

凋落物与单宁酸对森林土壤无机氮的影响

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Effects of litters and tannin on forest soil inorganic nitrogen.

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摘要

采用室内培养试验,研究了不同凋落物和单宁酸对森林土壤硝态氮和铵态氮的影响.结果表明:凋落物和单宁酸加入均降低了土壤硝态氮和铵态氮含量.杉木凋落物使红壤硝态氮和铵态氮含量分别降低6.1%~25.9%和19.7%~68.6%.杉木凋落物中黄红壤无机氮含量的降幅大于毛竹,对铵态氮的影响极显著.与对照相比,单宁酸处理能显著降低黄红壤中铵态氮含量,单宁酸浓度越高,其降幅越大,至高浓度(HG)时,其降幅达31.9%~57.8%.随着培养时间的延长,低浓度单宁酸处理(HL)中硝态氮含量降幅逐渐增大,第84天达到4.5%;在HG处理下,第7~28天的硝态氮含量增加了10.3%~18.5%,而第56和85天分别降低23.9%和42.3%.

关键词: 凋落物 单宁酸 硝态氮 铵态氮 森林土壤

Abstract:

A laboratory incubation test was conducted to study the effects of litters and tannin on forest soil nitrate- and ammonium N. The addition of litters and tannic acid made the soil nitrate- and ammonium N decreased. With the addition of fir litter, the nitrate- and ammonium N contents in red soil decreased by 6.1%-25.9% and 19.7%-68.6%, respectively, and the decrements in yellow-red soil were higher than those with the addition of bamboo litter, being significant for ammonium N. Compared with the control, the addition of tannin decreased the ammonium N content in yellow-red soil significantly, and there was a positive correlation between the concentration of added tannin and the decrement of soil ammonium N content. When the concentration of added tannin was high, the decrement of the ammonium N reached 31.9%-57.8%. With the addition of low concentration tannin, the soil nitrate N content decreased with time, and the decrement on the 84th day reached 4.5%. However, the addition of high concentration tannin increased the soil nitrate N content by 10.3%-18.5% in the first 7-28 days, but decreased it by 23.9% and 42.3% on the 56th and 85th day, respectively.

Key words: litter tannin nitrate nitrogen ammonium nitrogen forest soil

引用本文:

. 凋落物与单宁酸对森林土壤无机氮的影响[J]. 应用生态学报, 2011, 22(01): 61-65.

. Effects of litters and tannin on forest soil inorganic nitrogen.[J]. Chinese Journal of Applied Ecology, 2011, 22(01): 61-65.

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