

## Antimicrobial Activity of *Ilex paraguariensis* Sub-Fractions after Liquid-Liquid Partitioning

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**Abstract :** *Ilex paraguariensis* (Yerba Mate) is a medium to large tree commonly consumed by South Americans. Its leaves and stems are associated with different biological activities. The purpose of this study was to evaluate the antibacterial activity of Yerba Mate against Gram-positive and Gram-negative bacterial strains and its action against some resistant bacteria with different resistance profiles. Yerba Mate aqueous extracts were prepared at 70°C for 2 hrs, and the microdilution method was used to determine the minimum inhibitory concentration (MIC). Gram-positive bacteria exhibited a stronger antibacterial activity (MIC ranged between 0.468 mg/mL and 15 mg/mL) than Gram-negative bacteria. Yerba Mate was also extracted with acetone: water (1:1) and then further sub-fractionated with hexane, chloroform, and ethyl acetate. MIC values against *Staphylococcus aureus* ranged from 0.78 to 2.5 mg/ml for the chloroform fraction, from 1.56 to 3.75 mg/ml for the ethyl acetate fraction, and 0.78 to 1.87 mg/ml for the water fraction. The water fraction also exhibited antibacterial activity against *Salmonella* species (MIC ranged from 1.56 mg/ml to 3.12 mg/ml). The water fraction exhibited the highest antibacterial activity among all the fractions obtained. More studies are needed to determine the molecule or molecules responsible for this activity.

**Keywords :** antibacterial activity, bacterial resistance, minimum inhibitory concentration, yerba mate

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