FORMULATION OF A NATURAL ROOTING HORMONE FOR BRINJAL (*Solanum melongena* L.) AND TOMATO (*Solanum lycopersicum* L.) STEM CUTTINGS USING ALOE VERA, CINNAMON, AND HONEY

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ABSTRACT

Brinjal (*Solanum melongena* L.) and tomato (*Solanum lycopersicum* L.) are vital vegetable crops within the Solanaceae family, extensively cultivated in Sri Lanka due to their economic significance and nutritional value. Traditional propagation methods, such as stem cuttings, often face challenges like low success rates and vulnerability to diseases, necessitating effective solutions for robust root development. This study aims to formulate a natural rooting hormone using Aloe Vera, Cinnamon, and Honey to enhance rooting in brinjal and tomato stem cuttings. These natural substances, known for their antimicrobial and anti-inflammatory properties, are an eco-friendly alternative to synthetic hormones. The research focuses on stimulating root growth and evaluating the morphological parameters of roots in treated cuttings. The experiment was carried out from March 2024 to June 2024 at the Faculty of Technology, Eastern University, Sri Lanka, using a Complete Randomized Design (CRD) with eight treatments and four replicates. The treatments were T0 (Water), T1 (10 ml of Aloe Vera gel), T2 (10 g of Cinnamon powder), T3 (10 ml of Honey), T4 (10 ml of Aloe Vera gel + 10 g of Cinnamon powder), T5 (10 ml of Aloe Vera gel + 10 ml of Honey), T6 (10 g of Cinnamon powder + 10 ml of Honey), and T7 (10 ml of Aloe Vera gel + 10 g of Cinnamon powder + 10 ml of Honey). Analysis of variance was performed to determine significant differences among treatments ($p<0.05$). Brinjal plants provided with T7 showed superior performance in growth parameters, including the number of leaves, plant height, number of roots, root length, and dry weight of roots. The lowest growth parameters were observed in T3 and T5. Similarly, tomato plants treated with T7 performed well in terms of the number of leaves, plant height, number of roots, root length, and dry weight of roots, while the lowest growth parameters were observed in T2 and T5. By addressing propagation challenges and promoting sustainable agricultural practices, this natural hormone in the composition of 10 ml of Aloe Vera gel + 10 g of Cinnamon powder + 10 ml of Honey, holds promise for improving brinjal and tomato growth and yield.

Keywords: Natural rooting hormones, Aloe vera, Cinnamon, Honey, Brinjal, Tomato, Propagation, Stem cuttings

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