

Kakadu Plum Extract

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Plant Story



Terminalia ferdinandiana is a slender, medium-sized tree with small creamy white flowers. Native to Australia, it produces a yellow green fruit commonly called kakadu plum. It also goes by the name billygoat plum, salty plum and mador. The fruit is known to be one of the highest sources of natural vitamin C. As a food, kakadu plum is eaten raw or made into a jam. Kakadu plum is also used as a traditional medicine. The inner bark of the tree is applied to a variety of skin disorders such as wounds.

Plant Story



Significant **anti-oxidant and anti-inflammatory** effects *in vitro* of kakadu plum extract have been studied. Compared to blueberry, kakadu plum extract showed about 3 and 2-fold higher activity than blueberry in the ferric ion reducing anti-oxidant power (FRAP) and oxygen radical absorbance capacity (ORAC-H) assays, respectively. Bioassay guided fraction of kakadu plum extract showed anti-inflammatory effect through the inhibition of COX-2 and iNOS expression in LPS-activated murine macrophages.

Research Studies: Anti-oxidant Capacity

Table 1

Total phenolic content and antioxidant capacity of selected commercially grown native Australian fruits. The data are means \pm SD of 3 determinations.

Fruit	DW/FW ratio	Total phenolics (FC) ($\mu\text{mol GA E/gFW}$)	HPLC quantification* of phenolic compounds				FRAP ($\mu\text{mol Fe}^{+2}/\text{gFW}$)	ORAC-H ($\mu\text{mol TEq/gFW}$)
			280 nm ($\mu\text{mol GA E/gFW}$)	326 nm ($\mu\text{mol CHA E/gFW}$)	370 nm ($\mu\text{mol R E/gFW}$)	520 nm ($\mu\text{mol C3G E/gFW}$)		
Australian desert lime**	0.1957	10.8 \pm 0.4	10.8 \pm 1.6	1.32 \pm 0.1	–	–	34.8 \pm 2.3	44.9 \pm 5.1
Kakadu plum**	0.1219 0.1712***	114 \pm 8.8 160 \pm 1.2***	69.8 \pm 2.10 98.0 \pm 3.00***	–	–	–	691 \pm 48.4***	315 \pm 33.7***
Lemon aspen	0.1549	9.5 \pm 0.3	17.6 \pm 0.70	–	–	–	14.0 \pm 2.4	132 \pm 11.4
Davidson's plum	0.0714 0.0804***	14.1 \pm 1.0 15.9 \pm 1.3***	13.9 \pm 0.20 15.4 \pm 0.30***	–	T	0.76 \pm 0.01 0.85 \pm 0.02***	53.9 \pm 4.0***	83.1 \pm 10.9***
Finger lime (green)**	0.2090	6.8 \pm 0.4	8.7 \pm 0.6	1.4 \pm 0.03	–	–	12.6 \pm 0.5	45.9 \pm 6.6
Finger lime (pink)**	0.1880	9.2 \pm 0.5	10.6 \pm 2.7	0.45 \pm 0.01	–	0.06 \pm 0.01	23.2 \pm 0.8	65.1 \pm 12.8
Riberry	0.0881	7.5 \pm 0.7	11.9 \pm 0.41	–	0.17 \pm 0.01	0.69 \pm 0.05	33.2 \pm 1.9	49.9 \pm 6.4
Quandong	0.2331	50.4 \pm 0.4	–	30.1 \pm 0.91	1.15 \pm 0.01	0.37 \pm 0.01	123 \pm 0.6	501 \pm 64.1
Blueberry	0.1332	26.5 \pm 0.6	–	3.9 \pm 0.05	–	11.5 \pm 0.30	52.4 \pm 2.78	76.9 \pm 13.3

* HPLC quantification of phenolic compounds was calculated as: $\mu\text{mol gallic acid E/gFW}$ for compounds detected at 280 nm, $\mu\text{mol chlorogenic acid E/gFW}$ for compounds detected at 326 nm, $\mu\text{mol rutin E/gFW}$ for compounds detected at 370 nm and $\mu\text{mol cyanidin 3-glucoside E/gFW}$ for anthocyanins (520 nm).

