ABSTRACT

Red spinach (*Amaranthus tricolor*) is a high-nutritional horticultural commodity with declining national production. This study aimed to determine the effect of AB-Mix concentration, liquid organic fertilizer (LOF) from rice washing water, and their interaction on the growth of red spinach cultivated hydroponically. The research was conducted at the Greenhouse of the Faculty of Agriculture, Universitas Malikussaleh, from December 2025 to February 2026, using a factorial Randomized Block Design (RBD) with two factors: AB-Mix concentration (600, 800, 1000 ppm) and LOF dosage (10, 20, 30 ml/L), with three replications and 135 plants. Results showed that AB-Mix at 1000 ppm produced the best growth with plant height of 40.40 cm, fresh weight of 19.77 g, and chlorophyll content of 8.82 units. LOF at 30 ml/L significantly affected leaf number. The best interactions were observed in A3B2 for plant height and A3B3 for leaf number. AB-Mix at 1000 ppm combined with LOF at a minimum of 30 ml/L is recommended for hydroponic red spinach cultivation.

Keywords: *Amaranthus tricolor*, AB-Mix, hydroponics, liquid organic fertilizer, rice washing water