

## ABSTRACT

Ultisol soil is an acidic mineral soil with a low productivity. The Ultisol soil has pH H<sub>2</sub>O criteria that is acidic, pH KCl with acidic criteria, Bray method P with very high criteria, and Olsen as well. Liberica coffee is a type of origanating coffee from Liberia cultivated by the Tangse community, but currently, the plantation is decreasing in the Tangse mountains. Coffee plant propagation is recommended through vegetative methods such as cuttings and grafting. This research aims to evaluate the chemical properties of Ultisol soil on Liberian coffee plants cause the application of various ameliorants and growth regulators. The research was conducted in the experimental garden of the Faculty of Agriculture, Universitas Malikussaleh, in the Muara Batu District of North Aceh. Soil chemical analysis was performed at the Soil Science Laboratory of the Faculty of Agriculture, Universitas Malikussaleh. The research was conducted from August 2023 to January 2024. The research used a completely randomized factorial design with 3 replications. This research consist of 2 factors that has been studied. First, it was the ameliorant consisting of A0 (control), A1 (10% coffee husk waste), and A2 (10% coffee husk charcoal). Second, it was the growth regulator, consisting of H0 (control), H1 (100% coconut water), and H2 (15% cow urine). The results showed that the application of ameliorants to Ultisol soil planted with Liberian coffee cutting significantly affected pH<sub>H<sub>2</sub>O</sub>, pH KCl, and P using the Bray and Olsen methods. The highest increase at pH H<sub>2</sub>O was found in A2 (10% Coffee husk charcoal) at 10.07%. The highest increase at pH KCl was found in A2 at 7.95%. The highest increase in Bray method P was found in A2 at 49.04%. The highest increase in Olsen method P was found in A2 at 46.66%. The results of the research showed that the administration of ameliorant and natural growth hormones to shoot cuttings of Liberica coffee plants at the growth percentage of treatment levels A0 and H0 showed the highest growth percentage. The highest growth percentage treatment combination interaction was shown at the A0H0 level. Meanwhile, the number of ameliorant shoots at A0 level and the natural growth hormone level at H0 showed the highest values. The interaction of treatment combinations with the highest number of shoots was found in the A0H0 treatment combination. Meanwhile, the A0 level of ameliorant shoot length and the H0 level of natural growth hormone show the highest shoot length. The highest interaction between treatment combinations on shoot length was found in the treatment combination level A0H0.

Keywords: Ameliorants, *Coffea liberica*, Shoot cuttings, Ultisol, Natural growth hormone