

## Influence of Agricultural Crops on Hydrolase Activity in Brazilian Cerrado Soils

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**INTRODUCTION:** The Brazilian Cerrado has edafoclimatic conditions that are favorable for agriculture and consequently has been deforested and converted to sugarcane, soybean and corn crops. However, the use and management of soil cause changes in the microbial community, thus in nutrient cycling, which is mediated by extracellular enzymes. **OBJECTIVES:** In the present study evaluated the influence of crops on hydrolase activity that participate in the carbon cycle, nitrogen and phosphorus. **MATERIAL AND METHODS:** Soil samples of native Cerrado, soy, maize and sugarcane areas were collected at a depth of 0-10 cm in the southern region in the state of Goiás, Brazil. The samples were analysed about the chemical and biochemical characteristics (microbial biomass carbon, MBC) and  $\alpha$  and  $\beta$ -glucosidase, acid phosphatase, glycine aminopeptidase and protease). Analysis of Person correlation, multivariate analysis (MANOVA One-way) and *a posteriori* test ( $T^2$  Hotelling) at a significance level of 5% were performed. **RESULTS AND DISCUSSION:** The content of organic matter, total organic carbon, total nitrogen and the biomass carbon were found in greater proportion in natural ecosystems, while the lowest values were observed in monoculture crop systems. The study revealed that the hydrolase activity varies significantly among the different land uses and was higher in native Cerrado soils in comparison to the agricultural areas, highlighting the negative impact of land use for the quality of this ecosystem. The relationship among MBC and organic matter ( $p = 0.0034$ ), MBC and total nitrogen ( $p = 0.0203$ ) and MBC and total organic carbon ( $p = 0.0035$ ) were positive, showing their importance for the biological activity of the soil. **CONCLUSION:** These results show that changes in vegetation cover and management systems affect the biological activity in the soil and the replacement of native vegetation by agricultural systems has caused impacts on the soil ecosystem.

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