ABSTRAK

Shallot (*Allium cepa L.)* is an important horticultural commodity widely used as a cooking ingredient. The increasing annual demand for shallots has not been matched by sufficient production, which is mainly caused by inappropriate fertilization practices and low soil fertility. Therefore, improving soil fertility through proper fertilization is essential. This study aimed to evaluate the effect of palm oil mill effluent (POME) and tofu wastewater on the growth and yield of shallot. The research was conducted from December 2024 to February 2025 in Tambun Tunong Village, Dewantara District, North Aceh Regency, and at the Agrotechnology Laboratory, Faculty of Agriculture, Malikussaleh University. A two-factor Randomized Complete Block Design (RCBD) with three replications was used. The first factor was palm oil mill effluent (POME) consisting of three levels: L0 (0 mL/polybag), L_1 (100 mL/polybag), and L_2 (200 mL/polybag). The second factor was tofu wastewater consisting of three levels: T_0 (0 mL/polybag), T_1 (50 mL/polybag), and T_2 (100 mL/polybag). The results showed that POME significantly affected number of leaves, number of bulbs, root length, bulb dry weight, marketable bulb weight, and yield, with the best performance at L_2 (200 mL/polybag). Tofu wastewater significantly affected plant height, root length, bulb diameter, and marketable bulb weight, with the best performance at T_2 (100 mL/polybag). A significant interaction between POME and tofu wastewater was observed only on root length. The most effective combination was POME at 200 mL/polybag with tofu wastewater at 50 mL/polybag.

Keywords: treatment dosage, soil fertility, crop production, crop response, nutrient uptake.