

Title : Beta Carotene Content in Canistel (*Pouteria campechiana*): Nutritional and Health Benefits

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Major : Biochemistry and Biochemical Innovation

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ABSTRACT

Canistel (*Pouteria campechiana*), also known as eggfruit, is recognized for its high carotenoid content, particularly beta-carotene, a precursor of vitamin A with strong antioxidant properties. This study aims to evaluate the beta-carotene content and antioxidant capacity of canistel extracts prepared using three different organic solvents: ethanol, ethyl acetate, and a 3:4 volumetric mixture of ethanol and ethyl acetate. Beta-carotene content was investigated by UV-Visible spectroscopy, while antioxidant capacity was assessed using the diphenyl picrylhydrazyl (DPPH) radical scavenging assay. The extraction yields varied from 9.59% to 22.56%, with ethanol yielding the highest amount and ethyl acetate the lowest. The mixed solvent extract exhibited the highest beta-carotene content ($1,590.45 \pm 2.95 \mu\text{g/g}$ dry weight) and the greatest antioxidant activity ($\text{IC}_{50} = 50.56 \pm 0.18 \text{ mg/mL}$), followed by ethyl acetate ($899.92 \pm 2.95 \mu\text{g/g}$, $\text{IC}_{50} = 144.74 \pm 3.67 \text{ mg/mL}$) and ethanol ($396.25 \pm 1.48 \mu\text{g/g}$, $\text{IC}_{50} = 151.36 \pm 3.78 \text{ mg/mL}$). The superior extraction efficiency of the mixed solvent was attributed to its optimized polarity, which enhances beta-carotene solubility and the extraction of antioxidant compounds. Gallic acid, used as a reference standard, demonstrated substantially lower IC_{50} values, indicating significantly higher antioxidant potency compared to canistel extracts. These findings highlight the potential for developing functional food, pharmaceutical, or cosmetic products with health benefits derived from canistel.

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