LAND USE AND CROP AGES AND CLONES OF CAVENDISH BANANA AFFECT ABUNDANCE OF PLANT PARASITIC NEMATODE IN PT NTF PLANTATION LAMPUNG

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ABSTRACT

Plant parasitic nematodes can be pestiferous to banana. The nematodes attack root and cause disturb of water transportation and nutrient translocation. The aim of this research was to study the effect of land use age, crop age, clones of Cavendish banana and properties of soil on abundance of plant parasitic nematodes. Nematodes survey was conducted in PT NTF banana plantation on February 2014. Soil and root samples are taken from several ranges of land use (3-5 years, 10-12 years, and 17-19 years) and crop ages (1-3 months, 4-6 months and 7-9 month) after planting. Nematodes from 200 cc of soil or 50 g of roots were extracted by modificated Baerman method. The data were analyzed by ANOVA in randomized completely design. Least Significant Different test at 5% level was use to separate the mean of data. The quadratic models were applied to measure the relationship between of soil factors and nematode abundance. The result shows that sixteen genera of plant parasitic and nine genera of free-living nematodes were found associated with Cavendish banana in PT NTF plantation. Six genera of plant parasitic nematodes (Radopholus, Pratylenchus, Meloidogyne, Helicotylenchus, Hoplolaimus, and Scutellonema) showed high prominence values. Among them, Radopholus and Pratylenchus had higher absolute population and frequency. The land use ages and crop ages influence Radopholus and Pratylenchus abundance. The abundance of those two genera were higher on the 3-5 years old than that on the 17-19 years old land. The abundance of Radopholus and Pratylenchus abundance was also higher on the 4-6 month or 7-9 month than that on 1-3 month old Cavendish banana. The Pratylenchus abundance was higher on clones CJ20 and CJ30 than that on DM2 clones of Cavendish banana. The variation of soil factors has a low contribution to variation of plant parasitic nematodes abundance (soil water content: 0.2-15.9%, soil temperature: 1.5-10.1%, soil organic matter (C-org): 1.7-31.7 %, and pH: 0.0-22.3%).

Keywords: plant parasitic nematodes, Cavendish banana, land use ages, crop ages