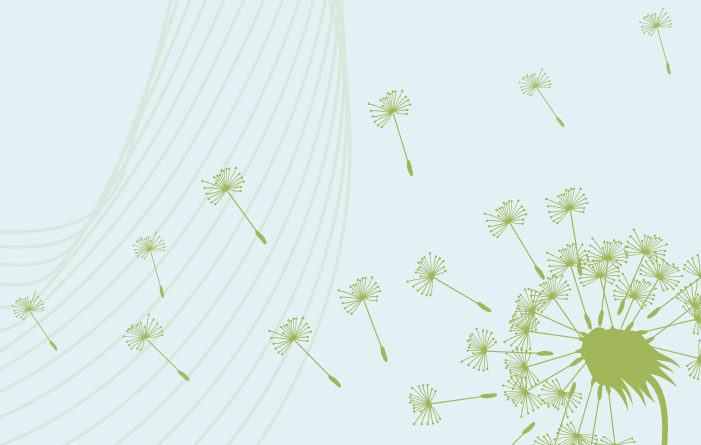


IV INTERNATIONAL CONGRESS ON APOMIXIS

December 3 - 7, 2023 • ROSARIO, ARGENTINA

Book of Abstracts



Introduction	3
Committees	4
Sponsors	5
Scientific program	6
List of Posters	9
Apomixis Awards	10
Abstracts	11
Invited Speakers	11
Oral Communications	20
Posters	29

The **IV International Congress on Apomixis Research** gave us the opportunity to celebrate 28 years of nonstop progress in this field since our first international meeting, which was held in Texas (USA) in 1995. After that, the apomixis community met in Como (Italy) in 2001, and Wernigerode (Germany) in 2007.

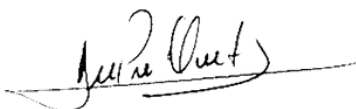
This conference brought together 80 participants coming from 18 different countries. The most represented communities were the argentinian and the italian ones, but there were also eminent professors and scientists from Albany, Australia, Bangladesh, Canada, China, Czechia, France, Germany, India, Mexico, Perú, Portugal, Switzerland, The Netherlands, The United Kingdom and The United States.

We discussed 47 scientific contributions and enjoyed the presentations of 16 invited speakers, 9 session talks selected from the submitted abstracts, 1 round table on scientific policies and a discussion session on perspectives. Finally, we organized an open-to-the-community session in order to share our work with the general public of all ages.

During their stay in Rosario, the attendees had the opportunity to visit some of the iconic places of the city. We hope they found this congress inspiring and went back home with creative new ideas, collaborations and friends, as well as an increased interest in their work.

We would like to thank the institutions and consortiums that provided financial and practical support to the event: the Italian Embassy in Argentina, the Italian General Consulate of Rosario, the Ministry of Foreign Affairs of Italy, the University of Milano, the Government of the Santa Fe Province, the National University of Rosario, the National Agency for the Promotion of Research, Technological Development and Innovation of Argentina, the National Council for Scientific and Technological Research of Argentina (CONICET), the Rosario Board of Trade and the Agricultural Science Foundation (FCA UNR). The congress organization has also received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No [872417], Project MAD and No No [101007438], Project POLYPLOID. We are also grateful for the support received from the Faculty of Agronomy of the National University of Rosario, the Research Institute of Agricultural Sciences of Rosario (IICAR), the Scientific and Technological Centre of CONICET Rosario (CCT Rosario) and the ROSCYTEC Foundation.

Finally, we would like to thank all the members of the Apomixis Argentina Group, for their valuable help during the organization of this event, and specially the people of the IICAR Plant Reproductive Development group.



