

SEED PRIMING AS A SUSTAINABLE APPROACH FOR IMPROVING PEPPER (*Capsicum annuum* L. cv. Podravka) GROWTH UNDER ABIOTIC STRESS

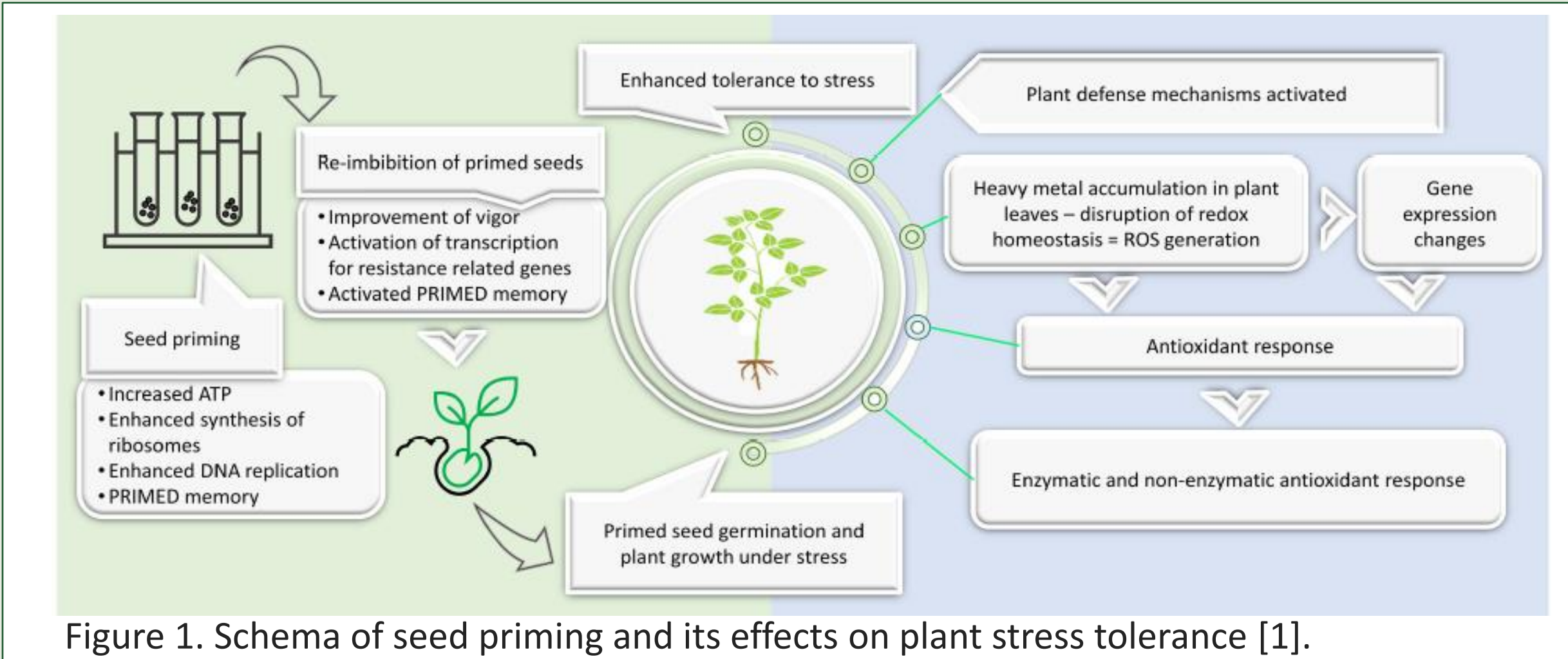
Jasmina Ranilović¹, Iva Škrlec², Barbara Medvedec², Sanja Čavar Zeljković^{3, 4}, Dunja Šamec²

¹ Podravka Ltd., Koprivnica, Croatia; ² University North, Koprivnica, Croatia; ³ Czech Agrifood Research Center, Genetic Resources of Vegetables and Special Crops, Olomouc, Czechia; ⁴ Czech Advanced Technology and Research Institute (CATRIN), Palacký University, Olomouc, Czechia

