

# ISOLATION AND CHARACTERIZATION OF CELLULOLYTIC BACTERIA FROM UNDERGROWTH SOILS IN THE ADAMAOUA REGION (CAMEROON)

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## **Abstract**

*Cellulases are enzymes that hydrolyze the  $\beta$ -1,4-glycosidic bonds of the cellulose polymer into smaller oligosaccharides and glucose. Today, bacterial cellulases are attracting growing interest due to their potential industrial applications in the detergent, textile, pulp and paper, biofuel and compost industries. The aim of the present study was to characterize cellulolytic bacterial strains isolated from the soils of several woodland ecosystems in the Adamaoua region. To this end, twelve (12) soil samples were taken in five (05) departments with forested ecosystems in the Adamaoua region (Vina, Mbéré, Mayo Banyo, Djerem, Faro and Déo). A total of thirty-five (35) strains were obtained from these samples and screened for cellulolytic activity on Carboxymethylcellulose (CMC) agar. After screening, twenty (27) isolates were able to utilize cellulose as the sole source of carbon and energy by revealing Congo Red decolorization halos on CMC medium. The hydrolysis rate of these strains ranged from 1.65 to 6.65. The strains with the best cellulolytic activity were I<sub>2</sub>, I<sub>3</sub>, A<sub>3</sub>, A<sub>4</sub> and H<sub>2</sub>, with halos ranging from 3.42 to 6.65 respectively. These strains were obtained from the following districts : Lycée Classique et Moderne in Ngaoundéré (Vina) and the Djoumbal and Pedeng districts in Bagno, Mayo Banyo department. This work leads to the conclusion that the undergrowth soils of the Adamaoua region are sources of cellulase-producing cellulolytic bacteria, and their valorization deserves to be investigated.*

**Key words:** *Cellulolytic bacteria; undergrowth; enzymatic activity ; Adamaoua*