Dr. Juan Pablo Ortiz
IICAR Director
Local Host



Dra. Silvina Pessino
IV International Congress on Apomixis
President of Organizing Committee

Local Scientific Committee:

IICAR-CONICET-Universidad Nacional de Rosario:

Silvina Pessino
Juan Pablo Ortiz
Juliana Stein
Lorena Siena
Luciana Delgado
Maricel Podio

CERZOS-CONICET-Universidad Nacional del Sur:

Viviana Echenique

IBONE-CONICET-Universidad Nacional del Nordeste:

Francisco Espinoza

International Scientific Board:

Lucia Colombo (University of Milan, Italy)
Olivier Leblanc (IRD Montpellier, France)
Juan Pablo Amelio Ortiz (CONICET, National University of Rosario, Argentina)
Silvina Pessino (CONICET, National University of Rosario, Argentina)
Emidio Albertini (University of Perugia, Italy)
Fulvio Pupilli (IBBR Perugia, CNR, Italy)
Thomas Dresselhaus (Universität Regensburg, Germany)
Viviana Echenique (CONICET, National University of the South, Argentina)
Francisco Espinoza (CONICET, National University of the North-East, Argentina)
Ueli Grossniklaus (University of Zurich, Switzerland)
Arp Schnittger (University of Hamburg, Germany)
Tim Sharbel (University of Saskatchewan, Canada)
Gianni Barcaccia (University of Padova)

Administration:

Fundación para la Promoción Científico-Tecnológica de Rosario y su Región (Fundación Roscytec), 27 de Febrero 210 bis (2000), Rosario, Santa Fe, CUIT: 30-70840604-6, IVA EXENTO.

Fundación Ciencias Agrarias, Campo Experimental Villarino, S2125ZAA Zavalla, Provincia de Santa Fe, Argentina, CUIT: 30-70956524-5.

Local professional organizers

Marcela Clemente Congresses and Corporate Events

P18

Exploring PLT gene family for insights into parthenogenesis regulation in *Eragrostis curvula*

Suarez, U. (1); **Quevedo, M.R.** (1); Selva, J.P. (1, 2); Carballo, J. (2); Zappacosta, D. (2, 3); Echenique, V. (2, 3)
(1) Departamento de Biología Bioquímica y Farmacia, Universidad Nacional del Sur (UNS), Argentina.
(2) Centro de Recursos Naturales Renovables de la Zona Semiárida (CERZOS-CCT- CONICET Bahía Blanca), Argentina.
(3) Departamento de Agronomía, Universidad Nacional del Sur (UNS), Argentina
martinueve1996@gmail.com

Apomixis is an asexual reproduction regulated by three mechanisms that together generate viable seeds genetically identical to the mother. These mechanisms are, 1) apomeiosis (lack of female meiosis), 2) parthenogenesis (embryo development without egg cell fertilization) and 3) pseudogamy (single fertilization of the polar nuclei). Depending on the species, parthenogenesis was found regulated by different genes. In *Taraxacum officinale*, two unlinked dominant loci control diplospory (DIP) and fertilization independent development of an embryo from the egg cell (PAR). In *Pennisetum squamulatum* and *Cenchrus ciliaris* BABY BOOM (BBM)-like genes were identified as candidates for parthenogenesis. Ectopic expression of these genes using egg cell specific promoter in rice showed autonomous embryo development. In normal development BBM genes were found expressed during fertilization triggered by the pollen. BBM genes belong to the plethora (PLT) family of transcription factors characterized by two conserved APETALA2 (AP2) binding domains and a *bbm-1* domain with functional implications for somatic embryogenesis. *Eragrostis curvula* is a diplosporous apomictic grass used as model for the study of apomixis. Several genetic and epigenetic resources have been developed for this grass; however, the molecular regulation of parthenogenesis was not characterized yet. In order to test if parthenogenesis is also regulated by BBM in *E. curvula* a genome wide identification of PLT family was conducted. In this way the *E. curvula* genome annotation was used to identify genes with AP2 domains. Further phylogenetic analysis showed that the ten PLT genes present in rice are also present in *E. curvula*. PLT5 and PLT6, which are BBM3 and BBM1 respectively, were analyzed in detail to characterize their function in *E. curvula*. Specific PCR primers designed for these genes showed promising results since the expression patterns shows similarities with rice. Moreover, furthermore cloning and sequencing of PLT5 and PLT6 from genotypes contrasting in the reproductive mode showed structural differences both at the genomic and transcript levels. Finally, we are testing if the expression of these genes is triggered by the pollen and can lead to the autonomous embryo development in *E. curvula*.

Keywords: *parthenogenesis, BABY BOOM, Eragrostis curvula.*