

Antioxidant and Anti-Adipogenic Activities of *Momordica cochinchinensis* (Lour).

Spreng Fruit Extracts

ABSTRACT

Momordica cochinchinensis (Lour) Spreng, known as gac fruit, is rich in bioactive compounds like carotenoids (β -carotene, lycopene, and lutein). This study assessed the antioxidant, cytotoxic, and anti-adipogenic properties of gac fruit extracts (GFE) from different fractions (peel, pulp, aril), using 3T3-L1 adipocytes. Method: Gac extracts' DPPH radical scavenging was tested with 1000 μ g/mL dilutions. 3T3-L1 pre-adipocyte viability was measured via MTT assay. Differentiated adipocytes were treated (75, 150, 300 μ g/mL) with GFE for 7 days. Inhibitory effects on adipogenesis and lipid accumulation were studied through Oil Red O staining. Triglyceride content was quantified and compared to controls. Results: IC₅₀ values against DPPH radicals were 660 μ g/mL (peel), 560 μ g/mL (pulp), and 820 μ g/mL (aril). 3T3-L1 cell viability was unaffected up to 200 μ g/mL. However, 200 μ g/mL GFE decreased viability, inhibiting growth. Gac extracts effectively reduced lipid accumulation and hindered cell differentiation dose-dependently. Pulp extract notably reduced intracellular triglycerides, surpassing aril and peel effects. Conclusion: Gac fruit extract fractions (peel, pulp, and aril) efficiently inhibited adipogenesis in 3T3-L1 cells, evidenced by lowered lipid accumulation, triglyceride content, and cell viability. This study highlights gac fruit extracts' potential therapeutic use against obesity.