

Abstract

Kakadu Plum (*Terminalia Ferdinandiana*)—A Native Australian Fruit with Functional Properties †

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† Presented at the third International Tropical Agriculture Conference (TROPAG 2019), Brisbane, Australia, 11–13 November 2019.

Published: 3 March 2020

Abstract: Kakadu plum (KP), a native Australian fruit, is a rich source of vitamin C, minerals and phenolic compounds. A better understanding of the (phyto)chemical composition and biological properties of KP will facilitate the development of functional KP products for the food, pharmaceutical, nutraceutical and cosmetic industry. KP is usually harvested wild and hence, its composition and functional properties may vary considerably depending on the cultivar, maturity, environmental conditions as well as post-harvest treatment. The present study aimed to assess the levels of ascorbic acid (AA) and ellagic acid (EA), the main bioactive compounds in KP, in a commercially available freeze-dried KP powder. The functional properties of a polyphenol-enriched extract obtained from this product were also evaluated. AA and EA were quantified by UHPLC_PDA. The polyphenol-enriched extract was tested for in vitro antioxidant and antimicrobial properties, using the DPPH radical scavenging assay and agar well diffusion, respectively. Total AA content in the freeze-dried powder was 200 mg/g dry weight (DW) and total EA was 46.6 mg/g DW. The polyphenol-enriched extract had a high DPPH radical scavenging capacity and strong antimicrobial activity against methicillin resistant *Staphylococcus aureus*. Our findings demonstrate that AA and EA, the main bioactive compounds in KP, are retained at high levels in the freeze-dried KP fruit powder. Furthermore, the polyphenol-enriched KP extract has the potential to be used as a natural preservative in the food industry due to its strong antioxidant and antimicrobial activity.

Keywords: Kakadu Plum; *Terminalia ferdinandiana*; native Australian fruits; functional properties

Funding: This research was funded by the Cooperative Research Centre for Developing Northern Australia (CRCNA) and the support of its investment partners the Western Australian, Northern Territory and Queensland Governments.

Acknowledgments: The authors would like to acknowledge the Traditional Owners of the lands on which the *Terminalia ferdinandiana* was harvested, and respect the knowledge and experience the Traditional Owners hold regarding the care, harvest and use of these plants.

Conflicts of Interest: The authors declare no conflict of interest.



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