Antimicrobial Susceptibility Testing and Sub-Inhibitory Growth Effects of Seven African Medicinal Plant Extracts

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Poster Presentation Abstract: Novel antibiotic therapies are urgently required in light of the antibiotic resistance crisis. Antimicrobial susceptibility testing of plants is under-researched, but early results indicate plants may constitute a reservoir of novel antimicrobial compounds. Empiric determination of unstudied traditional plant preparations is desired, because traditional plant medicine is relied upon in many areas of the developing world. Herein, we investigated the antimicrobial properties of seven plants from African traditional medicine, as well as the effects of sub-lethal concentrations on bacterial growth. We found that gram-positive organisms were susceptible to plant extract treatment between 0.5-10% (v/v) concentrations, while gram-negative organisms tested demonstrated resistance. Sub-lethal plant extract treatments indicated bioactivity other than antimicrobial activity. Observations included proliferation, adhesion, and possible biofilm formation promotion. Determination of bioactive compounds present in the tested plant extracts is desired for pursuing drug development. Likewise, confirmation of biofilm promotion at sub-lethal doses is desired for potential identification of potential targets for novel antibiotic drug development. Lastly, as the plant extracts we tested are used in traditional medicines our results may aid in improving the efficacy of their use by traditional practitioners.

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