



ISSN Print: 2664-7591
ISSN Online: 2664-7605
Impact Factor: RJIF 5.2
IJAN 2024; 6(1): 58-60
www.pharmaceuticaljournal.in
Received: 17-01-2024
Accepted: 24-02-2024

Sham Gitte
Research Scholar, Siddhi's
Institute of Pharmacy, Thane,
Maharashtra, India

Onkar Kanawade
Research Scholar, Siddhi's
Institute of Pharmacy, Thane,
Maharashtra, India

Harshad Kangude
Research Scholar, Siddhi's
Institute of Pharmacy, Thane,
Maharashtra, India

Aditya Dahiphale
Research Scholar, Siddhi's
Institute of Pharmacy, Thane,
Maharashtra, India

Akshay Chavan
Research Scholar, Siddhi's
Institute of Pharmacy, Thane,
Maharashtra, India

Corresponding Author:
Sham Gitte
Research Scholar, Siddhi's
Institute of Pharmacy, Thane,
Maharashtra, India

International Journal of Pharmaceutical and Clinical Research

Composite review on *Annona squamosa*

**Sham Gitte, Onkar Kanawade, Harshad Kangude, Aditya Dahiphale
and Akshay Chavan**

DOI: <https://doi.org/10.33545/26647591.2024.v6.i1a.80>

Abstract

Annona squamosa L. (custard apple) belonging to family Annonaceae.

The Research and application of plants in food appendix and drugs have attracted great curiosity. This study aimed to examine the capability of several solvents for the cognizance of the main compounds from *Annona squamosa* leaves and to evaluate the Antibacterial, Antioxidant, and anticancer activities of these extracts.

Methods: Gas chromatography-mass spectroscopy was used to screen the bioactive compounds of a squamosa methanolic extract. The free radical, hydrogen peroxide, and nitric oxide scavenging activities of the extracts were investigated. furthermore, MTT, nuclear staining, LDH, and monolayer wound repair assays were performed to evaluate the potential anticancer activity was tested by using a well diffusion assay.

Conclusion: Major bioactive components found in squamosa leaves have been shown to inhibit the growth of numerous types of bacteria and colon cancer cell lines. This has shown the effectiveness of squamosa leaves as an alternative source of antibiotics and for the creation of new medications for the treatment of colon cancer.

Keywords: A squamosa, antibacterial, apoptosis bioactive compounds, antioxidants, phytomedicine

Introduction

In the recent years the quest for natural food additives has become an increasing concern Consumers demand for healthier foods has been initiative for many researchers seeking for naturals alternatives antioxidants have been widely used as food additives to provides protectives against oxidative degradation of foods by free radicals

Annona squamosa is known for its for its edible fruits and plant grows as a small sapling rising from 3 m and reaching up to 8 m with large randomly spread branches having brownish or light bronish bark with thin leaves

A squamosa is small tree that grows up to 3-8 m with broad irregularly spreading branches of light brown bark having thin leaves that occur singly measuring 5-17 cm In length and 2-6 cm in width flowering occurs during the period from spring to early summer a d flowers are pollinated by nitidulid beetles the round or heart shaped greenish yellow ripened aggregate fruit is pendulous on a thickened stalk. the pulp of fruit is white-tinged yellow edible and sweetly aromatic. Each carpel contains an oblong, shiny and smooth, dark brown to black 1.3 to 1.6 cm long seed A Squamosa leaves contains active substance such as glycosides, flavonoids, pheolics, tannis alkaloids and saponins. these compounds show therapeutics effects such as antineoplastic free radical scavengers antiviral, antimicrobial anti-melogenic and anti-inflammatory activities

The herbal drugs have been used throught out the world have received greater attention in recent movement, because of its diversity of curing diseses safety and well tolerated remedies compared to the conventional medicines.

The rational approach is being developed to use medicinal plant as a pestiside. The pesticidal activity is due to the presence of active molecules. Thus, the object of this work has was to assess the pestisidal.

