ecovery of *S. platensis*. The species was grown in Zarrouk liquid medium adjusted to pH 7.0 at 25 ^{0}C. At the exponential growth phase, algal mass was harvested and resuspended in fresh medium to be used in metal treatments. Algal suspensions were treated with various initial Pb^{2+} concentrations (1, 5, 10, 25 and 50 µg/mL) and incubated for 10 days. The algal cells without Pb^{2+} in the medium served as the control. The growth was monitored by measuring the optical density at 560 nm. At day 10, the algal cells were separated, washed and resuspended in fresh Zarrouk medium (free from Pb^{2+}) to assess metal stress recovery. Experiments were conducted in triplicate and repeated twice to confirm the reproducibility of the results.

Exogenous addition of lead showed varying toxicity to *S. platensis*. At a low concentration (1 µg/mL), Pb^{2+} possitively influenced the growth by 2.6 %. However, at higher concentrations, the growth was adversly affected and the extent of toxicity increased with increasing Pb^{2+} concentration in the medium. The inhibitions at 10 d were 5, 40, 49 and 78 % respectively for 5, 10, 25 and 50 µg/mL of Pb^{2+}. Once introduced to the Pb^{2+} free medium, all the cultures were found to grow well irrespective of the severity of the initial stress. However, cultures treated with high concentrations of Pb^{2+} were slow to recover from the transferring shock. Results could be concluded that *S. platensis* is quick to recover from the initial metal stress.

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Effect of different mixtures of vermicompost and coir dust on soil microbial activity

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Vermicompost is a nutrient-rich, natural fertilizer and soil conditioner. Coir dust, on the other hand, is a widely used component in potting media, despite its poor nutrient contents. A mixture of these two ingredients could thus provide a better growing media for plants. The present laboratory study was undertaken to assess the effect of different mixtures of vermicompost and coir dust on soil microbial activity as measured by carbon mineralization.

Four different vermicompost and coir dust mixtures [100 % vermicompost (T1), 75 % vermicompost : 5 % coir dust (T_2), 50 % vermicompost : 50 % coir dust (T_3) and 25 % vermicompost : 75 % coir dust (T_4)] were applied to the soil. The control soil was free from vermicompost and coir dust (T_5). A Completely Randomized Design (CRD) was used in the experiment with four replicates. Carbon mineralization was determined at 3, 7, 14, 21, 28, 35, 42, 49, 56, 63 and 70 days after the treatments. Data were statistically analyzed using SAS package.

Results at day three showed no significant ($P \leq 0.05$) variation among the treatments. However, treatments T1, T2 and T3 were significantly ($P \leq 0.05$) different from the control at day 7 and treatments T2 and T3 were significantly ($P \leq 0.05$) different at day 14. Since then, significant ($P \leq 0.05$) differences were no longer observed for any treatment until the end of the incubation. In contrast, treatment T2 exhibited higher carbon mineralization than any other treatment throughout the incubation. Results could therefore be concluded that T2 was proved to be the best mixture to enhance the microbial activity.

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two sites (P= 0.110). A significant difference of molluscan frequency found between the two sites (P=0.025) resulted in a higher prevalence paramphistomiasis in village reared buffaloes.

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Mineralization and release of inorganic nitrogen in soils amended with animal manure

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Animal manures are generally assumed to provide a readily available source of nitrogen to crops. Information on the release of nitrogen and other nutrients from animal manure is vital to adopt crop nutrient management systems that minimize the use of chemical fertilizers and increase the productivity of soil. Mineralization and release of inorganic nitrogen was determined for three different animal manures in a laboratory incubation experiment. The soil used for the incubation was an Ultisol (Hapludults) with a loamy sand texture. Dried and ground manure of cattle, goat and poultry were allowed to decompose in soil for 12 weeks at the rate of 5 MT/ha (dry matter). A control soil treatment with no amendments was also included in the experiment for comparison. Soil was analyzed periodically for inorganic/available nitrogen (NH_4^+-N and NO_3^--N).

Application of animal manure influenced the amount of inorganic/available N in soil. The release of NH_4^+-N was high at the start of the incubation in all treatments and gradually decreased with the incubation period. The highest NH_4^+-N content, on average, was observed in the soil amended with poultry manure followed by goat and cattle manure/dung, respectively. Amount of NH_4^+-N in poultry manure amended soil ranged from 4 – 25 mg/kg soil while ranges for cattle and goat manure were 2 – 17 and 3 – 22 mg/kg soil, respectively. As expected, the control soil recorded a low level of NH_4^+-N (a range of 2 – 13 mg/kg soil) compared to manure amended soils.

In general, poultry manure amended soil recorded the highest NO_3^--N content while the control soil recorded the lowest NO_3^--N content at the end of the incubation period. Mineralization and release of nitrogen varied among animal manure used in the incubation and poultry manure had the highest and rapid release of nitrogen followed by goat and cattle manure/dung. The amount of NO_3^--N in poultry manure amended soil ranged from 26 – 72 mg/kg soil while ranges for cattle and goat manure were 12 – 35 and 18 – 49 mg/kg soil, respectively. The control soil had a NO_3^--N range of 13 – 17 mg/kg soil during the incubation. Results of this study indicate that animal manure is a good provider of N for crop growth and the release of nitrogen from different types of animal manure could be synchronized with crop growth to minimize the usage of chemical fertilizers and N losses from soil. NO_3^--N in soil amended with animal manure increased up to 12 weeks of incubation indicating the continued mineralization and accumulation of NO_3^--N in soil.

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