

**REGENERATING LEEKS PLANT (*Allium ampeloprasum* L.)
FROM STEM BASE WITH ROOTS (BULBS) USING *Aloe vera*
GEL AND BANANA PEEL AS NATURAL GROWTH
STIMULANTS**



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ABSTRACT

The regeneration of leek plant from rootstock (leek bulb) was tested using *Aloe vera* gel and banana peels as natural growth stimulants. This experiment was carried out in the Faculty of Technology of the Eastern University, Sri Lanka. The treatments were arranged in randomized complete design (CRD) with six replicates. In this experiment, 6 treatments were made with different percentages of natural growth stimulants, they are T1- Control treatments (Water), T2 – 10% *Aloe vera* gel solutions, T3 – 20% *Aloe vera* gel solutions, T4 – 10% Banana peel solutions, T5 – 20% Banana peel solutions, T6 – 10% *Aloe vera* gel + 10% Banana peel solutions. During the time immersed in the hormone solution, stem length, number of newly formed roots, root length and after planting in the soil, number of leaves, leaf length, leaf width, stem height and after harvesting, fresh weight of roots, fresh weight of stem and fresh weight of leaves, number of roots and dry weight of roots, dry weight of stem and dry weight of leaves after drying in direct sunlight for three days are among the parameters measured. The results showed that Statistical analysis confirmed significant differences between treatments for all evaluation parameters ($P < 0.05$). T6 treatments had the highest stem length (9.12 ± 0.38 cm), number of roots (14.33 ± 0.72), and root length (1.68 ± 0.14 cm) values when immersed in hormone solutions. In addition, T5 and T3 treatments also showed significant growth. After planting in the soil, the number of leaves (9.33 ± 0.42), leaf length (60.05 ± 2.10 cm) and width (3.02 ± 0.21 cm), and stem height (71.23 ± 2.14 cm) were measured in the T6 treatment, which showed the highest growth rate, and in addition, the T5, T3, T4 and T2 treatments showed a significant growth pattern. The lowest growth rate was noted in T1. Even after harvesting, T6 treatment showed the highest growth in fresh weight of leaves (34.83 ± 1.51 g), fresh weight of stems (22.95 ± 0.91 g), fresh weight of roots (3.75 ± 0.37 g) and number of newly formed roots (92.67 ± 5.04), while T3 and T5 treatments were second in terms of growth rate. When examining dry weight of roots (1.50 ± 0.12 g), dry weight of stem (3.55 ± 0.04 g), and dry weight of leaves (7.70 ± 0.48 g), T6 treatments had the highest weight, followed by T5, T3, T4, and T2 treatments in that order. Overall findings of the study showed that 10% *Aloe vera* gel + 10% Banana peel solutions (T6 treatment) was most successful in regenerating leek plants from leek bulbs and improving growth metrics of leek plants in sandy regosol.

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