Towards Novel Biomimetic Building Materials: Evaluating Aboriginal And Western Scientific Knowledge Of Spinifex Grass

Paul Memmott, Darren Martin, Sujeewa De Silva, Nick Flutter, Harshi Gamage, Susanne Schmidt and Rod Fensham.

The University Of Queensland AUSTRALIA

AIBN Australian Institute for Bioengineering and Nanotechnology

Study region

Wet season and dry season

Deriving new materials from renewable, non-petrochemical feedstocks is currently an area of great interest to materials engineers. Spinifex grasses have been largely ignored as a sustainable resource despite their widespread availability throughout Australia and their unique biology that has evolved in harsh environments. This project involves an in-depth study of the structure and properties of both the leaf and resinous components of various Spinifex species. The properties will be benchmarked against other natural fibers and natural resins. The objective of this project is to apply traditional Aboriginal knowledge to produce novel biomimetic building materials based on Spinifex.

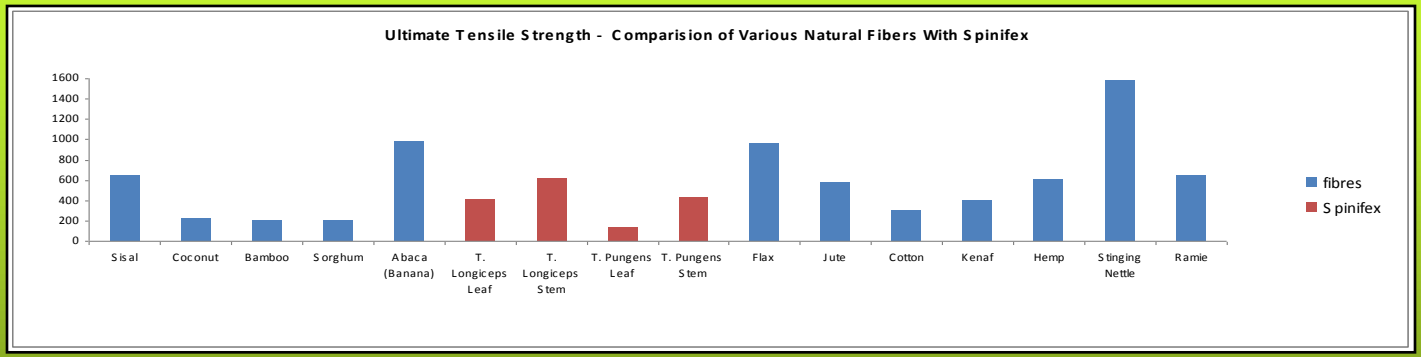
Spinifex resin was a crucial ingredient in spear-making, as the head was often fastened onto the shaft using an adapted form of Spinifex resin by the Aborigines.

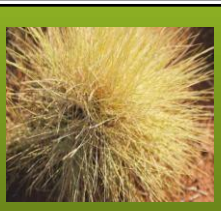
Materials science aspects of the project

- Study of chemical composition of the resin
- Study of thermomechanical properties of the resin
- Study of the morphology and properties of the Spinifex fibers
- Investigation of preparation and properties of Spinifex-based composite materials

Background on Spinifex Grasses

- Spinifex is a collective term for 65 species in the genus *Triodia,* which are widespread throughout semi-arid and monsoonal Australia.
- Spinifex is endemic to Australia.
- It covers much of the landmass with a very conservative estimate of 27 – 40 %
- Spinifex grasses produce highly resilient prickly leaves, growing as hummocks, and often develop into rings providing shelter for animals and other plants.





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