

ANTIBACTERIAL ACTIVITY AND TOXICITY OF *Terminalia ferdinandia* (KAKADU PLUM) FRUIT EXTRACT.

Shimony Mohanty<sup>1,2</sup>, Ian Cock<sup>1,2</sup>, (introduced by M. Whitehouse). Biomolecular and Physical Sciences<sup>1</sup>, Environmental Futures Centre<sup>2</sup>, Griffith University, Nathan, 4111, QLD.

**Introduction:** *Terminalia ferdinandiana* (TF) is an endemic Australian native plant long used as a food and a medicinal agent by Indigenous Australians. Yet the medicinal bioactivities of this plant are poorly studied.

**Methods:** TF extracts were prepared with various solvents, dried and then re-dissolved in water. Antibacterial activity of these TF preparations was determined by growth inhibition against a panel of pathogenic bacteria and fungi. Toxicity (LC<sub>50</sub>) was assessed by the *Artemia franciscana* (brine shrimp) nauplii bioassay.

**Results:** All extracts displayed antibacterial activity in the disc diffusion assay. The methanol extract proved to have the broadest specificity, inhibiting the growth of 13 of the 14 bacteria tested (93%). Individual MIC's were as low as 30 µg/ml for some bacteria. The deionised water extract inhibited the growth of 11 of the 14 bacteria tested (79%). The ethyl acetate, chloroform and hexane extracts inhibited 21%, 29% and 14% respectively. TF methanolic extracts were equally effective against Gram-positive (100 %) and Gram-negative bacteria (90 %). All other extracts were more effective at inhibiting the growth of Gram-positive bacteria. The water, ethyl acetate, chloroform and hexane extracts inhibited the growth of 100, 50, 50 and 50 % Gram-positive bacteria respectively. In contrast, they inhibited the growth of 70, 10, 20 and 0 % Gram-negative bacteria respectively. All TF extracts were either non-toxic (ethyl acetate, chloroform, hexane) with no significant increase in mortality induction, or of low toxicity (LC<sub>50</sub> >1000 µg/ml) (methanol, deionised water) in the *Artemia franciscana* bioassay.

**Conclusions:** The low toxicity of the TF extracts and their inhibitory bioactivity against a range of bacteria validate traditional Aboriginal usage of the Kakadu plum and indicates its medicinal potential as well as its value as a rich source of natural vitamin C.