

## **Effect of hydroponic and conventional production systems on plant growth performance and nitrate content of green coral lettuce (*Lactuca sativa* var. *Crispa*)**

### **ABSTRACT**

Overfertilization on leafy vegetables could accumulate high nitrate content. Exceeded recommended limit of nitrate content can cause detrimental effects on the environment and human health, such as methemoglobinemia and stomach cancer. Green coral lettuce (GCL) is a leafy vegetable commonly grown under various production systems. Production system and physiological age have affected the growth and accumulation of nitrate levels in most leafy vegetables. Therefore, this study aims to determine the effects of hydroponic and conventional production on the growth performance and nitrate concentration of GCL at different harvest ages. This research was conducted in a randomized complete block design with a factorial arrangement of treatments. A stagnant hydroponic was prepared using stock A and B complete Hoagland nutrient solutions as liquid fertilizer. A commercial biofertilizer (NPK 8: 8: 8) was applied at the rate of 100 g per plant. Plant growth performance, including plant height, number of leaves, and leaf length, was measured at 7, 14, 21, 28, 31, 34, 41, and 44 days after transplanting (DAT). The fresh weight and nitrate content were measured at 31, 34, 41, and 44 DAT. The results showed hydroponic GCL exhibited higher plant height than conventional GCL. However, both productions were not significantly affected regarding the number of leaves, leaf length, and fresh weight. At 41 and 44 DAT, the hydroponic GCL was markedly higher in nitrate content than conventional. This study found that conventional production was recommended for GCL because lower in nitrate content compared to hydroponic and fair in growth performance.

**Keyword:** Plant height; Number of leaves; Leaf length; Harvest age