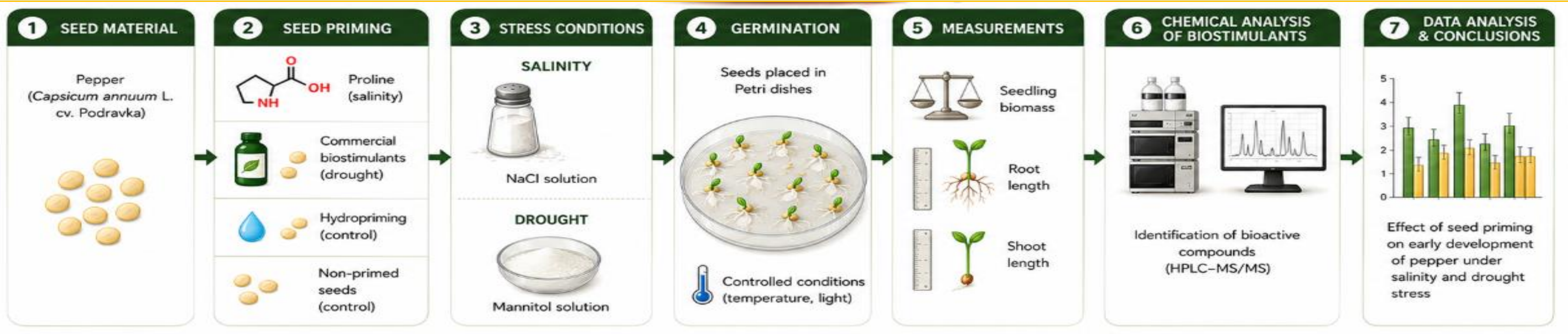
INTRODUCTION

Climate change is increasing the frequency and intensity of abiotic stresses, including salinity and drought, which can severely impair seed germination and early plant development. Seed priming is an environmentally friendly pre-sowing technique that activates metabolic processes before germination and may improve plant tolerance to adverse environmental conditions (Figure 1.).

