ABSTRACT

The large use of palm oil means that palm oil plantations continue to increase yearly. The area of oil palm plantations in Indonesia in 2019 was 14,456,611 ha. So quality seeds are needed in large quantities. To obtain high production, appropriate handling is required when seeding oil palm plants. Providing liquid organic fertilizer (LOF) lamtoro and PGPR is one way to increase optimal oil palm growth. This research aims to examine the effect of applying liquid organic fertilizer from lamtoro leaves and PGPR concentration, as well as the impact of the interaction between the concentration of liquid organic fertilizer from lamtoro leaves and PGPR on the growth of oil palm seedlings in the *pre nursery* phase. This research was carried out in the experimental garden of the Faculty of Agriculture, Malikussaleh University at an altitude of 75 meters above sea level and the Agroecotechnology Laboratory located in Muara Batu District, North Aceh Regency. Activities were carried out from December to April 2024. This research used a Factorial Randomized Block Design with three replications. The first factor, namely LOF of lamtoro leaves (L), consists of 3 levels, L0 (0 ml/l), L1 (LOF of lamtoro leaves 400 ml/1), L2 (LOF of lamtoro leaves 600 ml/1), and the second factor is PGPR (P) consisting of from 3 levels, namely P0 (0 ml/plant), P1 (30 ml/plant), P2 (40 ml/plant), P3 (50 ml/plant). The results of the research showed that giving LOF lamtoro leaves had a very significant effect on the height of plants aged 7 WAP and had a significant effect on plant heights of 5, 9, and 11 WAP, the number of leaves at 5 WAP and root volume at 11 WAP. The application of PGPR had a very significant effect on plant height parameters at 5 and 7 WAP, dry weight at 11 WAP, and had a significant effect on plant height at 9 and 11 WAP. There was a very real influence due to giving LOF of lamtoro leaves and PGPR on the number of leaves aged 5 WAP and had a real effect at 11 WAP

Keywords: Concentration, Dosage, Microorganisms, Organic, *Rhizobium*.