Geophysical Research Abstracts
Vol. 17, EGU2015-14774, 2015
EGU General Assembly 2015


# The role of Armadillidium vulgare (Isopoda: Oniscidea) in litter decomposition and soil organic matter stabilization

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Armadilidum vulgare is common terrestrial isopod in Europe which is also important invasive species in North America. In ienvasive range it can reach densities up to 10 000 individuals per m square, consume all litter fall and substantially effect litter mineralisation and nutrient release. Here we are focusing on the effects of A. vulgare feeding on organic matter decomposition and stabilization. During 65 weeks laboratory experiment we observed the microbial activity of intact leaf litter (Acer pseudoplatanus), faecal pellets of terrestrial isopods (Armadillidium vulgare) produced from the same litter and unconsumed residues of this litter. Simultaneously we compared the response of microbial activity of excrements and litter to changes of humidity, temperature and addition of easily decomposable substances.

Microbial respiration of faecal pellets was lower than microbial respiration of intact leaf litter or unconsumed litter residues. At the same time moisture and temperature fluctuations and addition of easily decomposable substances led to much higher increase in respiration in litter than in faecal pellets. As a conclusion, processing of litter by soil macrofauna slowed down microbial respiration and made it less sensitive to environmental fluctuation. 13C NMR spectra from excrements indicated preferential loss of polysaccharide-carbon and accumulation of lignin with some modification to the O-aromatic-C. Thermochemolysis showed that not only amount of lignin increased in litter but also its quality changed. Guaiacyl units were depleted, which indicate breakdown of guaiacyl associated with gut passage.