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Chia (*Salvia hispanica* L.) cultivation in the southern coastal region of Bangladesh

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Abstract

Chia (*Salvia hispanica* L.) is an herbaceous plant, belonging to the Lamiaceae family, native to the mountainous regions of western and central Mexico and Guatemala. The cultivation of chia in Bangladesh began in 2006. Nowadays, cultivation has spread to different districts due to higher returns than traditional crops. There is evidence of chia cultivation in the northern region of Bangladesh. However, to date, there has been no report on chia cultivation in Bangladesh's southern coastal region. The study aims to evaluate the potential for germination, agronomic, and yield performance of chia in the Bagerhat region of Bangladesh. A field experiment was conducted in two locations of Bagerhat (22.4500°N 89.8583°E, and 22.7806°N 89.7083°E) to evaluate the effects of different seed rates on growth and yield. Three seed rate treatments (T_1 = 3 kg ha^{-1}, T_2 = 4 kg ha^{-1}, T_3 = 5 kg ha^{-1}) were assessed with three replications in a Randomized Complete Block Design (RCBD) during the 2023-2024 and 2024-2025 seasons. In the first year, at the first location, no germination was observed in any treatment due to severe salinity, resulting in complete crop failure. In the second location, germination was poor; however, higher seed rates improved crop establishment. Germination percentage under T_1, T_2, and T_3 were 32%, 46%, and 61%, respectively. Seed yield is also significantly influenced by seed rate, with the highest yield (1.12 $t.ha^{-1}$) obtained from T_3, followed by T_2 (0.98 $t.ha^{-1}$) and T_1 (0.78 $t.ha^{-1}$). The enhanced performance in the second year may be due to earlier sowing and comparatively favorable environmental conditions.

Keywords: *Chia, Salinity, Yield, Bagerhat, Bangladesh*