Dynamics of Thinning Slash Decomposition and Nutrient Release in a Radiata Pine Plantation Forest. (S07-ganjegunte040448-Oral)

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Abstract:

The dynamics of thinning slash decomposition and nutrient release were studied over a decay period of 13 years in a radiata pine (Pinus radiata) plantation forest in New Zealand using a chronosequence approach. Changes in density were used to estimate the decay rates. Proximate analyses and 13C NMR spectroscopy were used to investigate relationships between decomposition and chemical composition. Results indicated that log wood decomposed faster than log bark which in turn decomposed faster than side branch material. Both proximate and 13 C NMR analyses showed that the faster rate of decomposition of log wood was mainly attributed to greater carbohydrate concentration, while greater concentrations of polyphenol and lignin were responsible for the slower decomposition rate of log bark. Slowest rate of decomposition of side branches was due to unfavorable microclimate and greater lignin and polyphenols concentrations. The net release of nutrients observed was attributed to a high proportion of bark in thinning slash although the concentrations of most nutrients increased with time.

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