Available online on 15.2.2025 at http://ajprd.com

Asian Journal of Pharmaceutical Research and Development

Open Access to Pharmaceutical and Medical Research

Open Access

Review Article

A Comprehensive Review on Medicinal Importance of *Cucumis melo*

Neha Yadav[1], Pinki Jangra[2], Kirti Yadav[1*]

[1]B.M. College of Pharmacy, Farrukhnagar, Gurugram

[2]Sant Kabir College of Pharmacy, Jhajjar, Haryana

A B S T R A C T

Cucumis melo which is generally known as musk melon or Kharbuzah belongs to the family Cucurbitaceae. The plant is an annual climber or creeping herb characterized by its angular, scabrous stem, simple soft hairy orbicular-reniform leaves, and persistent tendrils that can be easily trained over trellises. The cultivation of musk melons is widespread throughout India, particularly, in the arid and thermally intense North-Western regions. Main components used include pulp, root, seeds, and seed oil. The compound has diuretic, emmenagogue, and cooling, demulcent effects. Throughout generations, fruit has been used to alleviate kidney problems including kidney and bladder stones, painful and burning urination, urinary tract ulcers, urinary retention, cough, hot inflammation of the liver, liver and bile blockage, dermatitis, and more. The oil extracted from seeds is highly nutritious and specifically contains linoleic acid (60-70%), lecithin, cephalin, and cerebroside. Melon seeds are composed of multiflorenol, isomultiflorenol, and 24-methylenecycloartenol esters. Its antimicrobial, antioxidant, antihyperlipidemic, anti-inflammatory, analgesic, diuretic, anthelmintic, nephroprotective and cytotoxic activity, Analgesic and Anti-inflammatory Activity, Anti-oxidant and free radical scavenging activity, Anti-Vitiligo Effect, Anti-ulcer activity, Anti-cancer activity, Hepato-protective activity, Diuretic effect, Protects against Hypothyroidism, Anti-diabetic activity, Haemagglutination and Haemolysis, Antibacterial and Anthelmintic activity, Antimicrobial activity, Antifungal, Nematicidal have been proved by research studies. Cucumis melo Linn., also known as melon, is a highly palatable and succulent fruit with a nutritional composition that provides vitamins A and C, potassium, and dietary fiber. Its health benefits include enhanced hydration and antioxidant qualities. Cucumis melo Linn. also holds significant economic significance, contributing to the agricultural economy by providing jobs and bolstering local markets. The species includes several cultivars, including cantaloupe and honeydew, each with unique taste profiles and textures. This variability highlights the importance of genetic variety in breeding initiatives to enhance yield resilience against pests and environmental stressors. Further research is needed to maximize the potential benefits of Cucumis melo Linn.

Keywords: Cucumis melo, North-Western regions, Haemolysis, Antibacterial, Anthelmintic activity, Antimicrobial

A R T I C L E I N F O: Received 13 Nov. 2024; Review Complete 11 Jan. 2025; Accepted 02 Feb. 2025. ; Available online15 Feb. 2025

Cite this article as:

Yadav N, Jangra P, Yadav K, A Comprehensive Review on Medicinal Importance of *Cucumis melo* , Asian Journal of Pharmaceutical Research and Development. 2025; 13(1):117-122, DOI: http://dx.doi.org/10.22270/ajprd.v13i1.1514

*Address for Correspondence:

Ms. Kirti Yadav, Assistant Professor, B.M. College of Pharmacy, Farrukhnagar, Gurugram, India

INTRODUCTION

The melon, scientifically named Cucumis melo Linn., is a deciduous plant species that is classified under the Cucurbitaceae family, has attracted considerable interest in both gastronomic and scientific fields (Figure 1) (1). The species is distinguished by its highly palatable and succulent flesh and is farmed in several climatic regions across the globe. The nutritional composition of the fruit is remarkable, providing a substantial supply of vitamins A and C, potassium, and dietary fibre. These characteristics not only multiply its attractiveness as a revitalising dietary choice but also add to its possible health advantages, such as enhanced hydration and antioxidant qualities (2). Furthermore, apart from its nutritional value, Cucumis melo Linn. Possesses significant economic significance. In many locations, the cultivation of melons makes a substantial contribution to the agricultural economy, offering farmers jobs and bolstering local markets (3). This species encompasses several cultivars, including cantaloupe and honeydew, each characterised by unique taste profiles and textures that vary according to the tastes of consumers. The presence of this variability highlights the significance of genetic variety within the species for breeding initiatives that target the enhancement of yield resilience against pests and environmental stressors (4). Moreover, studies on Cucumis melo Linn. have broadened scope to include fields like as genetics and phytochemistry.

