

Examining Antibacterial Properties of Native American Medicinal Plant Extracts against *Streptococcus pyogenes* ATCC 19615

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Three years of preliminary research suggested that Southwestern Native medicines may possess antibacterial properties against *Streptococcus pyogenes* ATCC 19615 (*S. pyogenes*), the bacteria responsible for “Strep throat”, and significant morbidity and fatalities worldwide annually. With antibiotic resistance posing an increasing threat, it is imperative that novel, yet reliable, alternatives to pharmaceutical-grade antibiotics be identified. This study examined the antibiotic potential of isolated plant ingredients of these Native medicines. Plant extracts from Native medicines were created from *Prosopis velutina* (Velvet Mesquite), *Clinopodium douglasii* (Yerba Buena), *Cinnamomum cassia* (cinnamon), and *Lewisia rediviva* (Bitterroot). It was hypothesized that only *Clinopodium douglasii* and *Cinnamomum cassia* would kill *S. pyogenes* on both Mueller Hinton agar (MHA) using the Kirby Bauer method, and Mueller Hinton broth (MHB) using the Minimum Inhibitory Concentration (MIC) test. Extracts were tested against *S. pyogenes* using the Kirby Bauer method on MHA. Using this method, *S. pyogenes* was not found to be susceptible to any of these extracts. Using the MIC test, which was performed by adding decreasing amounts of plant extracts in MHB with 100 μ l of *S. pyogenes*, two extracts were found to have antimicrobial properties. *Clinopodium douglasii* was found to have a MIC of .625 μ g, and the *Lewisia rediviva* MIC was 0.31 μ g. These results were unexpected and novel, as no published literature could be found on *Lewisia rediviva* possessing antimicrobial activity against *S. pyogenes*.