

Characterization of soil ciliates diversity in upland soils treated with cattle manure slurry using small subunit rDNA sequence analysis

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Over the past few years, the use of molecular techniques to detect cultivation-independent, protistan diversity has proven to be a powerful approach. We compared the species composition of the ciliate community in four soil samples with different levels of slurry application (300, 150, 60, and 0 tonnes per hectare per year) in 2005 and 2006. For each soil samples, the total DNA was extracted and used to construct an SSU rRNA gene clone library after nested PCR amplification of a ca. 600-bp fragment. The ciliate communities were estimated by random sequencing of several clones per library. Our results show that ciliate diversity is very high. Most of the sequences corresponded to the Colpodea and Spirotrichea taxon groups (class). We showed that our molecular approach could be able to estimate and compare the ciliate species composition of soil samples. Changes in species composition of these communities were found, but no evident increase in the diversity. These changes did not depend on different levels of slurry application.