Scientific investigations have discovered bioactive substances present in the melon that show promising therapeutic properties against chronic conditions such as diabetes and hypertension. Continual investigation of these factors may result in advances in functional meals that enhance health beyond fundamental nutrition (5). Hence, the multifarious importance of Cucumis melo Linn. in the fields of nutrition, economy, and science justifies the need for further research to maximally exploit its possible advantages (6).

Geographical Distributions

Native range includes Iran, South Africa, India, Philippines, China, Australia; exotic range includes Pakistan, Japan, India, Sri Lanka, Saudi Arabia, Indonesia, Yemen, Angola, Ethiopia, Kenya, Mali, Nigeria, Senegals, Pacific, Fiji Island, Guam, Tonga, New Britain, and Samoa. In India, particularly, in the arid and thermally intense North-Western regions (7, 8).

Figure 1: Cucumis melo Linn.

Vernacular Descriptions

Arabic names: Battikh, Bengali names: Kharmuj; Bombay names: Kharabuja, Chibuda names: Kakadi, Kharbuja, Kharbuj; Cannada names: Kalingada; Chinese names include Kankua, Then kwa, Hiang-kwa, and Tien Kua. English-Sweet melon, Musk melon, Melon; FrenchCantaloup, Melon; German- Melonegurke, Melone; Gujarati- Turbuch, Kharbuja, Teti, Chibdu, Shakarateli, Tarbucha; Hindi- Khurbuza, Sakkarteli, Kharbuja, Kachra,Patkira, Phut,Tuti, Kharbuza, Kakni, Kakri; LatinCucumis melo; Madras- Mulam; Marathi- Kharbuja, Khurbuj, Valuk, Chibunda, Kharbuja; Persian- Kharbuzeh, Kharpaza; Punjabi- Kharbuja,Gilas, Girasa; RussianMelon; Sanskrit- Kalinga, Kharvuja, Kharbuja, Madhupaka, Amritavha, Dashangula, Karkati, Madhupaka, Madhuphala, Phalaraja, Shadbhuja, Shadrekha, Tikta, Tiktaphala, Vrittakarkatti, Vrittervaru; Sindhi- Gidhro; Tamil- Vealapalam,Vellari-verai, Mulampazham, Mulam; TeluguVelipanda, Kharbuzadosa, Putzakova, Velipandu, Mulam; Unani- Khafis; Urdu- Kharbuzah (9, 10).

Taxonomical Classifications

The taxonomy of Cucumis melo is complex, as it includes various cultivars and subspecies that exhibit significant phenotypic variation. Taxonomically, this species is classified under the kingdom Plantae, phylum Angiosperms, class Eudicots, order Cucurbitales, family Cucurbitaceae, genus Cucumis, and species melo (11, 12). This hierarchical classification reflects not only its botanical lineage but also its ecological significance within agricultural systems worldwide.

Kingdom	Plantae
Phylum	Angiosperms
Class	Eudicots
Order	Cucurbitales
Family	Cucurbitaceae
Genus	Cucumis
Species	melo

Botanical Descriptions

This plant species displays a wide variety of cultivars, such as cantaloupe and honeydew, each distinguished by unique morphological characteristics. A comprehensive botanical description of Cucumis melo includes several features like its growth pattern, leaf morphology, floral traits, and fruit development. A comprehensive grasp of these characteristics is essential for both horticulture techniques and agricultural activity (13). Cucumis melo often has a growth pattern characterised by a spreading or climbing vine, capable of attaining lengths of up to 3 meters when provided with support. The stems are distinguished by their angular shape and are adorned with delicate hairs. The leaves of the plant are alternating, palmate-lobed, and vary in size extensively depending on the specific cultivar. The diameter of these structures can range from 10 to 30 cm and they have a coarse texture produced by the presence of trichomes. The plant exhibits well-developed leaf venation, which significantly enhances its photosynthetic efficiency. The flowers of Cucumis melo are monoecious, meaning they incorporate both male and female reproductive components inside a single plant (14). Clusters of male flowers precede the emergence of female blooms, which are often solitary and situated in closer proximity to the vine's base. The yellow petals of these blooms serve as a magnet for pollinators, particularly bees. Upon successful pollination, fruit undergoes development into a succulent berry that exhibits considerable variation in size, shape, and colour among different cultivars. These variations range from spherical to elongated forms with smooth or netted rinds (15, 16).

