Enzymes are responsible for nutrients cycling and decomposition in the soil, making them available to plants and other organisms. β-glucosidases (EC 3.2.1.21) are one of the most frequently encountered in soils and are involved in the degradation of cellulose derivatives. By their abundance, these enzymes are considered as an indicator of soil fertility. This study was conducted at the Environmental Education Interpretive Trail "Trilha do Tatu", located at the Universidade Estadual de Goiás, Anápolis, Goiás, Brazil. Soil samples were collected in the following vegetation types: Cerrado "stricto sensu", forest (Cerradão) and Pasture, in different seasons, at a depth of 0-15 cm. The enzymatic activity was measured using p-nitrophenyl-β-D-glucopyranoside as substrate. The results suggest that the production of this enzyme in the soil is closely related to the amount of organic matter present especially in the forest (16.8 U). The area of Cerrado sensu stricto, with low vegetation index during the dry season, presented the lowest β-glucosidase activity (3.6 U). In the rain season, due to the vegetation coverage increasing, the area of Cerrado sensu stricto (10 U) showed β-glucosidase activity higher than the soil collected from the pasture (6.3 U). The activity of the enzyme β-glucosidase seems to be sensitive to climatic conditions and soil chemical composition. It is important to understand a number of processes that occur in soil, including the monitoring of polluting and degrading activities.

Keywords: Carbon cycle, hydrolase, soil enzymes
Supported by: CNPq and CAPES