Activity against the storage pest *Sitophilus oryzae***Fig 1:** *Annona squamosa* L**Table 1:** Shows the sugar apple / custard apple

Common name	Sugar Apple/Custard Apple
Kingdom	Plantae
Order	Magnoliales
Family	Annonaceae
Genus	Annona
Species	<i>Annona squamosa</i> Linn.
Synonym	<i>Annona asiatica</i> Linn.

Presence of actetogenins, Polyphenols in leaves *A. squamosa* probably play a role as an effective FR scavenger. *A. squamosa* extract increase cellular proliferation and increase the collagen. Since custard apple has tremendous antioxidant, it is good if custard apple is *Annona squamosa* being developed as the skin against oxidative damage and eliminate the FR.

Biological activities of *Annona squamosa* L. Leaves**Anticancer Activity**

Many cancer treatment strategies, including radiation therapy and chemotherapy, are primarily based on cancer cell apoptosis. The ability to evade apoptosis is a unique property of human cancers that can result in effective cancer progression and tumor formation.

Antidiabetic Activity

Diabetic is an endocrine and metabolic disorder that is primarily characterised by insulin deficiency, insulin resistance, and elevated levels of sugar in the blood, according to the international Diabetes Federation (IDF), the prevalence of diabetes mellites (DM) is escalating across the globe. In 2016, 415 millions people had diabetes, and by 2040, 642 millions people are anticipated to suffer from DM.

Antimicrobial Activity

Plant-based antimicrobials have substantial prophylactic peoperties and considered to be efficient, safe, and cost effective alternatives for synthetic antimicrobials that posses more notable side effects. Depsite being a commercial fruit

plant because of its creamy succulent flesh, *Annona squamosa* is reported to have enormous pharmacological properties, including antimicrobial activity, owing to the presence of different secondary metabolites, such as glycosides, phytosterol, alkaloids, oils, saponins, phenols, and flavonoids

Hepatoprotective Properties

Hepatosteatosis or fatty liver disease (FLD) is mostly caused by an imbalance in the production and metabolization of fat in the body, which is caused by dietary habits, secondary lifestyles, and stress. Moreover, several drugs (e.g. Dolo) are known to cause damage to hepatocytes. Due to the effect of a high fat dose and the damage caused by drugs, hepatocytes face oxidative stress, which further leads hepatosteatosis.

Effect of ASLs Extract on the Lipid Profile

An imbalance in the lipid profile leads to several diseases, such as coronary artery disease, cancer atherosclerosis, peripheral arterial disease, stroke, and myocardial infarction. Lifestyle, disease, food habits and drugs are responsible for dyslipidaemia due to the inanced mobilisation of lipids from adipose tissue to plasma. Diabetes, one of the diseases that affect antioxidant defence system, causes oxidative stress and alters the lipid profile due to over production and/insufficient removal of ROS.

Conclusion

Numerous pathological changes in cells, including uneven pigmentation, increased, wrinkling, loss of elasticity, dryness and roughness, are brought on the presistant exposure of human skin to the UV radiation found in sunshine. Hearbal cosmetics are utilized as a therapy to prevent their aging sign. Many active ingredient, including flavonoids & phenolic acid, seem effective at preventing damage caused by UV radiation.

The usage of natural substances for skin protection, particularly topical antioxidant application, shows how well-liked they are for reducing effects of aging on the skin. *A. squamosa*. Antioxidant-rich *A. squamosa* leaves thicken and stimualate collagen production to decrease wrinkles and fine lines, increase skin suppleness, and promote healthy skin. Antioxidents defends against UV damage by scavenging the sun's damaging the rays.