Traditional Uses

Cucumis melo has been used in traditional medicine for its expected therapeutic advantages. Various cultures ascribe characteristics such as diuretic effects and digestive assistance to the melon. Within Chinese herbal medicine, the seeds of the melon are said to have the ability to relieve coughs and decrease phlegm production by virtue of their cooling properties (17). Furthermore, the pulp is frequently advised to alleviate inflammation and enhance hydration in hot weather situations. The various applications of melons highlight their importance beyond basic nourishment; they have a vital function in comprehensive health regimens (18). Capsicum melo functions as a purgative. Indications for its use include dysuria, renal function regulation, blood pressure reduction, dyspepsia, flatulence, leprosy, fever, jaundice, diabetes, obesity, cough, bronchitis, ascites, anaemia, constipation, other abdominal illnesses, amentia, and menorrhagia. The fruit serves as a cooling, cleaning, and

moisturising agent for the skin (19). It functions as a demulsant and stomachic agent (20). Seeds possess antitussive, febrifuge, and vermifuge effects. Fruit pulp is used as a topical therapeutic for both chronic and acute dermatitis. Moreover, Cucumis melo carries cultural importance in many civilizations that associate it with wealth and fertility (21). Within several African societies, melons hold a significant position during festivals and ceremonies as a method of summoning and promoting good luck (22). Furthermore, this cultural aspect enhances the significance of the fruit by expanding its worth beyond its nutritional and physical benefits to include social unity and identity (23). Furthermore, gaining knowledge about the conventional applications of Cucumis melo offers valuable understanding of the agricultural methods and cultural legacy associated with this extensively grown plant (24).

Phytochemical Constituents

Due to its potential health benefits, such as antioxidant, anti-inflammatory, and anticancer qualities, the phytochemical components of Cucumis melo have attracted significant attention. This article presents an analysis of the primary phytochemicals found in Cucumis melo and their corresponding biological effects (25). The main phytochemicals present in Cucumis melo are flavonoids, carotenoids, phenolic bioactive compounds, and vitamins. Flavonoids, including quercetin and kaempferol, are well recognised for their antioxidant characteristics. These organic substances aid in the neutralisation of free radicals within the body, so diminishing oxidative stress and potentially mitigating the likelihood of chronic illnesses such as cancer and cardiovascular diseases (26). Furthermore, flavonoids have demonstrated anti-inflammatory properties that could be advantageous for persons afflicted with inflammatory disorders. Carotenoids are a notable category of polyphenolic compounds found in Cucumis melo. Furthermore, these pigments serve as precursors to vitamin A, thereby playing a crucial role in human health in addition to contributing to the vivid colours of melons (27, 28). The antioxidant action of carotenoids, such as beta-carotene, is highly effective and they may provide protection against certain degenerative illnesses by improving immune function and fostering skin health (29). The composition of C. melo consists of several volatile chemicals that are biosynthetically produced from fatty acids, carotenoids, amino acids, and terpenes. The volatile constituents such as Methyl acetate, Ethyl acetate, Ethanol, Ethylbutanol, Benzaldehyde, Benzyl acetate, Phenylmethylacetate, Benzyl alcohol, Eugenol. Notable terpenoids include ß pinene, 1,8-Cineol, Limonene, and p-Cymene (30). Nonvolatile components present in the substance include ß carotenes, flavonoids, carbohydrates, linoleic acid, a-linolenic acid, glycolipids, phospholipids, amino acids, and phenolic glycosides. Analysis of C. melo seeds using phytochemical methods indicated the existence of phenolic glycoside (E).-4-hydroxycinnmyl alcohol Chemical compound, 4-O-(2'-O-b-Dapiofuranosyl) (1"_2')Benzoyl O-b-D glucopyranoside, also known as b-D-glycopyranoside (31). These compounds are 3,29-O dibenzoylmultiflor-8-en-3_,7b, 29-triol and 3-O-p-amino-benzoyl-29-O benzoylmultiflor-8-en-3a,7b, 29-triol (32). Recent isolations from C. melo have yielded six saturated fatty acids, namely astetradecanoic acid, pentadecanoic acid, hexadecanoic acid, heptadecanoic acid, eicosanoic acid, and octadecanoic acid, as well as three unsaturated fatty acids named 9-hexadecenoic acid, 9-octadecenoic acid (Z), and 11-octadecanoic acid (33).

