

研究报告

温带红松阔叶混交林凋落叶与主要大型土壤动物热值的季节变化

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摘要 对温带红松阔叶混交林不同种类凋落叶、混合凋落叶和主要大型土壤动物的干质量热值及季节变化规律进行了研究. 结果表明: 不同种类凋落叶和3种大型土壤动物的干质量热值不同, 且其季节变化规律存在一定的差异. 红松凋落叶的干质量热值平均值最高 (19.71 kJ·g⁻¹), 枫桦 (18.22 kJ·g⁻¹)、紫椴 (18.13 kJ·g⁻¹)、混合凋落叶 (17.91 kJ·g⁻¹) 居中, 水曲柳 (16.94 kJ·g⁻¹) 和色木槭 (16.25 kJ·g⁻¹) 最低. 红松和色木槭凋落叶干质量热值随凋落叶分解进行呈逐渐降低趋势, 水曲柳凋落叶干质量热值季节变化较小, 而紫椴、枫桦和混合凋落叶干质量热值次年有上升的趋势. 大型土壤动物中, 蜈蚣 (22.07 kJ·g⁻¹) 的干质量热值最高, 蚯蚓 (16.72 kJ·g⁻¹) 次之, 马陆 (13.28 kJ·g⁻¹) 最低. 蚯蚓和马陆干质量热值的季节变化规律一致, 蜈蚣干质量热值的季节变化规律则有所不同. 凋落叶和3种大型土壤动物干质量热值的季节变化之间没有明显的相关性.

关键词 [热值](#) [大型土壤动物](#) [凋落叶](#) [季节变化](#) [红松阔叶混交林](#) [温带](#)

分类号

Seasonal variations of calorific values of *Pinus koraiensis*- broadleaved mixed forest litters and soil macrofauna in China temperate zone.

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Abstract

In this paper, the calorific values of *Pinus koraiensis*-broadleaved mixed forest litters and soil microfauna in China temperate zone were determined, with their seasonal variation patterns studied. The results showed that both the calorific values and their seasonal variation patterns were differed with the kinds of tree species litters and soil macrofauna in the mixed forest. The mean gross calorific value (GCV) of *P. koraiensis* litter was the highest (19.71 kJ·g⁻¹), followed by *Betula costata* (18.22 kJ·g⁻¹), *Tilia amurensis* (18.13 kJ·g⁻¹), mixed litter (17.91 kJ·g⁻¹), *Fraxinus mandshurica* (16.94 kJ·g⁻¹), and *Acer mono* (16.25 kJ·g⁻¹). With the decomposition of litter, the GCV of *P. koraiensis* and *A. mono* litters decreased, while that of *F. mandshurica* litter had little change. The GCV of *T. amurensis* and *B. costata* litters presented an increasing trend in the next year of decomposition. Among the marofauna, scolopendra had the highest GCV (22.07 kJ·g⁻¹), followed by earthworm (16.72 kJ·g⁻¹) and diplopod (13.28 kJ·g⁻¹). Earthworm and diplopod had the identical seasonal variation pattern of GCV, while scolopendra was different from them. There was no significant relationship between the seasonal variation of GCV in litters and soil macrofauna.

Key words [calorific value](#) [soil macrofauna](#) [litter](#) [seasonal variation](#) [Pinus koraiensis-broadleaved mixed forest](#) [temperate zone](#)

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