

ANTIMICROBIAL ACTIVITY OF GALLIC ACID EXTRACT PRODUCED BY *Penicillium rolfsii* FERMENTATION

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An antimicrobial is a natural, semi-synthetic or synthetic agent which can eliminates or inhibits the growth of microorganisms. Gallic acid is a phenolic compound derived from the secondary metabolism of plants and can be produced by enzymatic hydrolysis of tannins by microorganisms, it has broad biological activity as antibacterial, antiviral and antifungal action. The objective of this study was to evaluate the antimicrobial activity of extract containing gallic acid obtained by *Penicillium rolfsii* fermentation against *Escherichia coli* and *Staphylococcus aureus*. The submerged fermentation was carried out to obtain the gallic acid extract using Czapek salt medium additioned of the tannic acid (9,9%) as sole carbon source and 6 mycelium plugs (1 mm) of the fungus *Penicillium rolfsii*, incubated at 30.2°C at 150 rpm and 72 h. The bacterial strains used were *Escherichia coli* ATCC 25922 and *Staphylococcus aureus* ATCC 29213. Colonies isolated on agar plate were transferred to BHI broth and maintained at 36° C until a turbidity compatible with a standard solution of McFarland 0,5 corresponding to 1×10^8 CFU/mL. The 6 mm paper discs were impregnated with 10 μ L of the gallic acid extract (23,96 mg.mL⁻¹) and plated on Mueller-Hinton agar previously inoculated with the bacterial strains. For negative control, paper discs were soaked in sterile distilled water and discs containing 30 μ g chloramphenicol were used for the positive control. After 24 h of incubation at 36° C, the diameter of the halos of inhibition around bacterial colonies was measured and evaluated in a sensitivity table. The tests were performed in triplicate. *S. aureus* and *E. coli* showed halos of inhibition from 18 to 22 mm and 16 to 18 mm, respectively. Comparing with the inhibitory halos values expected for chloramphenicol both bacterial strain were sensitive to the gallic acid extract, demonstrating the antimicrobial potential of this extract. New assays should be performed to determine the chemical constitution of the extract and to isolate gallic acid to assess its antimicrobial potential.

Key words: gallic acid, antibiogram, antibacterial

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