

## SOIL MICROBIAL BIOMASS IN GRASSLAND AREAS IN THE SUB REGION NHECOLANDIA, PANTANAL SUL MATO-GROSSENSE.

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The soil microbial biomass (SMB) can be defined as a part of the organic matter soil constituted by living organisms, can be considered an index for gauging the soil quality. The present work aimed to evaluate the microbial activity from the carbon estimates of its biomass in different grassland areas and sets of conservation. The samples were collected in the three different grassland areas (a good conservation grassland area 19; a bad conservation grassland area 13; and area without human interference Reserve) of the Nhumirim farm, localized in the sub region Nhecolândia, Pantanal Sul Mato Grossoense. In those areas were collected 150g of surface layer soil (0 - 10cm), under the dominant vegetation from each point in triplicate. To evaluate the carbon and the microbial biomass activity were used the fumigation extraction method where it determined the carbon of the soil microbial mass. In general the reserve and the grassland area 19 submitted the highest values of C-SMB being respectively 125,12 mg C kg<sup>-1</sup> soil; 58,30 mg C kg<sup>-1</sup> soil. The reserve has greater diversity of plants, thus being its a balance environment which afforded less stress on the SMB, resulting in a higher concentration of microbial biomass. For the grassland area 13 it was observed the slightest value compared with the two areas 28,18 mg C kg<sup>-1</sup> soil. Those results are compatible with the state of conservation of each grassland area. On the case, of greatest intensity on the grassland they favor a smaller leaf area to capture solar radiation. With the smallest radiation intercepted, smallest is the plant growth, both aerial part as the root system and with this, the mass of roots in the different treatments is affected. As higher presence of roots (with greater intensity of pasture), greater should be the exudation of organic compounds, which can promote increased of the SMB, once the exudates compounds serve as energy source for microorganisms. It may be concluded that the grassland area 19 to possess a reasonable amount of root mass and in this way some organic matter deposited in soil still has the best conditions for developing of the SMB than the grassland area 13. The sample of the reserve, used as the reference, always presented a higher value for the analyzed attribute, this being the most suitable for the comparison of the SMB estimate.

**Keywords:** organic matter, carbon, bioindicators

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