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Snake gourd (*Trichosanthes cucumerina*): A Basketful of Bioactive Compounds and Health Benefits

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ABSTRACT

Snake gourd (*Trichosanthes cucumerina*), a cucurbitaceous vine native to South and Southeast Asia, offers significant nutritional and medicinal potential as a vegetable crop and tomato substitute. The immature fruit contains high moisture (94.6%), vitamins A and C, potassium (121.6 mg/100 g), phosphorus (135 mg/100 g), and bioactive phenolics (46.8%) alongside flavonoids (78%). Seeds provide protein (28.59%), fat (51.53%), and minerals, supporting its use in diverse cuisines and as an economical off-season crop. Key compounds include triterpenes like cucurbitacin B, lutein carotenoids (15.6-18.4 mg/100 g), and flavonoids, contributing antidiabetic, hepatoprotective, anti-inflammatory, and gastroprotective effects. Traditional uses span Ayurveda for treating diabetes, fevers, digestive issues, and skin conditions via roots, leaves, fruits, and seeds. Grown for its elongated fruits up to 150 cm, snake gourd yields economic value during high tomato prices and promotes food security through its nutrient density. Further research could enhance its role in functional foods and pharmacotherapeutics.

Keyword: *Snake gourd Antidiabetic, Anti-inflammatory, Phytochemicals, Ayurveda, functional foods*

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