



Minerals and trace elements in broad-leaved Geebung (*Persoonia stradbrokeensis*), an underutilised native Australian fruit

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Minerals and trace elements are essential for human health and wellness. Fruits can be an important dietary source of these micronutrients. For centuries, native Australian fruits have been a vital source of nutrition and well-being for the Indigenous Communities⁽¹⁾. However, comprehensive information on the mineral and trace element composition of these native fruits, including broad-leaved Geebung (*Persoonia stradbrokeensis*), is lacking. Therefore, the aim of the present study was to determine the mineral and trace element composition of broad-leaved Geebung, an important but still underutilised native Australian fruit, at different maturity stages. Inductively coupled plasma mass spectrometry (ICP-MS) and inductively coupled plasma-optical emission spectroscopy (ICP-OES) were used to analyse the fruit. Statistical analysis was performed using one-way ANOVA and the means ($n = 3$) were compared by Tukey's multiple comparison post hoc test with $p < 0.05$ as significant. Calcium and potassium could be identified as the main minerals, and iron, zinc and manganese as the main trace elements. The calcium content in broad-leaved Geebung was lower than Australian desert lime, kakadu plum, and riberry, respectively (35.7–271.5 vs. 384.2 vs. 282.5 vs. 307.7 mg/100g dry weight (DW))⁽²⁾. Potassium has a vital role in the prevention of bone loss and is essential for the heart, kidney, and blood pressure. The potassium content of broad-leaved Geebung fruit was lower than Australian desert lime, kakadu plum, lemon aspen, quandong and riberry (average 516.4 vs. 1287.8 vs. 1905.5 vs. 1512.9 vs. 3456.2 vs. 1715.7 mg/100g DW)⁽²⁾, which contributes to approximately 15% recommended dietary allowance (RDA). Iron is the main element in the production of hemoglobin and is important for maintaining healthy blood. Iron content in the fruit ranged from 0.8–2.6 mg/100g DW, which was higher than that of Davidson's plum (1.2 mg/100g DW), but lower than the Green Plum, Australian desert lime, and kakadu plum (3.8 vs. 4.7 vs. 4.0 mg/100g DW)^(2,3). Besides, the manganese levels were relatively high in broad-leaved Geebung fruit and considerably higher than in other native Australian fruits such as Kakadu plums, Desert limes and Quandongs (11.2–26.4 vs. 3.5 vs. 0.9 vs. 0.3 mg/100 g DW)⁽²⁾. Interestingly, the mineral and trace element content decreased ($p < 0.05$) during fruit maturity. In general, broad-leaved Geebung fruit can provide considerable amounts of essential minerals and trace elements and its potential as a healthy “snack” alternative should be investigated further.

Keywords: native fruit; Australian; micronutrients; nutrition

Ethics Declaration

No

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