



Australian Tropical Bushfood Orchard

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Recent studies on the potential physiological activities of selected Australian herbs and fruits.

Includes Davidsons Plum, Quandong, Lemon Myrtle, Anise Myrtle and Tasmannia Pepper leaf.

This information is the result of a systematic evaluation of commercially grown native Australian herbs and fruits with respect to:

i) cell-protective and genome-protective capacity; Extracts of Davidson's plum and lemon myrtle exhibited superior total reducing capacities, higher than reference samples of blueberry and bay leaf, respectively. Tasmannia pepper leaf extract displayed an oxygen radical absorbance capacity that was superior to all plants studied.

ii) anti-proliferative activities against human cancer cells and equivalent normal cells; All extracts evaluated within this study exhibited differential killing ability, or an ability to reduce the proliferation of cancer cells without a damaging effect on normal cells with the extract from anise myrtle displaying superior activity. All extracts displayed cytoprotective activities, as demonstrated, respectively, by effective protection of HepG2 cells from H₂O₂-induced cell death and cellular antioxidant activities.

iii) bioavailability of plant components to human cells; The activity of plant extracts in the cellular antioxidant activity (CAA) assay indicates their uptake and metabolism by a live cell. The study with Caco-2 cell monolayer model confirms that compounds originating from the native herbs and fruits evaluated in this study were bioavailable to human cells.

iv) inhibitory activities towards two key enzymes relevant to metabolic syndrome: α -glucosidase, responsible for the digestion of sugars; and pancreatic lipase, responsible for the digestion of fats; All extracts actively inhibited the activity of isolated α -glucosidase, with extracts from anise myrtle, lemon myrtle and Davidson's plum being the strongest inhibitors. Extracts from Tasmannia pepper leaf and quandong were the most efficient inhibitors of pancreatic lipase. The inhibitory activities against isolated enzymes: α -glucosidase (anti diabetic) and pancreatic lipase (anti obesity) suggest potential benefit in these health issues from these plants.

The results obtained within the study suggest a number of potential health-enhancing properties of the evaluated native Australian herbs and fruits. These results have been generated in an array of cell culture based assays. Further nutritional/clinical studies with humans are required to confirm the identified potential health benefits.

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