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Evaluation of Amino Acid Profiles of Rice Genotypes under Different Salt Stress Conditions

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[Introduction]

Rice is the primary source of food for more than half of the world's population. However, rice is a glycophyte, i.e., its growth and development are negatively affected by environmental stress factors such as high soil salinity. Rice plants are thus highly prone to salinity stress, particularly in reproductive and seedling stages.

[Materials and Methods]

Four rice genotypes, namely Cheongcheong, Nagdong, IR28, and Pokkali, were selected for the study. When the seeds of all rice cultivars germinated successfully, 10 germinated seeds were transferred to 500 mL closed plastic water cups containing soil.

[Results and Discussion]

The cultivars Cheongcheong, Nagdong, and IR28 were found to show significantly increased levels of both essential and non-essential amino acids when exposed to MgCl₂ and CaCl₂ at 150 mM concentration. However, CaCl₂ and MgCl₂ applications were found to increase the levels of total essential and non-essential amino acids in cultivars Nagdong and Cheongcheong, respectively. Levels of both essential and non-essential amino acids were found to decrease significantly in cultivars IR28 and Pokkali.

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