

Libro de Resúmenes

**XLI Reunión Científica Anual de la
Sociedad de Biología de Cuyo**



**30 de Noviembre y 01 de
Diciembre de 2023**

San Juan - Argentina

COMISION ORGANIZADORA LOCAL

Presidente: Dra. Gabriela Feresin

Vicepresidente: Dra Lorena Luna

Colaboradores:

Andino, Natalia del Pilar

Aragón y Traverso Juan Héctor

Bizzio, María de los Ángeles

Caballero Duilio

Carrera, Sebastián

Figueroa, Mariela

Gordillo, Luciana

Hadad, Martín Ariel

Iribas Francisco Javier

Lima, Beatriz Viviana

Parera, Victoria

Petrignani, Diego Bernardo

Piñeiro, Mauricio

Quiroga, Lorena Beatriz

Rodríguez, Laura Ayelén

COMISION ORGANIZADORA REGIONAL

Dra. Nida Gomez

Dra. Silvina Alvarez

Dra. Veronica Perez Chaca

Dr. Juan Chediack

Dra. Claudia Castro

Lic. Silvana Piguillem

Dra Veronica Piguillem

Dr. Walter Manucha

03- PREGERMINATIVE HYDRATION ASSAYS TO BREAK DORMANCY OF A NATIVE GRASS *Setaria lachnea* (NESS) KUNTH

Silvestro L¹, Rodríguez Rivera M¹ and Sosa L¹.

¹PROICO 2-3918. Faculty of Chemistry, Biochemistry and Pharmacy - National University of San Luis. Argentina. e-mail: ls10377@gmail.com

Setaria lachnea (Ness) Kunth is a native summer perennial species of high forage quality and good seed producer. However, they have a low germination capacity due to the presence of dormancy. The objective of this work is to study the application of pre-germinative hydration treatments to overcome the dormancy limitation in seeds obtained from a population of western San Luis province. Seed soaking treatments were applied for one minute in water at different temperatures: T1 (room temperature = 25°C); T2 (50°C) and T3 (65°C). They then remained hydrated for 24 h in the dark at room temperature. Subsequently, they were placed to germinate according to the Standard Method under light (L) and dark (O) conditions. A Control group (C) was added, without any previous treatment. Each treatment had 5 replicates of 30 seeds. The number of germinated seeds was recorded for 21 days and then the germination percentage (PG), germination rate index (GRI) and light requirement to germinate (LRG) were calculated. The analysis of variance indicates that there are significant differences between the applied treatments (average PG 11%) and the control (PG=2%). Germination speed showed significantly higher values in TL1 (5.5) and TL2 (4.8). The seeds showed no differences between the LRG values whose average value was 0.56. The results confirm the existence of dormancy in seeds of *S. lachnea* from a population of the Province of San Luis and soaking with water at room temperature (25°C) would allow overcoming dormancy. Treated seeds germinate without preference for light or darkness. Other treatments are required to overcome the dormancy limitation.

04- PROMOTION OF TOMATO GROWTH BY *Pseudomonas putida* PCI2 UNDER HYDROPONIC CONDITIONS

Mariani Jaime T¹, Guiñazú LB^{1,3}, Aufrán VA², Pastor NA³, Torres AM³, Andrés JA^{1,3}

¹Laboratorio de Microbiología Agrícola, Facultad de Agronomía y Veterinaria, Universidad Nacional de Río Cuarto.

²Laboratorio de Morfología Vegetal, Facultad de Agronomía y Veterinaria, Universidad Nacional de Río Cuarto.

³Instituto de Micología y Micotoxicología (IMICO) UNRC-CONICET.

E-mail: jandres@ayv.unrc.edu.ar

Hydroponics is a production system in which the roots of plants are irrigated with a mixture of essential nutrients dissolved in water and, instead of soil, an inert mineral substrate or simply the same nutrient solution is used. Tomato cultivation (*Solanum lycopersicum* L.) is adapted to hydroponic cultivation and it is necessary that it be developed in conditions that are friendly to the environment and health. The use of microorganisms that promote the growth and health of crops constitutes a global trend in this sense. *Pseudomonas putida* PCI2 is a strain isolated from the tomato rhizosphere and on which tests were carried out regarding its beneficial interaction with crops, linked to the mobilization of nutrients, production of phytohormones and suppression of diseases. The objective of this work was to evaluate the growth-promoting capacity of *P. putida* PCI2 in tomato crops under hydroponic conditions. Tomato seeds (variety UCO16 INTA) were germinated in trays containing sterile substrate (soil:perlite 2:1) and placed in a growth chamber under controlled cycles of 16 h of light at 25°C and 8 h of darkness at 20°C. At 35 days after sowing, the seedlings were transferred to hydroponic culture containers filled with 7 liters of Hoagland's nutrient solution (100% concentration) and kept in a chamber under the same growth conditions. Subsequently, half of them were inoculated at the root level with a culture of *P. putida* PCI2 (1,106 CFU/ml) at a rate of 1 ml/plant. The hydroponic system allowed us to determine that tomato plants inoculated with *P. putida* PCI2 presented statistically significant differences compared to the uninoculated control in the parameters root length, aerial part length, dry weight of roots and aerial part, evaluated at 60 days after sowing. In in vitro assays, it was observed that this strain produced indoleacetic acid (IAA) when grown in trypticase soy (TSA) culture medium enriched with L-tryptophan. The production of IAA is postulated as a possible mechanism in promoting growth under the test conditions. These promising results allow us to infer that *P. putida* PCI2 could be used as a growth promoting biofertilizer in tomato crops.