

## Medicinal Plant Images

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**Figure 1:** *Swainsona formosa* (G. Don) Joy Thomps. (family Fabaceae; synonyms *Clianthus formosus* (G. Don) Ford & Vickery, *Clianthus dampieri* Lindl., *Clianthus oxleyi* A.Cunn. ex Lindl.; commonly known as Sturt's desert pea) is a low growing or prostrate legume which is endemic to arid inland regions of the Australian continent. Several *Swainsona* spp. were used by Australian Aborigines as traditional medicines.<sup>[1, 2]</sup> *Swainsona galegifolia* (Andrews) R.Br. and *Swainsona pterostylis* (DC.) Bakh.f. were considered particularly useful as antiseptics and as bactericide chemotherapies against a broad spectrum of bacterial pathogens.<sup>[1,2]</sup> A recent study has also reported bacterial growth inhibitory activity for *S. formosa* leaf extracts against wide range of gram positive and gram negative bacteria.<sup>[3]</sup> A defining phytochemical characteristic of many *Swainsona* spp. is the presence of the indolizidine alkaloid phytotoxin swainsonine.<sup>[4]</sup> Swainsonine has been associated with livestock intoxication via inhibition of the enzymes  $\alpha$ -mannosidase and mannosidase II, which are required for processing and maturation of N-linked oligosaccharides of newly synthesised glycoproteins. To date, most interest in the therapeutic properties of swainsonine have focussed on its potential as a cancer chemotherapeutic drug via a reduction of tumour cell metastasis, decreased proliferation and enhanced cellular immune responses.<sup>[5]</sup> Photograph was taken by Dr. Ian Cock at Arid Lands Botanical Gardens, Port Augusta, Australia, February 2021.



**Figure 2:** *Scaevola spinescens* (commonly known as currant bush, maroon bush and prickly fanflower) is an endemic Australian plant which is distributed in arid areas of the Australian continent, particularly in the western regions. Australian Aborigines used *S. spinescens* as a medicinal plant to treat a wide variety of conditions.<sup>[1,2]</sup> An infusion of the roots was used to treat stomach pain and urinary disorders. A decoction of the stem was used to treat boils, rashes and skin disorders. Fumes from the whole plant were inhaled to treat viral disorders including colds and influenza. A recent study demonstrated the general inhibitory activity of *S. spinescens* extracts against RNA viruses using an MS2 phage model system, partially verifying the ethnobotanical usages.<sup>[6-8]</sup> Earlier studies have also reported the ability of *S. spinescens* extracts to inhibit more than 25% of human cytomegalovirus (CMV) late antigen production.<sup>[9]</sup> *S. spinescens* also had traditional uses in the treatment of various cancers.<sup>[1,2]</sup> Whilst the isolated compounds anticancer activity has yet to be confirmed, studies have indicated that *S. spinescens* taraxerene pentacyclic triterpenoids may be responsible for this anticancer activity.<sup>[8,10]</sup> Several studies have reported broad-spectrum antibacterial activity of several *S. spinescens* extracts against a panel of 14 bacterial pathogens.<sup>[7,8]</sup> Furthermore, a recent study not only confirmed the antibacterial activity of this plant, but also reported that *S. spinescens* extracts potentiated the activity of tetracycline against bacterial otherwise resistant to its actions.<sup>[11]</sup> Photograph was taken by Dr. Ian Cock at Arid Lands Botanical Gardens, Port Augusta, Australia, February 2021.

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