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Growth Response of Hydroponic Microgreens to Rhizobium and Humic Acid Treatments

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Rhizobium is essential for symbiotic nitrogen fixation, thus increasing crop yield and soil fertility. This study investigated the synergistic effect of Rhizobium and humic acid on the growth activity of some selected plants in controlled environments. Arachis hypogaea root nodules were harvested, sterilized, and employed in isolating Rhizobium. The applied treatments were Rhizobium alone, humic acid alone, and a blended product of both, which were tested on four plant varieties (*Allium cepa*, *Trigonella foenum-graecum*, *Amaranthus viridis*, and *Pennisetum glaucum*). All experiments were conducted in triplicate to make the process accurate. Growth attributes—plant height, biomass, and protein—were checked and examined. Results always proved that combined treatment of Rhizobium with humic acid always performed better than single applications, bringing about better growth and increased protein accumulation. Such results highlight the potential of integrated biofertilizers as a green and sustainable input option in contrast to chemicals, working towards better agricultural productivity and soil fertility in the long run.

Keywords: Biofertilizers, *Arachis hypogaea*, *Allium cepa*, *Trigonella foenum-graecum*, Sustainable agriculture

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