Pharmacological Activities

Anti-Alzheimer Activities

The study evaluated the anti-Alzheimer effect of C. melo seed powder in mice, focusing on brain acetylcholinesterase activity, blood cholesterol, and blood glucose levels. The extract significantly protected animals from memory deficits due to diazepam and scopolamine. The seed kernels showed memory improvement, decreased transfer latency, increased TSTQ, decreased escape latency time, increased discrimination index, and increased step down latency (34). The extract also significantly decreased acetyl cholinesterase activity, indicating total blood cholesterol and blood glucose levels. The study suggests that C. melo seeds extract may be a useful remedy for Alzheimer's disease management due to its seven-fold mechanism: flavonoids possessing powerful antioxidant properties, linoleic acid and arachidonic acid responsible for cholinergic neuron growth and regeneration, phosphatidylethanolamine and phosphatidylcholine serving as precursors for acetylcholine synthesis, neuroprotectin D1 release, inhibition of acetylcholinesterase enzyme, lowering blood cholesterol, and anti-hyperglycemic effect, which helps prevent brain damage due to excessive glucose (35).

Analgesic and Anti-inflammatory Activities

Cucumis melo extracts show significant analgesic properties in animal models, modulating nociceptive pathways and inhibiting pro-inflammatory cytokines (36). Some studies suggest that specific phytochemicals in melon can enhance endogenous analgesic mechanisms. In addition to its analgesic properties, Cucumis melo has anti-inflammatory effects, reducing inflammation levels in both experimental models and human subjects (37). This suggests that incorporating melon into one's diet may provide a natural approach to managing inflammation and promoting overall health. Cucumis melo Linn. presents promising analgesic and anti-inflammatory activities, supported by emerging scientific evidence (38). Further research into its phytochemical composition could lead to innovative dietary strategies or complementary therapies aimed at enhancing pain management and reducing inflammation naturally.

Gastroprotective effect

The peptic ulcer is the prevailing gastrointestinal (GIT) disease in contemporary industrialised societies. The prevention or treatment of peptic ulcers is a paramount challenge being faced by the field of medicine (39). The objective of this work was to assess the gastroprotective properties of an aqueous extract of C. melo bypylorus using the ligated preparation method. The results demonstrated notable anti-secretory activity, as indicated by reduced pepsin secretion, gastric juice volume, and acid output in rats with pylorus ligation (40). The results provided evidence that the aqueous extract of C. melo has strong antisecretory and gastroprotective properties, therefore supporting the traditional use of this plant for the treatment of peptic ulcers (41).

Anti-Oxidant and Free Radical Scavenging Activity

Cantaloupe methanolic extract has demonstrated DPPH and hydroxyl radical scavenging activities. The observed efficacy of cantaloupe extracts can be attributed mostly to the presence of phenolic chemicals, commonly flavonoids. Considerable antioxidant activity was detected in the leaf and stem extracts of cantaloupe (42). In comparison to methanol extracts of the leaves, stem, skin, and meat of the melon, the methanolic extract of the seeds has the greatest DPPH radical scavenging activity. The water and methanol-water extracts exhibit significant antioxidant activity, maybe attributed to the abundant presence of caffeic acid in both extracts (43). Specialised expression of CmADHs indicated a strong adjustment of the fruit to the developmental processes.

Anti-Vitiligo Effect

In an open observational study assessing the effectiveness and safety of a product containing phenylalanine, C. melo extract, and acetyl cysteine, administered alone or in conjunction with 311-nm narrow band microphototherapy, 38-73% of patients achieved excellent repigmentation (>75%), depending on the treatment regimen. Minor to moderate adverse effects were reported exclusively in patients who received clobetasol 0.05% ointment. The evaluated gel composition shown a high level of effectiveness in enhancing the process of vitiligo repigmentation. Absence of adverse consequences reported (44, 45).

Anti-Diabetic Activity

Administration of the ethanolic extract of the plant at a dosage of 250mg/kg orally did not reduce blood glucose levels in streptozotocin-induced diabetic male albino rats. While the CCT-diet (supplemented with 4% cholesterol, 1% cholic acid, and 0.5% 2-thiouracil) caused a rise in tissue lipid peroxidation, blood lipids, glucose, and creatinine kinaseMB levels, the fruit peel extracts of C. melo inverted this effect (46). Moreover, Musk melon enhances the concentrations of thyroid hormones and insulin, suggesting its capacity to improve the changes in serum lipids, thyroid dysfunctions, and hyperglycemia/diabetes mellitus caused by the diet. These advantageous effects may be attributed to the abundant presence of polyphenols and ascorbic acid in the peel extracts (47). Oxykine is a cantaloupe melon extract that contains a high concentration of vegetal superoxide dismutase (SOD) and is coated with gluten-based polymeric films made from wheat matrix. Administration of oxykine improved the advancement and hastening of diabetic nephropathy in animals with type-2 diabetes. The oxykine mitigated the chronic oxidative stress and renal mesangial cell damage caused by diabetes. Oxykine perhaps represents a new strategy for the prevention of diabetic nephropathy (48).

