

## Species composition of soil ciliates and their population size and biomass in upland soils treated with slurry

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### SUMMARY

It has often been pointed out that protozoan ciliates might play important roles in the soil ecosystem. However, we have little information about the soil ciliate community. The main reason for this might be that there is no suitable method for detecting ciliates in soil samples or for estimating the number of individuals and/or their biomass. We previously proposed a modified MPN method, the MPN-SIPs method, to analyze ciliate communities in terrestrial habitats (Takahashi et al., 2003). The MPN-SIPs method estimates not only ciliate population size but also the faunal composition and the biomass of each ciliate species. However, whether this method can detect soil ciliates more efficiently than the MPN method has not been verified. We therefore estimated the number of ciliate individuals in each of four soil samples with different levels of slurry application (300 t/ha/0.5 y, 150 t/ha/0.5 y, 60 t/ha/0.5 y, and 0 t/ha/0.5 y) using both methods. In all samples, when the MPN-SIPs method was used we detected 7–10 times as many individuals as when the MPN method was used. These results indicate that the MPN-SIPs method is more suitable for analyzing the soil ciliate community than the MPN method.