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44 - Putrescine as biostimulant agent in *Cucumis sativus*

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The ever-increasing global demand for food, combined with the rise of abiotic stresses due to ongoing climate change, underlines the urgent need for sustainable agricultural practices aimed at enhancing crop productivity. Plant biostimulants (BSs) represent promising eco-friendly alternatives to synthetic fertilizers. Among them, polyamines (PAs) such as putrescine (Put) have gained attention. PAs are biogenic, ubiquitous amines involved in growth regulation and defence responses. In this study, we investigated the effect of foliar application of exogenous Put on adult cucumber plants (*Cucumis sativus*) grown under both optimal and salt stress conditions. Phenotypic traits and biochemical stress markers were analysed to assess plant responses. Overall, Put-treated plants exhibited improved growth compared to controls under salt-stress conditions, particularly showing enhanced root development. Biochemical markers of plant fitness, including malondialdehyde content, antioxidant activity (FRAP assay), and photosynthetic pigment levels, indicated a better acclimation of Put-treated plants to salt stress. These results suggest that foliar application of exogenous Put can enhance plant resilience and performance by influencing phenotypic plasticity and modulating biochemical pathways, thereby offering a promising strategy to improve crop yield and health under adverse environmental conditions.