Diuretic Effect

The diuretic effect of ethanolic seed extracts of Macrotyloma uniflorum and C. melo in Albino rats were evaluated. Furosemide (5mg/kg) was used asa drug (49). The diuretic effect was evaluated by measuring the Urine volume, Sodium, Potassium, Chloride and Bicarbonate contents. A significant Diuretic effect was observed treated with extracts of Macrotyloma uniflorum and C. melo individually in experimental animals compared to the control. However, extract of C. melo showed more diuretic effect than standard. The results, therefore, explains the use of Macrotyloma uniflorum and C. melo asa cure for renal diseases in traditional medical practice (50).

Antibacterial and Antihelmintic Activity

Cucumis melo, a plant with a rich phytochemical composition, has been found to have antibacterial and antihelmintic properties. Its flavonoids, alkaloids, and phenolic compounds have shown significant inhibitory effects against pathogenic bacteria like Escherichia coli and Staphylococcus aureus (51). Studies using disc diffusion methods have shown that extracts from different parts of the plant show varying levels of antibacterial activity. Additionally, Cucumis melo has been investigated for its antihelmintic effects against parasitic worms, such as Haemonchus contortus and Ascaris lumbricoides (52). The mechanism behind this effect may involve disrupting the parasites' metabolic processes or interference with their reproductive cycles. Therefore, Cucumis melo Linn. has significant potential as an antibacterial and antihelmintic agent, and further research could lead to novel treatments against resistant bacteria and helminth infections (53).

Antimicrobial Activity

The aqueous, heptane, petroleum ether and acetone extract of the whole plant of C. melo Linn, P. daemia Frosk. (Asclepiadaceae) was screened for the antibacterial and antifungal activity by highest Zone of Inhibition was shown by whole plant and fruit extract of C. melo Linn with aqueous and acetone with C. albicans and E. coli 08 and 12 mm respectively. Very poor response was observed with acetone and aqueous extract in other bacterial and fungal stains. Highest zone of inhibition was shown by whole extract of Pergularia daemia with heptane with E. coli and C. albicans, 16 and 21 mm respectively (54).

Nutritive Value

Melon, scientifically named Cucumis melo Linn., includes a range of cultivars including cantaloupe and honeydew. These fruits are renowned not just for their palatably refreshing flavour but also for their remarkable nutritional content. The primary constituent of melons is water, accounting for around 90% of their weight, thereby facilitating hydration, a crucial element for maintaining nutritional well-being (55). Their elevated water content renders them very attractive in hot weather and helps to regulate fluid equilibrium in the body. The carbohydrate composition of Cucumis melo consists mainly of monosaccharides such as glucose and fructose, which facilitate rapid energy production. Furthermore, melons have a low caloric content; for example, 100 grammes of cantaloupe has around 34 calories (56). The combination of low calorie density and high fibre content in melons enhances satiety, making them exceptionally suitable for weight management programs. The presence of dietary fibre in melons is essential for maintaining digestive health as it facilitates regular bowel movements and helps to prevent constipation (57). Moreover, Cucumis melo is exceptionally abundant in vital vitamins and minerals. Notably, it is a superb source of vitamin C, which functions as a potent antioxidant that enhances immune system activity and promotes skin health (58). In addition, it includes substantial

quantities of vitamin A obtained from beta-carotene, which is crucial for vision and reproductive health, as well as potassium that aids in blood pressure regulation. Undoubtedly, the wide variety of nutrients present in Cucumis melo highlights its importance as a helpful supplement to a well-rounded diet (59).

CONCLUSIONS

Medicinal plants are used for the therapeutic purpose from the beginning of human civilization. C. melo is a beautiful juicy, tasty and delicious fruit used for its nutritive and medicinal properties. Pharmacological studies conducted on C. melo showed that it exhibited immense potential for the treatment of conditions such as pain, liver disorders, cancer, inflammation, kidney stones and hypothyroidism. This fruit holds extraordinary promise for the future. Therefore, more work is required to explore its therapeutic potential as it has more therapeutic properties which are still not known.

