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Antioxidant properties of black plum (*Syzygium cumini*) fruits and their processed products

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The fruits of *Syzygium cumini* (L.) Skeels, also known as black plum or madan, which is native to Sri Lanka, have not been much exploited, although they have characteristics similar to blueberry, which is a rich source of natural antioxidants. Thus, this study was carried out to examine the content of some bioactive compounds and the antioxidant properties of fresh black plum fruits. Furthermore, the effect of processing (drying and juice preparation) on bioactive compounds and antioxidant properties of black plum fruits was assessed. Methanolic extracts of fresh black plum fruits, dried fruits, and juice were analyzed for total phenolics, flavonoids, anthocyanin, β -carotene, and ascorbic acid contents, and were evaluated for total antioxidant capacity, lipid peroxidation inhibition, ABTS radical scavenging, and hydroxyl radical scavenging assays. The results indicated that fresh black plum fruits contain a significant high content of polyphenols (25.83 ± 2.66 mg galic acid/g), while dried fruits had the lowest content of polyphenols (15.12 ± 0.97 mg galic acid/g). The contents of flavonoids, anthocyanin, ascorbic acid and β -carotene are also high in fresh fruits (3.823 ± 0.155 mg rutin/g, 0.164 ± 0.007 mg of cyanidine-3-glucoside/g, 4.69 ± 0.58 mg/100g, 3.743 ± 0.054 mg/100g, respectively) and the lowest content is shown by fruit juice. Similarly total antioxidant capacity is high in fresh fruits (25.02 ± 1.50 mg of ascorbic acid equivalent/g) rather dried fruits (18.92 ± 0.25 mg of ascorbic acid equivalent/g) and juice (19.90 ± 6.16 mg of ascorbic acid equivalent/g). At the same time, results revealed that both drying and juice processing reduce the contents of bio-actives and antioxidant properties. With compared to commonly known fruits such as banana, pineapple, mango and starfruit, content of total phenolics (0.118 ± 0.004 , 0.479 ± 0.014 , 0.560 ± 0.046 , and 1.429 ± 0.071 mg gallic acid/g; Ramma *et al.*, 2003) is significantly high in black plum fruits even after processing. Black plum fruits are thus a significant source of natural antioxidants, which may have potential beneficial effects on health. However, these properties depend on the processing techniques applied for black plum fruits.

Keywords: Antioxidant activity, drying, juice preparation, *Syzygium cumini*

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