

TITLE: EVALUATION OF ANTIBACTERIAL ACTIVITY OF PLANTS EXTRACTS : A COMPARISON BETWEEN DIFFERENT TECHNIQUES OF AGAR DIFFUSION

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ABSTRACT

The research for substances capable of inhibiting the growth of microorganisms which increasingly become resistant to commercially available antibiotics has been constantly subject of research in microbiology area. Medicinal plants are an alternative for the production of these substances. Various methods can be used to evaluate the antimicrobial activity of plant extracts and the agar diffusion method is one of the most used. This method can be performed using different techniques such as disk and cavity technique. This study aimed to compare these two agar diffusion techniques in the evaluation of the antibacterial activity of medicinal plants in the Amazon. Ethanol extracts were obtained from the plants popularly known as Canarana, Rinchão, Noni and Juca and tested against the bacillus acid-resistant *Mycobacterium phlei*. Petri plates having 18 cm diameter containing 60 mL Mueller Hinton agar medium were punched with cavity of 6mm diameter and then seeded with an inoculum of *M. phlei* at a concentration of 10^7 UFC/mL. Then the cavity were filled with 20 μ L of each plant extract at a concentration of 10mg /mL. Paper disks with 6mm diameter were also impregnated with the same volume of extract at the same concentration. Disks and cavity with 20 μ L of ethanol were used as negative control, and as positive control were used commercial discs amikacin. The experiments were incubated at 36° C for 24 h and the results evaluated by formation and size of inhibition zones around the cavity and disks. It was observed that the cavity technique showed higher sensitivity in the detection of inhibitory action of plant extracts evaluated with halos of inhibition of 14mm, 12mm, 17mm and 19mm to Canarana, Rinchão, Noni and Juca, respectively. The disk technique allowed detect inhibitory action only for Juca extract with inhibitory halo of 11mm. These data show that depending on the technique used the results can differ widely, including determining inefficiency extracts with significant inhibitory potential.

KEYWORDS: PLANTS EXTRACTS, DIFFUSION AGAR, *Mycobacterium phlei*