



The effect of soil fauna on carbon sequestration in soil.

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We used set of laboratory and field experiments to explore long term effect of soil fauna on litter decomposition and carbon sequestration in soil. In laboratory experiment microbial respiration increased after defecation, by litter feeding bibionid larvae but later, microbial respiration decreased dramatically over several hours and quickly reached lower value than respiration of original litter. Incorporation of excrement in soil, caused lower increase of respiration than incorporation of litter or even decreased soil respiration. In litterbag soil macrofauna excrement decompose more slowly than leaf litter over one year. In laboratory and field experiment presence of macrofauna and particularly earthworms did not increased mineralization of litter but its removal from litter layer and accumulation in topsoil. Comparison of different types of forest planted on one heap after coal mining indicates no correlation between litter input and soil C storage. In the contrary strong positive correlation was found with worm density and micromorphological evidence of bioturbation. These findings indicate that soil fauna may short term accelerate litter mineralization in but in long term it may also support C storage in soil.