

Annual Congress on

SOIL SCIENCES

December 04-05, 2017 | Madrid, Spain

Influence of N addition on home-field advantage of litter decomposition in subtropical forest soils

Xingjun Tian and Hong Lin
Nanjing University, China

The home-field advantage (HFA) postulates that litter decompose faster in its home habitat than in other habitats. However, the HFA of litter decomposition appears to be highly variable, and the effects of environmental conditions on HFA have rarely been investigated. Thus, in this study, we performed a reciprocal litter transplant experiment using coarse and fine mesh litterbags under nitrogen (N) addition treatments in the soils of a subtropical coniferous forest dominated by *Pinus massoniana* and a broad-leaved forest dominated by *Quercus variabilis*. Results showed no significant difference in decomposition between the two dominant litters in the fine-mesh litterbags at home and away habitats under control and N addition plots. *P. massoniana* litter in the coarse-mesh litterbags decomposed twice as fast at home than in away habitats under N addition. The result suggests a positive HFA effect in the coniferous forest soil under N addition, but no significant HFA effect was observed in the control plots. N addition did not enhance *Q. variabilis* litter decomposition in the home habitat. The positive HFA effect of *P. massoniana* litter in the coarse-mesh litterbags in N addition plots was associated with more abundant soil fauna than in the control plots. However, N addition had no significant effect on the activity of most soil enzyme during litter decomposition. Moreover, soil microbial biomass showed no relationship with the HFA of litter decomposition. Our findings suggest that N addition likely enhances the feeding activity of soil fauna by increasing fauna abundance. This further reinforces the habitat specificity of soil mesofauna in coniferous forests, resulting in a positive HFA of *P. massoniana* litter decomposition. C and N cycling in coniferous forest may be enhanced by N addition, and coniferous forest management should be suitable for this change.

tianxj@nju.edu.cn