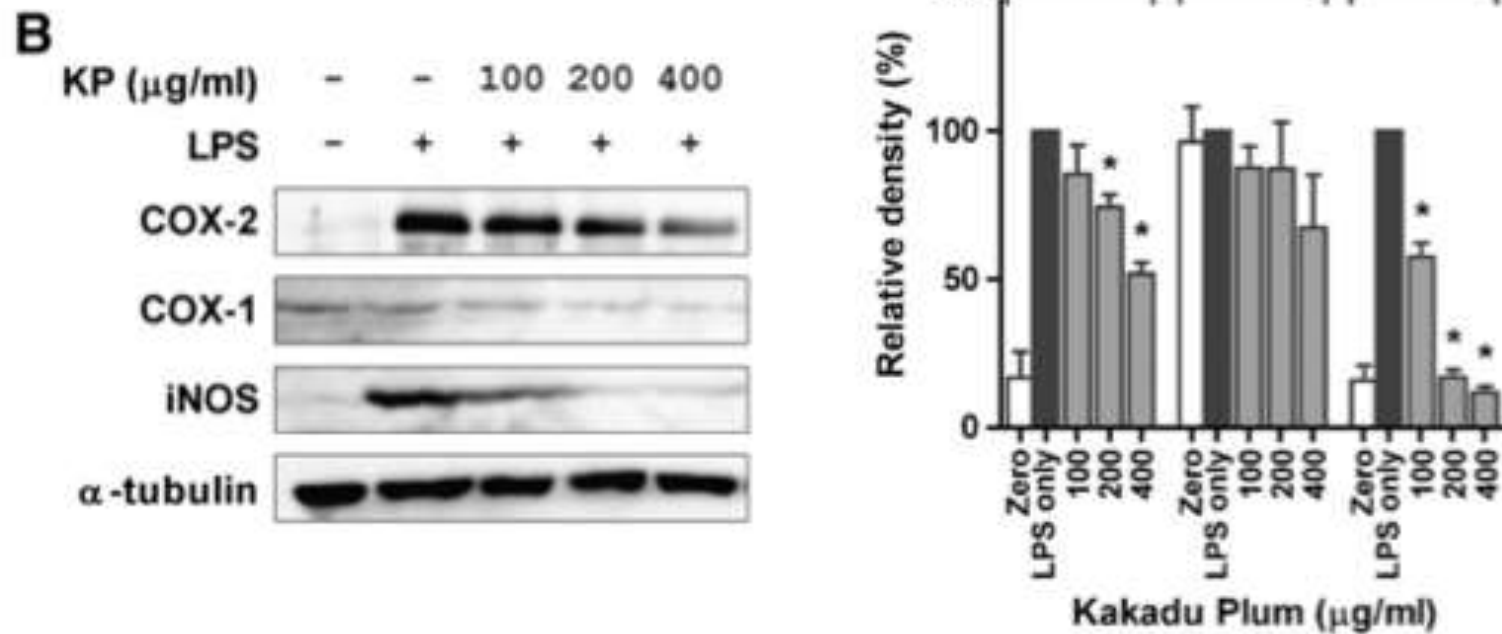
** Results of total phenolic compounds (F-C) corrected for vitamin C.

*** Stone weight excluded; FRAP: ferric reducing antioxidant power; ORAC-H: oxygen radical absorbance capacity – hydrophilic compounds; $\mu\text{mol TEq/gFW}$: micromole trolox equivalent/g fresh weight.

Compared to blueberry, kakadu plum extract showed about 3 and 2-fold higher activity than blueberry in the ferric ion reducing anti-oxidant power (FRAP) and oxygen radical absorbance capacity (ORAC-H) assays, respectively.

Antioxidant capacity and hydrophilic phytochemicals in commercially grown native Australian fruits, Konczak et al., Food Chem, 2010, 123, p.1048-1054.

Research Studies: Anti-inflammatory Effect



Purified polyphenolic extracts of Kakadu plum inhibited the activity of key inflammatory enzymes, such as COX-1, COX-2 and iNOS in RAW 264.7 cells.

Native Australian fruit polyphenols inhibit COX-2 and iNOS expression in LPS-activated murine macrophages, Tan *et al.*, Food Res Int, 2011, 44, p.2362-2367.

Product Information

- ❖ Product Name: Kakadu Plum Extract-GNS, Kakadu Plum Extract(GPD)-RSPO
- ❖ INCI Name: Terminalia Ferdinandiana Fruit Extract
- ❖ Dosage: 1 – 3%
- ❖ Formulation: Add to the formulation when the temperature is lower than 55°C.
Recommended to add after the cooling process.
- ❖ Storage: Avoid direct light or UV.
Keep it in a dry area at room temperature.

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