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(57) Abstract :

ABSTRACT Method for isolating 3-hydroxyflavone from cashew apple juice. The present invention reveals a novel, green, and cost-effective approach for isolating 3-hydroxyflavone, a potent bioactive flavonoid, from cashew apple juice, an underutilized agricultural by-product. The isolated compound has been thoroughly characterized and exhibits triple therapeutic action, demonstrating broad-spectrum antibacterial activity against respiratory tract infection (RTI) pathogens, selective cytotoxicity against human lung cancer (A549) cells, and significant anti-inflammatory potential through the downregulation of key inflammatory cytokines. This multifunctional molecule, derived from a natural source, paves the way for the development of an eco-friendly, plant-based therapeutic alternative for respiratory and oncological diseases. The invention further provides a process for formulation and potential dosage applications, highlighting its versatility in clinical use.

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