

## ABSTRAK

### **PENGARUH SISTEM OLAH TANAH DAN PEMBERIAN PUPUK NITROGEN JANGKA PANJANG TERHADAP KANDUNGAN ASAM HUMAT DAN ASAM FULVAT PADA LAHAN PERTANAMAN JAGUNG (*Zea mays* L.) TAHUN KE-34 DI POLITEKNIK NEGERI LAMPUNG**

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Asam humat adalah komponen terpenting dari senyawa humus karena membantu mengemburkan tanah, dan membantu transfer nutrisi dari tanah ke tanaman, serta meningkatkan retensi kandungan air, dan memacu pertumbuhan mikroba di dalam tanah. Asam fulvat berperan dalam melarutkan sisa-sisa pupuk kimia, memperbaiki tanah dan mengatur aktivitas mikroorganisme tanah. Olah tanah konservasi (OTK) merupakan cara penyiapan lahan yang dapat mengurangi kehilangan tanah dan air karena erosi dan penguapan dibandingkan dengan cara-cara penyiapan lahan secara konvensional. Penelitian ini bertujuan untuk mengetahui pengaruh sistem olah tanah dan pemberian pupuk nitrogen jangka panjang pada pertanaman jagung terhadap kandungan asam humat dan asam fulvat tanah, serta mengetahui interaksi antar sistem olah tanah dan pemupukan nitrogen jangka panjang terhadap asam humat dan asam fulvat tanah. Faktor pertama adalah sistem olah tanah yaitu T1= olah tanah intensif, T2= olah tanah minimum, T3= tanpa olah tanah, dan faktor kedua adalah pemupukan nitrogen yaitu N0= tanpa pemupukan dan N2= pemupukan 200 kg N/ha. Data yang diperoleh diuji homogenitasnya dengan uji Bartlett dan aditifitasnya diuji dengan uji Tukey dan dilakukan analisis ragam kemudian dilanjutkan dengan uji BNT taraf 5%. Hasil menunjukkan bahwa olah tanah minimum berpengaruh nyata mampu meningkatkan kadar asam humat dibandingkan pada tanpa olah tanah intensif, sedangkan sistem olah tanah tidak berpengaruh nyata terhadap kadar asam fulvat tanah pada kedalaman tanah 0-5 cm, 5-10 cm, dan >10 cm. Pemberian pupuk nitrogen (N) mampu meningkatkan kadar asam humat dan asam fulvat di dalam tanah, dibandingkan tanpa pemberian pupuk nitrogen. Pada sistem olah tanah dan pemupukan nitrogen memiliki interaksi pada kedalaman 0-5 cm, dan 5-10 cm. Pada kedalaman 0-5 cm dan 5-10 cm olah tanah minimum dengan tanpa pemupukan nitrogen nyata meningkatkan kadar asam humat, sedangkan pada tanpa olah tanah dengan pemupukan nitrogen nyata meningkatkan kadar asam humat.

Kata kunci : Asam humat, asam fulvat, sistem olah tanah, pemupukan nitrogen

## **ABSTRACT**

### **THE EFFECT OF SOIL CULTIVATION SYSTEM AND LONG-TERM NITROGEN FERTILIZER ON HUMIC AND FULVIC ACID CONTENT IN 34TH YEAR OF CORN (*Zea mays* L.) PLANTATION AT POLYTECHNIC STATE OF LAMPUNG**

**Bunga Kartini**

Humic acid is the most important component of humus compounds because it helps loosen the soil, and helps transfer nutrients from the soil to the plants, as well as increases the retention of water content, and stimulates the growth of microbes in the soil. Fulvic acid plays a role in dissolving the remains of chemical fertilizers, improves soil and regulates the activity of soil microorganisms. Conservation tillage (OTK) is a land preparation method that can reduce soil and water loss due to erosion and evaporation compared to conventional land preparation methods. This study aims to determine the effect of tillage system and long-term application of nitrogen fertilizer in corn plantations on soil humic acid and fulvic acid content, and to determine the interaction between tillage system and long-term nitrogen fertilization on soil humic acid and fulvic acid. The first factor is the tillage system, namely T1 = intensive tillage, T2 = minimum tillage, T3 = no tillage, and the second factor is nitrogen fertilization, namely N0 = no fertilization and N2 = 200 kg N/ha fertilization. The data obtained was tested for homogeneity with the Bartlett test and its activity was tested with the Tukey test and an analysis of variance was carried out then continued with the BNJ test at 5% level. The results showed that minimum tillage had a significant effect on increasing humic acid levels compared to no intensive tillage, while the tillage system had no significant effect on soil fulvic acid levels at soil depths of 0-5 cm, 5-10 cm and -10 cm. Application of nitrogen (N) fertilizer can increase the level of humic acid in the soil, compared to no application of nitrogen fertilizer. The application of nitrogen (N) fertilizers is also able to increase the levels of fulvic acid in the soil than without nitrogen fertilization. In tillage systems and nitrogen fertilization interactions occur at a depth of 0-5 cm, and 5-10 cm. At a depth of 0-5 cm and 5-10 cm minimum tillage without nitrogen fertilization significantly increased humic acid levels, whereas at no tillage with nitrogen fertilization significantly increased humic acid levels. In the nitrogen fertilization of the tillage system significantly increased levels of humic acid compared to without nitrogen fertilization.

Keywords : Humic acid, fulvic acid, tillage system, nitrogen fertilization