

Title: ANTIMICROBIAL EFFECT OF ETHANOL EXTRACT OF LEAF NEEM (*AZADIRACHTA INDICA A JUSS*) ON *LISTERIA MONOCYTOGENES*

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Abstract:

Listeria monocytogenes is considered an emerging pathogen causing food borne diseases. In search of biocontrol pathways of food pathogens it was evaluated the antimicrobial effect of ethanol extract of leaf Neem (*Azadirachta indica A Juss*) on *Listeria monocytogenes*. The extract was obtained from Neem tree leaves. Plant material for 8 days was dried and shrink mechanically into fine particles underwent cold maceration using ethanol 96% and it stored in amber bottles for 3 days, filtered and concentrated in on rotary evaporator, to remove ethanol. 0.06 g of the crude extract was weighed and solubilized with 1 mL of dimethylsulfoxide (DMSO) analytical grade to achieve a concentration of 60 mg/mL. *Listeria monocytogenes* ICTA-12446, was inoculated into nutrient broth solutions with ethanol extract of leaf neem at different concentrations (20, 30, 40, 50 and 60 mg/L) using four contact times (2.5, 5, 10 and 15 minutes). Having completed each contact time, serial dilutions were made and inoculated on nutrient agar by extension incubated for 24 h at 37 °C. The counting of microorganisms was performed in UFC considering the number of surviving microorganisms. By comparing concentrations of the assay it is evident that there is a statistically significant difference ($p = 0.002$) between the concentrations of 20 and 60 mg/mL, while concentrations of 30, 40 and 50 mg/mL tend to have a relatively similar behavior. When comparing contact times, finding significant differences between time 2.5 min and the remaining (5, 10 and 15 minutes) ($p = 0.03$), showing no significant difference between 5, 10 and 15 minutes ($p = 0.18$). The minimum time required to observe any inhibition was 2.5 minutes, and the minimum inhibitory concentration of 20 mg/mL. In the four contact times used, you get a percentage of microbial inhibition of 100% when the concentration of 60 mg/mL is used. It is concluded that ethanol extract of leaf Neem has an inhibitory effect on *L. monocytogenes*.

Keywords: bactericidal, bacteriostatic, ethanol extract, *L. monocytogenes*, Neem