



**I INTEGRATIVE INTERNACIONAL CONGRESS  
ON ANIMAL AND ENVIRONMENTAL HEALTH**

## **ENZYMATIC ACTIVITY OF ANTHROPOGENIC TERRA PRETA BACTERIA**

I Integrative International Congress on Animal and Environmental Health, 1ª edição, de 25/06/2024 a 28/06/2024  
ISBN dos Anais: 978-65-5465-100-4

**PEIXOTO; Andreza da Silva Peixoto<sup>1</sup>, FERREIRA; Jamilis Barros Ferreira<sup>2</sup>, MASCARENHAS; Carla dos Santos Mascarenhas<sup>3</sup>, GUSMÃO; Jandria Gabriela Vieira Gusmão<sup>4</sup>, TERCETI; Mateus de Souza Terceti<sup>5</sup>, FERNANDES; Graciene do Socorro Taveira<sup>6</sup>**

### **RESUMO**

Microorganisms are currently one of the most important sources of raw materials used in biotechnological processes. Among the bioproducts that bacteria can generate are enzymes and proteins with special structures involved in various biochemical processes. Among the enzymes of commercial interest currently most sought after are protease, amylase, cellulase, and pectinase, among others, and all with great possibility of application in the most diverse areas of industry. This study aimed to evaluate the enzymatic activity of bacterial strains isolated from Anthropogenic Terra Preta (TPA) soil. For this, soil samples were collected in the Community of Salgado, in the municipality of Oriximiná/PA. The strains were characterized using Gram staining and are being identified using molecular biology. For enzymatic potential tests, the production of three types of enzymes, amylase, cellulase, and protease, was verified using specific means for each. The enzymatic activity was verified by the formation of hydrolysis halos around the colony of each strain, and the relationship between the diameter of the hydrolysis halo and the diameter of the colony of each strain determined the enzymatic index. Twenty-seven strains were tested, with amylolytic activity detected in 66.7% (n=18), cellulolytic activity in 40.7% (n=11), and proteolytic activity in 92.6% (n=25) of the strains evaluated. Furthermore, it is noteworthy that 9 strains were positive for the three enzymes of interest. Therefore, it is emphasized that biotechnological prospecting involving microorganisms from Amazonian soils can enable alternative bioproducts with new and potential sources of use and contribute to preserving biodiversity. Funding source: Coordination for the Improvement of Higher Education Personnel (CAPES) Financing Code 001" and process 2022/1437972 FAPESPA/CNPq

**PALAVRAS-CHAVE:** Enzymes, Microorganisms, Terra preta, Amazon

<sup>1</sup> Universidade Federal do Oeste do Pará, andrezapeixoto9@gmail.com

<sup>2</sup> Universidade Federal do Oeste do Pará, milisbarros@gmail.com

<sup>3</sup> Universidade Federal do Oeste do Pará, carla.mascarenhas@outlook.com

<sup>4</sup> Universidade Federal do Oeste do Pará, jandriagabriela@outlook.com.br

<sup>5</sup> Universidade Federal do Oeste do Pará, mateusterceti@gmail.com

<sup>6</sup> Universidade Federal do Oeste do Pará, gracienefernandes@hotmail.com