

Characterization of Spinifex (*Triodia pungens*) Resin and Fibres

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Spinifex grasses have been largely ignored as a sustainable resource despite their widespread distribution throughout Australia. This project involves an in-depth study of the structure and properties of both the leaf and resinous components of various spinifex species and an investigation into the preparation and properties of Spinifex-based composite materials.

The present work is comprised of two components, analysis of the resin and mechanical testing of various fibrous components. Resin of the soft Spinifex species (*Triodia pungens*) was extracted from the resinous stems of Spinifex grasses into methanol by soxhlet extraction. The dried extracts were chromatographed on silica gel, eluted with the solvent mixture of hexane and methanol with increasing polarity to give ten fractions. Resin was also extracted directly by soaking the resinous stems for 8 hours in hexane and methanol in order to study the polar and non-polar volatile compounds. The chemical composition of the fractions of the resin has been studied by means of GC-MS and LC-MS. ATR-FTIR spectroscopy was used to identify the functional groups present in the resin. Thermal analysis was also performed using DSC.