

CHITOSAN-INDUCED MITIGATION OF SALINITY IN RICE (BRRI dhan29)

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Extended Summary

A pot experiment was conducted in the net house of Sher-e-Bangla Agricultural University, Dhaka, Bangladesh, during December 2015 to April 2016 to study the role of modified chitosan on rice (BRRI dhan29) cultivation under saline soil. BRRI dhan29 was used as the test crop in this experiment. The experiment consists of 2 factors i. e. salinity and modified chitosan. Different doses of modified chitosan (C_0 -0 g modified chitosan/pot, C_1 -20 g modified chitosan/pot and C_2 -40 g modified chitosan/pot). Different levels of salinity were (S_0 - normal soil, S_1 - 4 dSm⁻¹, S_2 -8 dsm⁻¹ and S_3 - 12 dsm⁻¹). There were 12 treatment combinations with 3 replications. Results revealed that salinity had significant effect on the yield and yield parameters. The highest value of effective tillers/hill, plant height, panicle length, number of filled grain/panicle, 1000 grain weight, grain yield and straw yield were observed when the level of salinity was S_0 (normal soil) and the lowest value was observed when the level of salinity was S_3 (12 dsm⁻¹). The Yield contributing characters and yields were significantly affected by application of modified chitosan. The highest effective tillers/hill (23.91), plant height (60.24 cm), panicle length (19.37cm), 1000 grain wt. (14.83g), grain yield (38.08g) and straw yield (47.08g) were found from C_1 (20 g modified chitosan/pot). On the other hand, in most cases lowest values were obtained from C_2 (40 g modified chitosan/pot). The highest values of effective tillers/hill (49.00), plant height (78.687), panicle length (27.87), 1000 seed wt.(21.33), and grain yield (85.00), recorded from (S_0C_1 - normal soil + 20 g modified chitosan/pot). The lowest values were observed from (S_3C_2 -12dsm⁻¹ + 40 g modified chitosan/pot). Results concluded that application of modified chitosan (20 g modified chitosan/pot) could play significant role to increase the grain yield of rice and could improve the salt tolerance in rice.

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