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2023

# The 2nd International Online Conference on Agriculture Research Achievements and Challenges

01–15 November 2023 | online

Chaired by Prof. Bin Gao



## 2nd International Electronic Conference on Agriculture

Part of the 1st International Online Conference on Agriculture - Advances in Agricultural Science and Technology series

1–15 Nov 2023

Crop Production, Farm Animal Production, Crop Protection

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## 2nd International Electronic Conference on Agriculture

### Sessions

- S1. Ecosystem, Environment and Climate Change in Agriculture;
- S2. Agricultural Systems and Management;
- S3. Agricultural Soils;
- S4. From Field to Consumers: Challenges and Approaches to High-Quality Agricultural Products;
- S5. Agricultural Water Management;
- S6. Artificial Intelligence for Advanced Analyses in Agriculture;
- S7. Breeding for Sustainable Agriculture Intensification in a Changing World;
- S8. Climate-Smart Agriculture: Practices, Determinants, Productivity and Efficiency;
- S9. Crop Production;
- S10. Poster Session.

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rice (*Ketadi Wangi*  
var.).

sciforum-074768	<b>Enhancing Seed Germination of Italian Ryegrass by Inoculation with <i>Bacillus halotolerans</i>: A Promising Approach for Sustainable Agriculture</b>	N/A	N/A	Magdalena Knežević,  Aleksandra Jelušić,  Olivera Stajković-Srbinović,  Miša Pešić,  Nataša Rasulić,  Dušica Delić,  Aneta Buntić	<a href="#">Hide Abstract</a>
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Italian ryegrass (*Lolium multiflorum*), a cool-season forage grass widely cultivated for its high productivity and nutritional value, often faces challenges in achieving optimal seed germination mostly caused by adverse soil conditions, suboptimal temperatures, and the presence of inhibitory substances. In recent years, studies have demonstrated the potential of microbial inoculants in promoting seed germination and improving plant growth. Among these microorganisms, *Bacillus* species have gained considerable attention due to their versatile nature and potential benefits for agricultural systems. *Bacillus halotolerans*, a halophilic bacterium known for its adaptability to various environmental conditions, has shown promising results in enhancing germination and plant performance in several crop species. The beneficial characteristics of *B. halotolerans*, including its ability to produce plant growth-promoting substances, enhance nutrient uptake, and alleviate abiotic stresses, make it an ideal candidate for exploring its potential application in improving seed germination of Italian ryegrass. This study aimed to determine the potential of *B. halotolerans* strain LA1K1 with PGP traits (IAA and siderophores producer) to enhance seed germination of Italian ryegrass *in vitro*. Twenty seeds of *Lolium multiflorum* were placed on Petri dishes contacting Jensen agar (with and without bacterial inoculation) and were kept during 14 days, in triplicate. The ability of strain LA1K1 to increase seed germination was evaluated through relative seed germination index (RSGI%). The results indicated that inoculation with *B. halotolerans* strain LA1K1 significantly increased (up to 27%) the seed germination index of Italian ryegrass, in comparison to the uninoculated control. These results hold great significance as they offer a sustainable and efficient approach to enhance seed germination, leading to improved crop establishment, productivity, and ultimately contributing to the sustainability and success of Italian ryegrass cultivation and potentially other crop species facing similar germination challenges.