ABSTRACT

Cocoa (*Theobroma cacao* L.) is a plantation commodity with high economic value, yet its productivity in Indonesia remains suboptimal due to poor cultivation practices, including inadequate nursery management. This study aimed to determine the effect of growing media composition, concentration of liquid organic fertilizer derived from cow urine, and their interaction on the growth of cocoa seedlings. The research was conducted at the Experimental Garden of the Faculty of Agriculture, Universitas Malikussaleh, from October 2025 to January 2026. A Randomized Block Design (RBD) with two factors was applied: growing media (M1: soil + manure 1:1; M2: manure + sand 1:1; M3: manure + cocopeat 1:1) and cow urine liquid organic fertilizer concentration (P0: 0 ml/L; P1: 200 ml/L; P2: 350 ml/L; P3: 500 ml/L), resulting in 12 treatment combinations with three replications. Observed parameters included plant height, stem diameter, number of leaves, leaf area, leaf chlorophyll content, root length, root volume, and fresh plant weight. The results showed that growing media significantly affected stem diameter at 6 weeks after planting (WAP), number of leaves at 8 WAP, leaf chlorophyll content at 4 and 8 WAP, and root length at 8 WAP. The M1 treatment (soil + manure 1:1) produced the best leaf count, chlorophyll content, and root length, while M3 (manure + cocopeat 1:1) yielded the largest stem diameter at 6 WAP. Cow urine liquid organic fertilizer concentration significantly influenced stem diameter at 2 and 6 WAP and highly significantly affected root length at 8 WAP. No significant interaction was observed between growing media and fertilizer concentration on any observed variable.

Keywords: cocopeat, manure, sand, soil