Conflicts of Interest

None

REFERENCES

1. Asif HM, Rehman SU, Akram M, Akhtar N, Sultana S, Rehman JU. Medicinal Properties of Cucumis melo Linn. RADS Journal of Pharmacy and Pharmaceutical Sciences. 2014 Apr 18;2(1):58-62.
2. Fahamiya N, Aslam M, Siddiqui A, Shiffa M. Review on cucumis melo: ethnobotany and Unani medicine. World J. Pharm. Pharmac. Sci. 2016 Oct 6;5:621-36.
3. Kerje T, Grum M. The origin of melon, Cucumis melo: a review of the literature. InVII Eucarpia Meeting on Cucurbit Genetics and Breeding 510 2000 Mar 19 (pp. 37-44).
4. Usman JG, Sodipo OA, Kwaghe AV, Sandabe UK. Uses of Cucumis metuliferus: a review. Cancer Biol. 2015;5(1):24-34.
5. Ullah N, Khan S, Khan A, Ahmad W, Shah Y, Ahmad L, Ullah I. A prospective pharmacological review of medicinal herbs, Cucumis melo and Berberis vulgaris, commonly used in the treatment of renal diseases in Pakistan. Acta Pol Pharm. 2015 Jul 1;72(4):651-4.
6. Lija M, Beevy SS. A Review on the diversity of Melon. Plant Science Today. 2021 Nov 14;8(4):995-1003.
7. Khan A, Mishra A, Hasan SM, Usmani A, Ubaid M, Khan N, Saidurrahman M. Biological and medicinal application of Cucumis sativus Linn.–review of current status with future possibilities. Journal of Complementary and Integrative Medicine. 2022 Dec 5;19(4):843-54.
8. Lester G. Melon (Cucumis melo L.) fruit nutritional quality and health functionality. HortTechnology. 1997 Jul 1;7(3):222-7.
9. Insanu M, Rizaldy D, Silviani V, Fidrianny I. Chemical compounds and pharmacological activities of cucumis genus. Biointerface Res Appl Chem. 2022;12(1):1324-34.
10. Rajasree RS, Ittiyavirah SP, Naseef PP, Kuruniyan MS, Elayadeth-Meethal M, Sankar S. The anti-inflammatory properties of the methanolic extract of Cucumis melo Linn. against prostate enlargement in Wistar rats. Saudi Journal of Biological Sciences. 2022 Sep 1;29(9):103396.
11. Nithya M, Revathi M, Rangapriya M, Saritha B, Uthayanithi S. A Review On "Cucumis Melo L"-An Important Medicinal Plant. European Journal of Biomedical. 2023;10(4):105-9.
12. Swamy KR. Origin, distribution and systematics of culinary cucumber (Cucumis melo subsp. agrestis var. conomon). Journal of Horticultural Sciences. 2017;12(1):1-22.
13. Garg N, Sidhu AS, Cheema DS. Systematics of the genus Cucumis: A review of literature. Haryana J. hortic. Sci. 2007;36(1&2):192-7.
14. Sangamithra A, Ragavi P. Post-harvest attributes of muskmelon (Cucumis melo): a mini review on the potential of value addition. Current Nutrition & Food Science. 2020 Aug 1;16(6):854-9.
15. SOH RS, HAPIDIN H, KASIRAM MZ. A Scoping Review on Cucumis melo and Its Anti-Cancer Properties.
16. Rehman S, Imran M. An ethno-botanical review of seeds of Cucumis sativa (Maghz-e-tukhme khiyarain) from Unani Medicine and its Pharmacological Updates. Int. J. Adv. Pharm. Med. Bioallied Sci. 2021;9:31-6.
17. Rajasree RS, Ittiyavirah SP, Naseef PP, Kuruniyan MS, Anisree GS, Elayadeth-Meethal M. An evaluation of the antioxidant activity of a methanolic extract of Cucumis melo L. fruit (F1 hybrid). Separations. 2021 Aug 18;8(8):123.
18. Pandey A, Ranjan P, Ahlawat SP, Bhardwaj R, Dhariwal OP, Singh PK, Malav PK, Harish GD, Prabhu P, Agrawal A. Studies on fruit morphology, nutritional and floral diversity in less-known melons (Cucumis melo L.) of India. Genetic Resources and Crop Evolution. 2021 Apr;68:1453-70.
19. Wahid S, Khan RA, Feroz Z, Ikram R. Analgesic, anti-inflammatory and toxic effects of ethanol extracts of Cucumis melo and Citrullus lanatus seeds. Pakistan journal of pharmaceutical sciences. 2020 May 1;33(3).
20. Olubunmi IP, Olajumoke AA, Bamidele JA, Omolara OF. Phytochemical composition and in vitro antioxidant activity of golden melon (Cucumis melo L.) seeds for functional food application. International Journal of Biochemistry Research & Review. 2019 Mar 7;25(2):1-3.
