ABSTRACT

Cocoa (*Theobroma cacao* L.) is one of Indonesia's leading plantation commodities and has an important role in supporting the national economy. However, the productivity of cocoa plantations remains relatively low, partly due to the use of poor-quality seedlings. Therefore, improving seedling quality through appropriate growing media and balanced fertilization is essential to support optimal plant growth. This research aimed to determine the effects of cocopeat growing media and NPK fertilizer dosage, as well as their interaction, on the growth of cocoa seedlings. The experiment was conducted at the Experimental Garden and Plant Physiology Laboratory, Faculty of Agriculture, Malikussaleh University, from October 2025 to January 2026. The experimental design used was a factorial Randomized Block Design with three replications. The first factor consisted of four levels of cocopeat growing media, while the second factor consisted of three levels of NPK fertilizer dosage. The results showed that cocopeat application significantly affected plant height at 12 weeks after planting (WAP), number of leaves at 4, 8, and 12 WAP, and leaf chlorophyll content at 6 WAP, while it highly significantly affected stem diameter at 12 WAP, leaf chlorophyll content at 12 WAP, and fresh weight of cocoa seedlings. NPK fertilizer dosage significantly affected the number of leaves and stem diameter at 12 WAP and highly significantly affected plant height at 12 WAP, leaf chlorophyll content at 12 WAP, and fresh weight of cocoa seedlings. The interaction between cocopeat growing media and NPK fertilizer dosage significantly affected root length.

Keywords: chlorophyll, growing media, nutrient elements, photosynthesis, vegetative growth