

Examining the Antimicrobial Activity of Plant Extracts used in Traditional Medicine

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Oral Presentation Abstract:

With the increasing prevalence of antibiotic resistance, the need for novel antimicrobials is high. In Africa, local populations use native plant extracts to treat infection; however, whether or not they are antimicrobial remains largely unknown. If these plant extracts demonstrate antimicrobial activity they may prove useful in the fight against antibiotic resistance. The purpose of this project was to develop a standard method to evaluate the antimicrobial activity of extracts from eleven plant species used in traditional medicine, and to examine if these extracts inhibit growth of four different bacterial species representing various pathogen groups.

Using a modified disk diffusion assay, increasing volumes of plant extracts, antibiotic solutions, or control solutions were added to filter paper disks. These disks were then placed onto agar plates inoculated with test bacteria. The zones of inhibition were measured and additional visual growth effects were recorded.

Seven of the eleven extracts produced zones of inhibition against at least one bacterial species. This effect was dose-dependent. Of the four bacterial species tested, *E. coli*, *B. subtilis* and *S. epidermidis* had their growth inhibited by at least one extract. Interestingly, ten of the extracts had additional bio-activity that resulted in visible morphological changes in the bacteria, indicating these extracts affect growth and gene expression. This effect was produced in all four bacterial species by at least one extract. This investigation was essential in characterizing the extracts' biological properties so they may be studied further and potentially used in industrial or medical applications.

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