



Turning a New Leaf on Antibacterial-Resistant Infections

New and emerging resistant strains of bacteria are increasing worldwide and present a new and ominous therapeutic challenge. Although 80% of the world currently relies on Western medicine for treating common diseases, medicinal plants offer potential for the development of novel antibacterial therapies. This study surveyed popular medicinal aromatic plants and their essential oils as they pertain to multidrug-resistant (MDR) human pathogens. Seventy-one plant species were selected (based on available medicinal information) and screened for in-vitro antimicrobial efficacy against various bacteria. Plants were identified based on phytochemical analysis of the specific plant part traditionally used as medicine. Out of the 71 plants screened for antibacterial activity, 10 displayed the highest antibacterial activity against the test for MDR strains. Minimum inhibitory concentrations

(MICs) were compared with standard antibiotics (ie, chloramphenicol, ceftazidime) with variable results. Some plants showed excellent antibacterial properties (better than the tested antibiotics), whereas some exerted only moderate, weak, or no effect. Antibacterial activity seemed directly related to the diverse compounds accumulated in the plants (eg, tannins, phenols, polyphenols). Other plants with antimicrobial activity from essential oils (eg, thymol, carvacrol [oregano and thyme], eugenol [clove and cinnamon]) were corroborated.

■ Commentary

Interestingly, the oil fraction extracted from the whole plant in many of this study's cases was not as effective as the whole plant itself. This could be because certain plant parts carry higher concentrations of the active compound and

therefore have to be ingested in whole plant form. The effectiveness of medicinal plants as antimicrobial agents may depend upon the interconnection between whole plant and microorganism, the type of microorganism and their cell wall structure, and dosing of the medicinal plant. Mechanisms of action, practicality of application (orally, topically, or both), and potential for side effects or drug interactions warrant further elucidation.—

Heather Troyer, DVM, DABVP, CVA

■ ■ Source

Evaluation of aromatic plants and compounds used to fight multidrug resistant infections. Perumal Samy R, Manikandan J, Al-Qahtani M. *EVID BASED COMPLEMENT ALTERNAT MED* doi:10.1155/2013/525613 ■ cb