

TITLE: ANTIMICROBIAL ACTIVITY OF GREEN TEA (*CAMELLIA SINENSIS*) EXTRACTS.

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ABSTRACT:

Natural compounds emerge as a promising alternative to address consumer demand of clean label food without synthetic chemical preservatives. Nowadays, their use has been increased to avoid microbiological spoilage in food. Plants such as *Camellia sinensis* have high concentrations of those compounds allowing the use of their extracts as a promising ingredient. Thus, the aim of this study was to evaluate antimicrobial activity of commercial green tea extracts against strains of great importance in food. Two types of green tea samples were used: leaves sold in bulk in popular markets of the city of Salvador, Bahia; and commercial tea sachets (Hilê Indústria de Alimentos Ltda., Xanxerê, SC). As solvents, 95% cereal alcohol (D. A. Brasil Comercio de Álcool Eireli, São Paulo, SP) and distilled water were used and, then, four types of green tea extracts were produced: Bulk Leaf Hydroethanolic Extract (BLHE), Hydroethanolic Sachet Tea Extract (HSTE), Aqueous Bulk Leaf Extract (ABLE) and Aqueous Sachet Tea Extract (ASTE). Disk-Diffusion method was used with 20µL of each extract against 20 strains of *Escherichia coli*, *Salmonella* spp., *Staphylococcus* spp., *Lactobacillus fermentum* and *Lactobacillus delbrueckii*. HSTE extract have shown positive effect against 11 (55%) of strains while BLHE showed inhibition against 7 (35%). ABLE and ASTE have demonstrated no effects on strains used. Hydroethanolic extracts had great antimicrobial activity against *E. coli* isolated from ground meat and cheese, *Salmonella* spp. from beef burgers and *Staphylococcus* spp. from sausage. However, it is important to take into account the antimicrobial effect of green tea extracts against microorganisms with positive effects on foods. For example, hydroethanolic extracts also had good antimicrobial activity against *L. fermentum* and *L. delbrueckii* which are generally used in food fermentation. These results demonstrate the possibility of Green tea hydroethanolic extracts incorporation into foods aiming shelf-life improvement.

Keywords: Antimicrobial resistance; Food microbiology; Green Tea; Natural extracts.

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