IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 6, Issue 2, January 2026
Impact Factor: 7.67

A Review on Extraction and Biological Evaluation of Wood Apple

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Abstract: *Wood apple (Limonia acidissima L.), an edible fruit native to the Indian subcontinent and Southeast Asia, has been extensively studied for its nutritional and pharmacological potential. Traditional and modern extraction techniques have been applied to isolate bioactive constituents, including flavonoids, phenolic acids, coumarins, and terpenoids. Thin Layer Chromatography (TLC) and Ultraviolet-Visible (UV-Vis) spectroscopy are among the primary analytical tools used to separate, detect, and characterize phytoconstituents of wood apple extracts. This review comprehensively discusses the methods of extraction, optimization parameters, phytochemical profiles, and biological evaluations of wood apple fruit, pulp, bark, seeds, and leaves. The review highlights how TLC and UV spectroscopy complement advanced chromatographic and spectrometric methods in identifying bioactive compounds. Evidence from existing literature underlines significant antioxidant, antimicrobial, anti-inflammatory, and cytotoxic activities of wood apple extracts, making it a promising candidate for natural therapeutic agents. The review also presents comparative tables summarizing extraction methods, analytical techniques, and biological outcomes. Challenges in standardization, limitations in analytical resolution, and future prospects are outlined to guide further research*

Keywords: Wood apple, Thin Layer Chromatography (TLC), Ultraviolet-Visible

DOI: 10.48175/568