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THE MEDICINAL POTENTIAL OF *Scaevola spinescens*: TOXICITY, ANTIBACTERIAL AND ANTIVIRAL ACTIVITIES

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Introduction: *S. spinescens* (SS) (aka prickly fanflower, maroon bush) is an endemic Australian plant with a history of use as a medicinal agent by indigenous Australians. Yet the pharmacological bioactivities of this plant are poorly documented.

Methods: Solvent extracts of SS were tested for antibacterial, antifungal and antiviral activities and toxicity *in vitro*.

Results: All extracts displayed antibacterial activity in the disc diffusion assay. The methanol extract proved to have the broadest specificity, inhibiting the growth of 7 of the 14 bacteria tested (50 %). The water, ethyl acetate, chloroform and hexane extracts inhibited the growth of 6 (43%), 5 (36%), 5 (36%), and 4 (29%) of the 14 bacteria tested respectively. SS methanolic extracts were equally effective against Gram-positive (50 %) and Gram-negative bacteria (50 %). All other extracts were more effective at inhibiting the growth of Gram-negative bacteria. All extracts also displayed antiviral activity in the MS2 plaque reduction assay with the methanol, water, ethyl acetate, chloroform and hexane extracts inhibiting 95 ± 1.8 %, 72 ± 6.3 %, 83 ± 4.5 %, 100 ± 0 % and 48 ± 13 % of plaque formation respectively at a dose range of 0.6-3mg/ml. All SS extracts were non-toxic in the *Artemia franciscana* bioassay with no significant increase in mortality induced by any extract at 24 and 48 h. The only increase in mortality was seen for the water extract after 72h at 2mg/ml, although even this extract displayed low toxicity, inducing only 42 ± 2.3 % mortality.

Discussion: The lack of toxicity of the SS extracts and their inhibitory bioactivity against bacteria and viruses validate Australian Aboriginal usage of *S. spinescens* and indicates its medicinal potential.