full Member, National Committee on Post-Graduate Botanical Studies.
- 1978-81/1986-88. Secretary of the Botanical Section, Chilean Biology Society.

- 1978-81 Head of the Environmental and Populations Biology Department, Biological Sciences Institute, Catholic University of Chile
- 1983-94 Member of the Program Committee, Doctorate Program in Biological Sciences, Ecology; Professor, Doctorate Program in Biological Sciences, Ecology.
- 1984 Coordinator and Professor of the International Postgraduate Course: "Expression of Totipotentiality of Plant Tissues *In Vitro*. Principles and Applications in Science and Technology". PNUD-Unesco, CHI84/003, July-August 1984.
- 1994 Full Member Ph.D Program Committee, Faculty. Biol. Sciences, Ecology Program.
- 1998 Member Edit. Committee Electronic Journal of Biotechnology; later, member of other editorial committees of different scientific journals.
- 1998-2000 President : Chilean Botanical Society
- 1998-19/2001-02 President: Rotary Club "Los Domínicos", Santiago
- 1998 Award. from "**Ministerio de Agricultura y Ganadería y Desarrollo Rural y el Viceministro de Agricultura y Ganadería del Gobierno de Bolivia**". (Principal Professor) "First National Course on Applied Biotechnology related to Fruit and Forest Species, La Paz, Bolivia, December, 14-19.

Projects and Grant participation:

Pontificia Universidad Católica de Chile, National Science Foundation, International Potato Center, CONICYT, MAB-Unesco, National Academy of Science, Forestal Pedro de Valdivia, PNUD/UNESCO/ONUDI, AID, International Bureau of BMBF-Germany, FONDEF and other national institutions.

Publications:

Manuscripts: Author and Co-author of more than 100 publications in indexed journals, including: Z. Pflanzenzüchtung, Planta Medica, Plant Science Letters, Oecologia, Angew. Botanik, Ciencia Inv. Agraria, Arch. Biol. Med. Exp., Z. Pflanzenphysiol., Gartenbauwissenschaft, Oecologia Plantarum, Plant Cell, Tissue and Organ Culture, Medio Ambiente, Erwerbobstbau, Acta Horticulturae, Plant Cell Reports, Φyton, The Finnish Environment, CRECES, Journal of Environmental Quality, European Journal of Horticultural Science, Z.

Naturforschung, J. Plant Nutr. Soil Sci., Phytochemistry, Propagation of Ornamental Plants, International Journal of Phytoremediation, Revista Colombiana de Ciencias Hortícolas, FUEL, Bosque, Revista Colombiana de Biotecnología, American International Journal of Humanities and Social Science, International Journal of Education and Social Science and, Inglo Mayor, and others.

Invited Chapters/ Book: about 20 chapters in books. Book Co- author: "Biotecnología Vegetal". Prieto, H., Jordan, M.; Barrueto L.P., M.C. Rocha y D. Durzan (2005). Colección Libros INIA, N° 15. Instituto de Investigaciones Agropecuarias, Ministerio de Agricultura. 217p. Prograf Impresores, Santiago.

https://www.researchgate.net/profile/Humberto_Prieto/publication/264551854_Biotecnologia_Vegetal_texto_basico_biotecnologia_en_espanol/links/53e5484d0cf2fb7487165a2b/Biotecnologia-Vegetal-texto-basico-biotecnologia-en-espanol.pdf

Main Research lines developed in Chile:

Research, developed at the Botany Laboratory of the Catholic University since 1977, as well as teaching in Level 300 courses during the last years, (besides the Plant physiology Course), refers to biotechnological aspects linked to the manipulation and regeneration potential of plants, starting from *in vitro* cell systems (protoplasts and suspensions) as well as tissues and organs.

This offered the possibility to obtain plants free from virosis, mass production of healthy elite individuals, or multiplying plants in species recalcitrant to traditional vegetative systems as well endangered species. It was possible to induce the formation of plantlets starting from a single somatic cell and to fuse protoplasts of two pawpaw species (*Carica candamarcensis* x *C. papaya*).

The possibility to manipulate cell systems in our Laboratory enabled coordinated work with other groups of the Biological Sciences Faculty and abroad, so as to induce on the one hand gene transformations and incorporation of foreign DNA, and on the other, to fix such characteristics when reproducing complete plants.

Following CONICYT's request, through these lines of research, and with the scientific support of other centres, it was possible to elaborate and coordinate national projects for the selection and massive clonal multiplication of species of economic importance for Chile. Through this research, it was possible to support genetic improvement programs for the production and export of traditionally cultivated species, or of those that still do not enjoy great demand at the export market level.

A second line of research developed in our Laboratory, refers to the morphological vs. defense adaptations of several species belonging to the vegetation of the central zone of Chile; I have participated in this concerning mainly metabolism aspects, specially secondary compounds such as phenolics.

The fund of knowledge gathered regarding the *in vitro* morphogenic processes induced in cells, tissues and organs of several species, and leading to plant regeneration systems, has allowed to set the bases to generate the Plant Micropropagation Program of the Catholic University, which started in 1987, and was expected to lead to plant breeding and improvement by means of genetic engineering.

Other research lines, in the Ecology Department, were the multiplication of native economical important plants, difficult-to-propagate woody fruit and forest trees and in maintaining and improving potato germplasm, by selection of virus-resistance genes. At the 80-90's, also work with the aim of inoculating disarmed *Agrobacterium* vectors in order to get transgenic plants (USAID, NSF, UNDP, Fondecyt, PUC funding) was developed.

Later on, research topics were related with Phytoremediation, specially the handling of organic and inorganic residues from the cellulose industry; the use of *Phragmites* plants to reduce contamination and amendment of these residues and the search of other tolerant species using residues as substrates in different combinations (FONDEF project funding/Celulosa Arauco).

More recent studies were related with the identification of some natural active products present in Chilean medicinal plants (BMBF-Germany, funding).

Finally, 2013-2014, at the U. Mayor, by means of a CORFO-Grant and the assistance of the "International Genetically Engineering Machine" Foundation – (iGEM, USA, that gently provided with non-pathogenic *E. coli* genetic material, prepared by iGEM and denominated "biobricks"), it was possible to develop a project in order to introduce genetic engineering and molecular biology concepts to students belonging to the secondary school; particularly belonging to public schools. Project ended with different DNA constructions inserted in *E. coli* mainly designed and developed by the students; their results were presented during the annual iGEM-Jamboree meeting held in Boston, the year 2015.-.

(March 2018)