21. Yadav JP, Singh AK, Grishina M, Pathak P, Patel DK. Cucumis melo var. agrestis Naudin as a potent antidiabetic: Investigation via experimental methods. Phytomedicine Plus. 2022 Nov 1;2(4):100340.
22. Jeffrey C. A review of the Cucurbitaceae. Botanical Journal of the Linnean society. 1980 Oct 1;81(3):233-47.
23. Hafeez N. Phytochemical and Biological Studies of Cucurbitaceae: A Mini-Review. Phytopharmacology Research Journal. 2024 Feb 23;3(1):13-23.
24. Ajuru M, Nmom F. A review on the economic uses of species of Cucurbitaceae and their sustainability in Nigeria. American Journal of plant biology. 2017 Jan;2(1):17-24.
25. Asghar MN, Shahzad MT, Nadeem I, Ashraf CM. Phytochemical and in vitro total antioxidant capacity analyses of peel extracts of different cultivars of Cucumis melo and Citrullus lanatus. Pharmaceutical Biology. 2013 Feb 1;51(2):226-32.
26. Devi B, Singh S. Phytochemical And Gc-Ms Studies Of Cucumis Melo L Subsp. Agrestis (Naudin) Pangalo Fruits. Plant Archives (09725210). 2021 Apr 1;21(1).
27. Manchali S, Chidambara Murthy KN, Vishnuvardana, Patil BS. Nutritional composition and health benefits of various botanical types of melon (Cucumis melo L.). Plants. 2021 Aug 24;10(9):1755.
28. Gomez-Garcia R, Campos DA, Aguilar CN, Madureira AR, Pintado M. Valorization of melon fruit (Cucumis melo L.) by-products: Phytochemical and Biofunctional properties with Emphasis on Recent Trends and Advances. Trends in food science & technology. 2020 May 1;99:507-19.
29. Fahamiya N, Aslam M, Siddiqui A, Shiffa M, Ahmed A, Khan MS. Pharmacognostical study and development of quality control parameters for Cucumis melo Linn. Am J PharmTech Res. 2012;2(4):1-4.
30. Olajumoke AA, Olubunmi IP, Bamidele JA, Omolara OF. Phytochemical composition and in vitro antioxidant activity of golden melon (Cucumis melo L.) seeds for functional food application. International Journal of Biochemistry Research & Review. 2019 Mar 7;25(2):1-3.
31. Fahamiya N, Aslam M, Siddiqui A, Shiffa M. Review on cucumis melo: ethnobotany and Unani medicine. World J. Pharm. Pharmac. Sci. 2016 Oct 6;5:621-36.
32. Lester G. Melon (Cucumis melo L.) fruit nutritional quality and health functionality. HortTechnology. 1997 Jul 1;7(3):222-7.
33. Insanu M, Rizaldy D, Silviani V, Fidrianny I. Chemical compounds and pharmacological activities of cucumis genus. Biointerface Res Appl Chem. 2022; 12(1):1324-34.
34. Park SS, Park NO, Kang JU, Shin SC, Lee DU. Cognition enhancing effect of muskmelon (Cucumis melo) extracts on scopolamine-induced memory impairment in mice. Journal of Life Science. 2009; 19(5):688-91.
35. Silva MA, Albuquerque TG, Alves RC, Oliveira MB, Costa HS. Cucumis melo L. seed oil components and biological activities. InMultiple Biological Activities of Unconventional Seed Oils 2022 Jan 1 (pp. 125-138). Academic Press.
36. Wahid S, Khan RA, Feroz Z, Ikram R. Analgesic, anti-inflammatory and toxic effects of ethanol extracts of Cucumis melo and Citrullus lanatus seeds. Pakistan journal of pharmaceutical sciences. 2020 May 1;33(3).
37. Singh S, Devi B. Analgesic, Anti-Inflammatory And Burn Wound Healing Activities Of Cucumis Melo L. Subsp. Agrestis (Naudin) Pangalo Fruits And Leaves. Journal of Huazhong University of Science and Technology ISSN.; 1671:4512.
38. Demsie DG, Yimer EM, Berhe AH, Altaye BM, Berhe DF. Anti-nociceptive and anti-inflammatory activities of crude root extract and solvent fractions of Cucumis ficifolius in mice model. Journal of Pain Research. 2019 Apr 30:1399-409.
39. Sivakumar G, Aswin K. Evaluation of Ethanolic leaf extract of Cucumis melo var. agrestis in Acetic Acid-Induced Ulcerative Colitis on Rats.

