



## **Nitrogen and Carbon mineralization in soil amended with municipal solid waste compost and cattle manure**

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Nowadays, collecting, converting and returning of organic matter in wastes to farms have been considered as one method of providing necessary nutrient for crops. Organic fertilizers nitrogen, as overuse nutrient and the most important limiting factor of crops, is organic form that mineralized when added to soil. The goal of the present study was to compare municipal solid waste compost quality with cattle manure in nitrogen mineralization and its related to carbon mineralization and microbial activity. In order to, compost and cattle manure in three replication were incorporated to soil and moisture was adjusted at 85% field capacity, then incubated at 8 °C and 25 °C for 90 days, to measured mineralized nitrogen and carbon. A control treatment (soil alone) was run to determine the fertilizer induced nitrogen and carbon mineralization. The results indicated that 6.65 % nitrogen total (equal to 42.90 mg N/kg) and 9.85 % nitrogen total (equal to 75.88 mg N/kg) were mineralized during the 90 days from compost and cattle manure, respectively. CO<sub>2</sub> release rates in compost and cattle manure were 58.1% and 33.04% more than control (equal to 85.23 and 35.96 mg CO<sub>2</sub>/m<sup>2</sup> h), respectively. Nitrogen mineralization increased but CO<sub>2</sub> production decreased during the incubation. It seems that, organic nitrogen in compost was recalcitrant kind with low mineralization rate.

**Keywords:** mineralized nitrogen and carbon, organic fertilizes, CO<sub>2</sub> release, municipal solid waste and incubation

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