

Oral presentation

The search for new anti-staphylococcal leads: comparing the antibacterial efficiency of Italian plants based on ethnobotanical use categories

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Introduction. At the very crux of ethnopharmacology lies the assumption that traditional remedies are in place due to some sort of inherent biomedical activity. Thus, following this line of thought, remedies coming from medicinal plants that are applied in traditional medical (TM) practices should demonstrate more “activity” than other plants not used in this context. One study has compared different plant selection strategies for antibacterial screening in Sinai, Egypt [1]. However, medicinal plants were lumped into one general category, and no recent studies have compared the antibacterial efficiency of plant activity based on specific ethnomedical applications. In this study, *Staphylococcus aureus* was used as the model organism for antibacterial screening tests of plants used for the traditional treatment of skin disease in south Italy. *S. aureus* is a ubiquitous colonizer of the skin, and as such, it is commonly associated with skin-related disease. Plant groups were categorized based on their ethnobotanical use in the Vulture-Alto Bradano region of south Italy [2]. Three such groups were incorporated into this study: medicinal plants used for the treatment of skin disease, medicinal plants used for purposes non-related to the skin, and plants that are neither used in a medicinal or food context.

Objectives. To compare the growth-inhibiting activity of Italian plants from different ethnobotanical use categories against clinical isolates of *Staphylococcus aureus*.

Methods. The collection of ethnobotanical field data and plant materials took place from April-August 2006. Interviews with 112 informants were undertaken with informed consent. Dried plant materials were shipped to FIU under USDA permit # DP63438. A total of 193 ethanolic and aqueous extracts, representing 121 botanical taxa, were screened for growth-inhibiting activity against 41 clinical isolates of *S. aureus*. *S. aureus* isolates included penicillin sensitive, methicillin-resistant, and glycopeptide-intermediate strains. Broth micro-dilution methods were employed to screen extracts at a concentration of 100 µg/ml. Results are reported as the % inhibition of growth at 18 hours using an optical density reading of 600nm.

Results. Medicinal plants used specifically for the treatment of skin diseases in south Italian TM practices demonstrated a level of growth-inhibiting activity that was significantly higher than that of plants used neither in a medicinal or food context.

Conclusion. An ethno-directed approach to selecting plants for screening for new drug leads is a more efficient strategy than taking random collections of plant materials.

Keywords: medicinal plants, Italy, *Staphylococcus aureus*, ethnopharmacology

Selected References

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