

THE EFFECT OF SHRIMP FARMING WASTE AND ZEOLITE ON THE AVAILABILITY AND LEACHING OF NITROGEN IN COASTAL SAND REGOSOL SOIL

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ABSTRACT

Regosol soil has problems holding water and is low in soil nutrients, especially nitrogen. This research was conducted to determine the effect of shrimp cultivation solid waste and zeolite as a supplier of nitrogen elements and soil improver on beach sand Regosol soil. The research was carried out in the Greenhouse of the Faculty of Agriculture, UPN "Veteran" Yogyakarta from July to October 2023. The research was carried out using an experimental design method using a factorial Completely Randomized Design (CRD). The first factor in the form of Shrimp Cultivation Solid Waste consists of three levels: U1=0 tons/ha, U2=15 tons/ha; U3=30 tons/ha. The second factor is Zeolite with three levels: Z1=0 ton/ha; Z2=7.5 tons/ha, Z3=15 tons/ha. Each treatment was repeated three times and incubated for 30 days. The analysis parameters consist of available N, total N, leached N (in the form of NH_4^+ and NO_3^-), CEC, C-Organic, C/N ratio, and soil pH. Data analysis used ANOVA and continued with DMRT at a level of 5%. The research results show that solid waste from shrimp cultivation significantly increases the levels of organic C, total N, soil nitrate, the amount of leached ammonium and reduces the C/N ratio, the amount of leached nitrate. Shrimp cultivation solid waste does not significantly increase soil ammonium levels, and decreases soil pH and CEC. Zeolite did not significantly increase the pH of H₂O, soil CEC, soil C-organic content, soil N-total, leached ammonium, leached nitrate, soil nitrate content and reduced the C/N ratio, as well as soil ammonium content.

Keywords: shrimp waste, zeolite, nitrogen, regosol