References

1. Azabion Journal. Chemistry evaluation of the antioxidant and antibacterial properties of various solvent extracts of *Annona squamosa* L. leaves, 2014 Apr, 7(2).
2. Kumar M, Changes S, Tomar M, Prajapati U. Phytochemical profile, health-promoting biological activities; c2021 Apr.
3. Kalidindi N, Nandee R, Kalidindi B. Journal of Food and Drug Analysis, 2015 Dec, 23(4).
4. Safira A, Widayani P, Rani DM. Pharmacogn J; c2022.
5. Kumar JA, Rekha T, Devi SS, Kunnan M, Jaswanth A, Gopal V, *et al.* Journal of Chemical and Pharmaceutical Research; c2010.
6. Mahawar V, Patidar K, Joshi N. Journal of Pharmaceutical and Clinical Research, 2019, 12(2).
7. Farah, Ali J, Ibrahim G, Cheble E. Antioxidant activity and total phenol content of different plant parts of

- Lebanese *Annona squamosa* Linn. International Journal of Pharmacy and Pharmaceutical Science, 2020, 12(8).
8. Verma RS, Joshi N, Padali R, Singh VR. Characterization of leaf essential oil composition of *Annona squamosa* L. from foothills of North India. Medicinal & Aromatic Plants; c2016 Jan.
 9. Ghadir A, El Chaghaby, Abeer F, Ahmad S, Ramis E. Evaluation of the antioxidant and antibacterial properties of various solvent extracts of *Annona squamosa* L. leaves. Aromatic Journal of Chemistry. 2014;7:227-233.
 10. Kaleem M, Asif M, Ahemed Q, Bano B. Antidiabetic and antioxidant activity of *Annona squamosa* extract in streptozotocin-induced diabetic rats. Singapore Med J. 2006;47:670-675.
 11. Gupta RK, Watal AN, Murthy PS, Maithal KC, *et al.* Hypoglycemic and antidiabetic effect of aqueous extract of leaves of *Annona squamosa* (L) in experimental animals. Curr Sci. 2005;88:1244-1254.
 12. Rahman MH, Alam B, Chowdhury NS, Jha MK, Hasan M, Khan MM, *et al.* Antioxidant, analgesic, and toxic potentiality of *Stephania Japonica* (Thunb.) Miers. Leaf. Int. J Pharmacol. 2011;7(2):257-262.
 13. Varadharaj V, Kumba U, Krishnamurthy V. Physicochemical, phytochemical screening and profiling of secondary metabolites of *Annona squamosa* leaf extract. World Journal of Pharmaceutical. 1(4):1143-1164.
 14. Rao PK, Khaliq K, Kharat SS, Sagare P, Patil SK. Preparation and evaluation of o/w cream for skin psoriasis. Int J Pharm Bioscience.
 15. Vikas B, BS A, Remani P, Sujathan K. Scavenging properties of *Annona squamosa*; c2017.
 16. Mohape VR, Jyoti AK, Wakchaur SM, Tambe SE. Journal of Advanced Research in Science, 2022 Jun, 2(S).
 17. Ali AA, Akhta N, Khan HM. Assessment of physical stability and antioxidant activity of polysiloxane polyalkyl polyether copolymer-based creams. J Chem; c2013.
 18. Naithani V, Singhal AK, Bangar OP, Chaudhary M. Comparative evaluation of antioxidant activity of acnana and its comparison acne drugs. J Pharm Res; c2011.
 19. Maha HL, Sinaga KR. Formulation and evaluation of miconazole nitrate nanoemulsion and cream. Asian J Pharm Clin Res; c2018.
 20. Kumara DK, Satyansrayan T, Kumar CH, Moulabi SK, Pullarao B, *et al.* Indo Am J Pharm Res.; c2016.
 21. Patnaik MT, Bai RS, SA KS, Sunder R. Preparation and evaluation of polyherbal anti-aging cream by using different synthetic polymers. Int J Herb Med.; c2017.
 22. Himaja N. Formulation and evaluation of herbal cream from *Azadirachta indica* ethanolic extract. Int J Pes Drug Pharm Sci.; c2017.
 23. Mahawar V, Patidar K, Joshi N. Biology Asian Journal of Pharmaceutical and Clinical Research; c2019 Jan 31.
 24. Kumar M, Changan S, Tomar M, Prajapati U, *et al.* Custard apple (*Annona squamosa* L.) leaves: Nutritional composition, phytochemical profile, and health-promoting biological activities. Biomolecules. 2021 May;11(5):614.