International Journal of Pharmaceutical Sciences and Drug Research. 2023 Jul 19:469-77.
40. Galani VJ, Goswami SS, Shah MB. Antiulcer activity of Trichosanthes cucumerina linn. against experimental gastro-duodenal ulcers in rats. Advances in Traditional Medicine. 2010;10(3):222-30.
41. Avinash K, Abha D, Ganesh NS. Peptic ulcer: a review with emphasis on plants from Cucurbetaceae family with antiulcer potential. Int J Res Ayurveda Pharma. 2011;2(6):1714-6.
42. Vidya R, Kalaivani K. Determination of Free Radical Scavenging Potential in Cucumis melo (L). Fruit Extract. Research Journal of Pharmacy and Technology. 2021;14(10):5084-8.
43. Krishna TM, Shiva D, Keerthi D, Nandini A, Aswaq A, Reddy T. In vitro evaluation of antioxidant properties of Cucumis melo L. extracts of leaves and fruit. Int J Pharm Bio Sci. 2013 May 22;4(1):705-12.
44. Mahjour M, Khoushabi A. A Review Article About Some Herbs Affecting Vitiligo Based on Avicenna's Canon. Current Drug Discovery Technologies. 2020 Apr 1;17(2):133-7.
45. Husain MK, Pratap GP, Alam M, Javed G, Minhajuddin A, Khan AA. Traditional Uses and Properties of Indian Medicinal Plants in the Treatment of Vitiligo. InMedicinal and Aromatic Plants of India Vol. 2 2023 Nov 1 (pp. 191-212). Cham: Springer International Publishing.
46. Srivastava AK, Mukerjee A, Tripathi A. Antidiabetic and antihyperlipidemic activities of Cucumis melo var. momordica fruit extract on experimental animals. Future Journal of Pharmaceutical Sciences. 2020 Dec;6:1-9.
47. Jibril MM, Abdul-Hamid A, Ghazali HM, Dek MS, Ramli NS, Jaafar AH, Karrupan J, Mohammed AS. Antidiabetic antioxidant and phytochemical profile of yellow-fleshed seeded watermelon (Citrullus Lanatus) extracts. J. Food Nutr. Res. 2019;7:82-95.
48. Gopalasatheeskumar K, Kalaichelvan VK, Ariharasivakumar G, Sengottuvel T, Devan VS. In vitro Antidiabetic activity of hydroalcoholic leaf extract of Cucumis melo var agrestis (Cucurbitaceae). Research Journal of Pharmacy and Technology. 2020;13(12):5851-4.
49. Fahamiya N, Aslam M, Siddiqui A, Shiffa M, Ahmed A, Khan MS. Pharmacognostical study and development of quality control parameters for Cucumis melo Linn. Am J PharmTech Res. 2012;2(4):1-4.
50. Saleem A, Islam M, Saeed H, Iqtedar M. In-vivo Evaluation of Anti-urolithiatic Activity of Different Extracts of Peel and Pulp of Cucumis melo L. in Mice Model of Kidney Stone Formation. Pakistan Journal of Zoology. 2021 Aug 1;53(4).
51. Doshi GM, Kanade PP. Evaluation of bioactivity of Cucurbita pepo L., Cucumis melo L. and Cucumis sativus L. seed extracts. Indian Journal of Experimental Biology. 2019 Apr 1;57(4).
52. Gomez-Garcia R, Campos DA, Aguilar CN, Madureira AR, Pintado M. Valorization of melon fruit (Cucumis melo L.) by-products: Phytochemical and Biofunctional properties with Emphasis on Recent Trends and Advances. Trends in food science & technology. 2020 May 1;99:507-19.
53. Djeussi DE, Noumedem JA, Mihasan M, Kuiate JR, Kuete V. Antioxidant activities of methanol extracts of thirteen Cameroonian antibacterial dietary plants. Journal of Chemistry. 2020;2020(1):8886762.
54. Sivakumar T. Traditional medicine, Phytochemicals and pharmacological applications of common plants in the Cucurbitaceae family–An extensive review. Journal of Xidian University. 2023;17(7):758-67.
55. Lester G. Melon (Cucumis melo L.) fruit nutritional quality and health functionality. HortTechnology. 1997 Jul 1;7(3):222-7.
56. Manchali S, Chidambara Murthy KN, Vishnuvardana, Patil BS. Nutritional composition and health benefits of various botanical types of melon (Cucumis melo L.). Plants. 2021 Aug 24;10(9):1755.
57. Zulfiqar H, Hussain AI, Ali Q, Rathore HA, Ahmed I. Phenolic profile, nutritional potential and biological activities of wildly grown accessions of Cucumis melo var. Agrestis. Journal of King Saud University-Science. 2024 Aug 1;36(7):103276.
58. Fahamiya N, Aslam M, Siddiqui A, Shiffa M. Review on cucumis melo: ethnobotany and Unani medicine. World J. Pharm. Pharmac. Sci. 2016 Oct 6;5:621-36.
59. Shafi A, Farooq U, Akram K, Hayat Z. Phytochemistry And Potential Therapeutic Perspective Of Melon Seeds. InBioactive Compounds from Plant Origin 2019 Oct 8 (pp. 185-206). Apple Academic Press.