

## Soil Respiration Rate of Laurel-Leaved and *Cryptomeria japonica* Forests

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**Abstract :** We assessed the ecology of the organic and mineral soil layers of laurel-leaved (BB-1) and *Cryptomeria japonica* (BB-2 and Pw) forests in the Kasugayama Hill Primeval Forest (Nara, Japan). The soil respiration rate was higher in the deeper horizons (F and H) of organic layers than in those of mineral soil layers, suggesting organic layers may be where active microbial metabolism occurs. Respiration rates in the soil of BB-1, BB-2 and Pw forests were closely similar at 5 and 10°C. However, the soil respiration rate increased in proportion to temperatures of 15°C or above. We therefore consider the activity of soil microorganisms to markedly decrease at temperatures below 10°C. At a temperature of 15°C or above, the soil respiration rate in the BB-1 organic layers was higher than in those of the BB-2 and Pw organic layers, due to differences in forest vegetation that appeared to influence several salient soil properties, particularly pH and the carbon (C) and nitrogen (N) content of the F and H horizons.

**Keywords :** forest soil, mineralization rate, heterotroph, soil respiration rate

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