

ABSTRACT

Ultisols are soils that have soil acidity problems, in the form of pH <5 and low macronutrients and very low P availability. As a result these soils have low productivity, due to low organic matter content, low Ca availability, high Al exchangeability and cloddy soil structure and clay-layered aggregates. Therefore, it is necessary to add organic matter to the soil to improve the physical, chemical and biological properties of the soil. This study aims to assess the response of ameliorant composition to ultisol soil chemical properties and plant nutrient uptake and shallot yield. This research was conducted in the Experimental Garden of Faculty Agriculture, University Malikussaleh using polybags from February to April 2024. This study used a nonfactorial complete randomized design consisting of three replicates and there were 5 treatments, namely control, stream sediment (98 g/polybag), liquid compound fertilizer (10 ml/polybag), stream sediment (98 g/polybag) + liquid compound fertilizer (10 ml/polybag), stream sediment (98 g/polybag) + liquid compound fertilizer (10 ml/polybag) + NPK fertilizer (2 g/polybag) + crab shells (8 g/polybag) each treatment consisted of 5 polybag units so that there were 75 units of experimental units. Soil chemical parameters consist of C-organic, Ca-exchangeable, Mg-exchangeable, base saturation, Calcium nutrient uptake of plants. Field observation parameters consisted of the number of bulbs, wet stalk weight, dry stalk weight and onion weight ton/ha. The results showed that the application of stream sediment (98 g/polybag) + liquid compound fertilizer (10ml/polybag) + NPK fertilizer (2 g/polybag) + crab shells (8 g/polybag) had an effect on soil chemical properties, plant nutrient uptake, and shallot yield.

Keywords: crab shell, liquid compound fertilizer, nutrient uptake, stream sediment