



# Changes in Soil Microbial Population Following Decomposition of Different Litters Under Shifting Cultivation in Mizoram

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**Abstract:** Shifting cultivation is a traditional agricultural practice being carried out on steep slopes of hills by the tribal population of Mizoram. The present study aims to determine the changes in soil microbial population due to decomposition of different leaf litters (i.e., *Tephrosia candida* (Roxb.) DC, *Oryza sativa* L. and mixture of both) in two shifting fallows (FL-3 years and FL-8 years old) and under laboratory microcosm. Litter components were enclosed in nylon net bags and placed over the soil surface for decomposition in July 2019 in Tanhril village of Mizoram, and the same litter bags were placed over soil in laboratory microcosm. Four litter bags were retrieved at monthly interval for eight months, and soil beneath the litter bags were collected to determine microbial population (i.e., Bacteria, Fungi and Actinomycetes) using serial dilution method. Results of the present study indicate that soil microbial population increased initially for a period of five months of litter decomposition, and thereby a decrease was noticed. *T. candida* litter decomposed faster than other two litter types and subsequently showed higher soil microbial counts. Bacterial population was considerably higher than the populations of fungi and actinomycetes. Soil microbial diversity was significantly higher in longer fallow land than the shorter. It is concluded that *T. candida* leaf litter decomposes faster in longer fallow land due to higher microbial activity which plays an important role in soil fertility and subsequently sustainable agricultural practices in Northeast hill region of Mizoram.

**Keywords:** Shifting Cultivation, Decomposition, Microbial population, *Tephrosia candida*, *Oryza sativa*

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