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Conference Abstract

Microbial biomass has a key role in immobilization of organic nitrogen in Russão II cave (Goiás, Brazil).

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Abstract

Trophic gradient (dissolved organic carbon (DOC); total nitrogen (TN)) and carbon and nitrogen of microbial biomass (MBC and MBN) were analyzed in Russão II cave (Brazil - 14º05'05.3"S 46º23'07.1"W). Two areas inside of the cave (Twilght Zone – TZ; Dark Zone – DZ) and one in surface (Epigean – Epg) were sampling. Microbial assimilation was evaluated by microbial quotient (MBC/DOC = qMic) and C/N microbial biomass ratio. Student's t test was applied to verify significant difference data. There was a significant difference in DOC, TN and MBC in the three areas. The DOC ranged from 74.25 to 165.27 g kg-1, while TN ranged from 0.10 to 0.15 g kg-1. The highest DOC values were observed in Epg followed by TZ and DZ areas, respectively, evidencing a trophic gradient. DZ area showed the highest TN values, probably due to guano accumulation inside the cave. The most abundant element in guano is nitrogen (about 12%). Higher MBC values in Epg (812.63 mg Kg-1) and MBN values in DZ (83.25 mg Kg-1) were observed. However, there was not a significant difference in relation to MBN at the studied areas. The qMic and C/N were lower in DZ area. Vegetation presence all year in Epg influences the yield and quality of litter, thereby contributing to higher MBC levels. Microbial biomass is an important source of organic nitrogen which has been demonstrated by small variation among MBN and TN. qMic reflects the relation between microbial and organic carbon, suggesting a lower immobilization of DOC in microbial biomass and a higher rate of carbon mineralization. A lower immobilization rate of MBC in relation to MBN is also evidenced by

the lower C/N. Microbial biomass is an important pool of organic nitrogen considering this lower ratio between C / N biomass and the largest amount of MBN inside the cave.

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