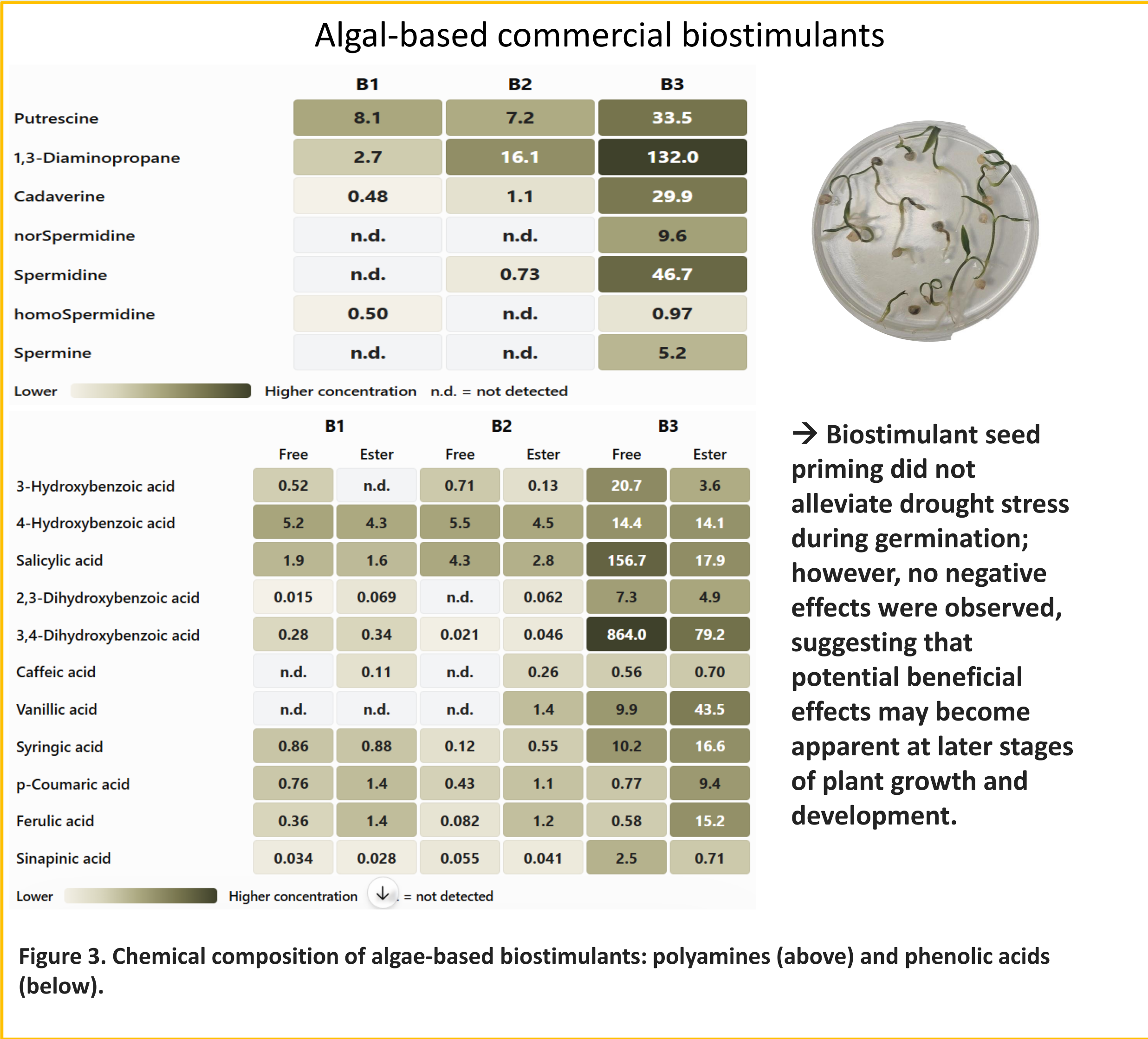
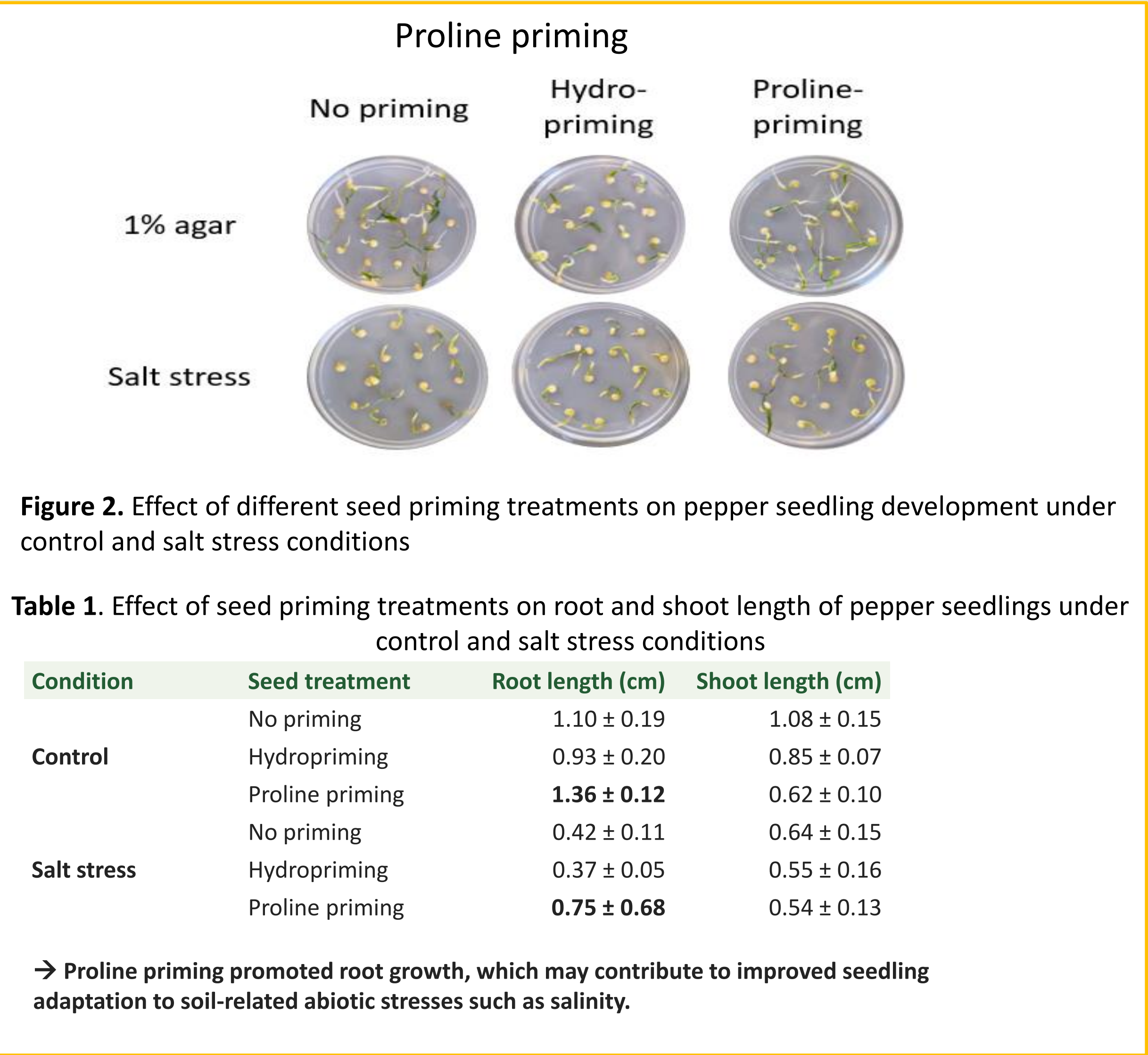
Proline and commercial biostimulants containing stress-related bioactive compounds represent promising priming agents; however, their effectiveness during the early development of pepper (*Capsicum annuum* L.) remains insufficiently explored. Improving stress tolerance during germination and seedling establishment is particularly important because these developmental stages strongly influence subsequent plant growth and crop productivity.



EXPERIMENTAL WORKFLOW



RESULTS



CONCLUSIONS

Proline seed priming promoted root growth and increased seedling biomass under salinity stress. Commercial biostimulants did not alleviate drought stress during germination but showed no negative effects, suggesting potential benefits at later growth stages. Their polyamine- and phenolic acid-rich composition further supports their potential role in plant stress responses.

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