

**UTILIZATION OF EGGSHELLS AS A FERTILIZER IN HOUSEPLANT
(*Syngonium podophyllum*)**

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ABSTRACT

UTILIZATION OF EGGHELLS AS A FERTILIZER IN HOUSEPLANTS (*Syngonium podophyllum*)

Eggshell is an agricultural waste from different sources such as household wastage, restaurants, and fast-food sectors that are dumped as trash. It is primarily regarded as useless, and its disposal leads to pollution. Organic fertilizers were produced from chicken, duck, and the mixture (chicken and duck) eggshells that provide essential nutrients for plant growth. They were collected, purified, and powdered by grinder for fine powder production. The eggshell powder was used as a liquid fertilizer in four houseplants (*Syngonium podophyllum*). First, the macronutrient availability in chicken, duck, and mixture (chicken and duck) fertilizers was analysed using the ICP-OES instrument. Based on the results, duck fertilizer had the highest concentration of phosphorus (0.432 mg/L), magnesium (1.827 mg/L), and calcium (69.48 mg/L); meanwhile, chicken fertilizer had the highest concentration of potassium (1.161 mg/L). Thus, the macronutrients of eggshells fertilizer are influenced by poultry species, genetic traits, and dietary, including zinc supplements and vitamin D₃. Next, the growth and development of four houseplants (*S. podophyllum*) fertilized with each eggshell fertilizer and x fertilizer (inorganic fertilizer) were compared by measuring the morphological traits using descriptive analysis. According to the results, *S. podophyllum*, after fertilizing with duck fertilizer, had a greater mean of stalk length (9.09), leaf length (6.88), as well as height (19.3 cm) compared to the chicken, mixture, and x fertilizer because it has the highest phosphorus, magnesium, and calcium content. However, *S. podophyllum*, which was fertilized with mixture fertilizer, had a greater mean of root length (10.9) compared to duck, chicken, and x fertilizer. Hence, macronutrient availability, such as phosphorus, potassium, magnesium, and calcium, is needed for secondary substance production and accumulation in numerous plant metabolic processes for proper growth and development of plants.

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