

Carbon Mineralization of *Gliricidia* Leaves as Affected by Particle Size

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Decomposition and mineralization of plant material incorporated into the soil has been a subject for many researches conducted with a variety of soils. A study on *Gliricidia* leaves decomposition was conducted under laboratory conditions to elucidate the effect of grinding size of *Gliricidia* leaves ($S_1 \leq 0.5$ mm, $S_2 = 4$ mm and $S_3 = 9$ mm) on carbon mineralization after incorporation into the soil.

Carbon mineralization of the soil was found to be reached to the peak at day 14 followed by gradual reductions in all the treatments as incubation progressed. At day 5 of the incubation, S_1 had a significant ($P \leq 0.05$) effect on carbon mineralization, while S_2 and S_3 were shown to have higher carbon mineralization than that of in S_1 . Thereafter no significant ($P \leq 0.05$) differences in carbon mineralization were observed among the treatments until day 35. After 35 days of incubation, fine particles (≤ 0.5 mm) inoculated soils showed significantly ($P \leq 0.05$) higher carbon mineralization than the S_3 inoculated soils. Particle size of the *Gliricidia* leaves could significantly affect on the carbon mineralization with larger particle sizes (S_2 and S_3) performing better at the early stages of the incubation. Furthermore, it could be hypothesized that physical protection of fine particles (≤ 0.5 mm) of *Gliricidia* leaves are responsible for the relatively low rates of carbon mineralization.

Key words: Decomposition, Carbon mineralization, *Gliricidia* leaves

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