

EVALUATING ANTI-CANDIDAL AND ANTI-BACTERIAL ACTIVITY OF THREE MEDICINAL PLANTS USED IN THE TREATMENT OF WOUND INFECTIONS

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In Ayurvedic practice, plants are used in the treatment of infective diseases. The medicinal effects of the plants are due to its secondary metabolites. A masticate of plant component are applied to the site of injury to prevent infections, other than using plant extract alone (skin and wound infection). The anti-microbial properties of three plants were studied with and without human saliva. *Solanum nigrum* Linn (*Solanum americanum* Miller), *Sterculea balanghas* L., and *Toddalia aculeata* Pers (*Toddalia asiatica* Lam.), were used for the study. Standard cultures of *Candida albicans* (ACTC 90028), *C. parapsilosis* (ACTC 22019), *C. tropicalis* (ACTC 13803), *C. krusei*, (ACTC 6258), *E. coli* (NCTC 10418), *S. aureus* (NCTC 6571), *Pseudomonas aeruginosa* (NCTC 10662) and five clinical isolates of *Candida* and five clinical isolates of bacteria were used. Two sets of samples were separately ground and fresh extracts were separated. The extract from one set of the above sample was mixed with an equal volume of human saliva and vortexed. Sterile Whatman filter paper discs (10 mm; Oxoid, UK) were soaked separately with each plant extract and each plant extract mixed with fresh saliva of the researcher and air dried for 2 hours at room temperature and followed by 35 C⁰ for 2-3 hours before use. Discs containing Ketokonazole (15 µg), Ciprofloxacin (5 µg) and saliva of the same person too were prepared as controls. Discs were placed on seeded Muller Hinton Agar plates, incubated overnight at 37 C⁰, presence and absence of inhibitory zones were observed. Zones of inhibition were observed against standard isolates of *C. tropicalis*, *C. albicans*, and *Candida* clinical isolates after exposed to leaf extract of *S. nigrum*. *S. balanghas* leaf extract was active only against standard isolate of *C. tropicalis*. The zone size was reduced with the addition of saliva to *S. nigrum* (against *C. tropicalis* from 5.3 mm to 4.7 mm, and against *C. albicans* from 2.2 mm to 1.6 mm) and also to *S. balanghas* (against *C. tropicalis* from 2.2 mm to 1.4 mm). Further, Zones of inhibition were observed against standard isolates of *C. tropicalis* (13.8 mm), and *C. albicans* (10.0 mm) when exposed to the leaf extract of *T. aculeata*. The activity of *T. aculeata* leaf extract against *C. tropicalis*, and *C. albicans* had totally inhibited by saliva. *T. aculeata* leaf extract was active against standard isolate of *E. coli* (5.5 mm), only in the presence of saliva. *C. albicans* clinical isolate was also susceptible to leaf extract of *T. aculeata* with and without saliva. Based on the results of current study *S. nigrum* leaf extract has great potential as an anti Candidal agent against *C. tropicalis*. *T. aculeata* leaf extract also demonstrated a great potential as an anti Candidal agent against *C. tropicalis* and *C. albicans*. These can be used in the development of anti-Candidal agents to treat infections caused by *C. tropicalis* and *C. albicans*.