Scent of Science: The Antimicrobial Properties of Wyoming's Native Plant Species

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Poster Presentation
Wyoming INBRE *Powell, WY*

Wyoming hosts diverse sagebrush (*Artemisia*) and conifer species, including *Juniperus* and pines, yet their bactericidal properties are largely unexplored. We evaluated antimicrobial effects of extracts from several *Artemisia* species (*A.a nova*, *A. frigida*, *A. tridentata vaseyana*, *A. tridentata tridentata*, *A. tridentata wyomingensis*), and juniper species (*J. osteosperma*, *J. horizontalis*, *J. scopulorum*). Additionally, we studied lodgepole and limber pine (*Pinus contorta* and *P. flexilis*, respectively), Engelmann spruce (*Picea engelmannii*), tumbleweed (*Salsola tragus*) and fetid marigold (*Dyssodia papposa*). We also utilized various plant parts, including the flowers, fruits, leaves, and stems, from different plant species. Extracts were tested using the Kirby-Bauer method on *Staphylococcus aureus*, *Escherichia coli*, and *Pseudomonas aeruginosa*. Results suggest potential for these plants as antimicrobial agents, with *A. nova* and *A. tridentata vaseyana* showing strong activity, particularly against *S. aureus* and *P. aeruginosa*. Among conifers, *J. scopulorum*, especially arils, exhibited the strongest effect against *S. aureus*. Ethanol was the most effective solvent, though differences in activity were observed with other solvents. Extracts maintained efficacy for over five months at room temperature. Not all plants showed antimicrobial properties. These findings also highlight potential for further ethnobotanical research into their traditional uses.