

**Title: CHARACTERIZATION PHYTOCHEMISTRY AND ANTIOXIDANT AND ANTIMICROBIAL ACTIVITIES OF BAST ETHANOLIC EXTRACT FROM PLANT *Ouratea hexasperma***

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**ABSTRACT**

*Ouratea hexasperma* (A. St.-Hil.) Bail var. *planchonii* Engl. (Ochnacea), popularly known as "cerrado barbatimão" is a very common plant in the Brazilian cerrado region and has been used for the treatment of microbial infections and inflammation. Therefore, this study aimed to evaluate the antioxidant and antimicrobial activities of ethanol extract of the bark of *Ouratea hexasperma* (EEBOH), as well as perform their phytochemical characterization. The plant was collected in the state of Amapá and then was held extraction of dry bark through the cold maceration with 96% ethanol solution in a 2: 8 (w/v) for 1 day, forming the EEBOH. The characterization phytochemical was carried out through tests chromatic/precipitation tube and flavonoid content was measured by aluminum complexation assay using as standard curve, a quercetin (40-0.62µg/mL,  $y = 0.0214x + 0.0293$ ,  $R^2 = 0.0993$ ) and total antioxidant capacity by TEAC method (Trolox equivalent, 2.5 - 0mg/mL,  $y = 0.3297x + 0.0014$ ,  $R^2 = 0.9997$ ). Antimicrobial activity was tested EEBOH against gram-positive bacteria: *Staphylococcus aureus* ATCC 6538, *Staphylococcus aureus* methicillin-resistant (MRSA), and *Enterococcus faecalis* ATCC 29212 and gram-negative bacteria: *Pseudomonas aeruginosa* ATCC 25853 and *Escherichia coli* ATCC 8789, through the techniques of microdilution with resazurin staining to determine the Minimum Inhibitory Concentration (MIC), and grown in petri dish with subsequent counting of colony forming units (CFU) to obtain the Minimum Bactericidal Concentration (MBC). The preliminary phytochemical analysis showed the presence tannins and flavonoids into EEBOH. The flavonoid content in the extract was of  $1467 \pm 264\mu\text{g}$  equivalents quercetin/g of EEBOH. The antioxidant capacity of EEBOH by TEAC method varied in its saturation limit at 2 - 2.5mg/mL. In addition, the EEBOH also showed good antimicrobial activity, mainly against gram-positive bacteria, as *E. faecalis* and *S. aureus*, with MIC values of 1.25 and 0.65mg/mL, respectively, and MBC value of 1.25mg/ml for both species. On the other hand, the EEBOH proved inefficient to bacteria: MRSA and Gram-negative *Pseudomonas aeruginosa* (MIC: 2.5 mg/ml) and *E. coli* (MIC and MBC above of 5.0 mg/mL). Thus, we conclude that the EEBOH has excellent antioxidant activity and high polyphenols content, especially flavonoids, which may explain its antimicrobial activity against gram-positive bacteria observed in this study.

**Keywords:** *Ouratea hexasperma*, antimicrobial activities, antioxidant activities.