



A REVIEW ARTICLE ON CUCURBITA PEPO

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Conflicts of Interest: Nil

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ABSTRACT

The family cucurbitaceae includes a large group of crops like cucumber and melon which are medicinally essential. The plants of the family are collectively known as cucurbits. It is a distinct family without any close relatives. Plants of this family have many medicinal and nutritional benefits. So it is important to find out the active agents possessing pharmacological activity in plants coming under the family. The major elements present are the phytochemicals like Glycosides, Terpenoids, Tannins, Steroids, Carotenoids, Vitamins etc.

Keywords: Cucurbita pepo, anti-diabetic, antihypertension, antitumor, immunomodulation, Cucurbitacins, Citrullus.

INTRODUCTION

Pumpkin (*Cucurbita pepo*): It is a fruit vegetable, known as Konda, Kumra and safed kadu. It is a climbing herb which is considered to be a native of America, Western Hemisphere and easily cultivated in many parts of India, Tropical Asia countries such as Indonesia, Malaysia.[Winkler *et al.*, 2005] The family Cucurbitaceae includes a large group of plants which are medicinally valuable. It is a family of about 130 genera and about 800 species distributed mainly in tropical and subtropical regions of the world (Kocyan *et al.*, 2007). The important genera family belonging to the family are Trichosanthes, Lagenaria, Luffa, Benincasa, Momordica, cucumis, Citrullus, Cucurbita, Bryonopsis and Corallocarpus. Some of the important plants that have been extensively studied are Momordica charantia, Cucurbita pepo, Cucumis sativus, Cucumismelo, Citrulluscolocynthis, Luffaechinata, Trichosantheskirilowii, Lagenariasiceraria, Benincasahispidaetc (Shweta *et al.*, 2003). It grows as a large annual vine and has large, showy, yellow-orange flowers and round, lobed leaves, often with fine hairy prickles. Pumpkin have a lot of health benefits such as antidiabetic, anticancer, antihyperhypertension, antioxidant, antitumor, immunomodulation, anti-inflammation, antihyperlipidemic and antimicrobial. Consumption of pumpkin helps to prevent skin diseases, eye disorders reducing

cell damage in the body, cancer and improve immune function (Sharma *et al.*, 2013). It is also known to contain several bioactive compounds such as cucurbitacins, triterpenes, sterols and alkaloids (Siddig *et al.*, 2011).

Scientific Classification

Kingdom :	Plantae
Division :	Magnoliophyta
Class :	Magnoliopsida
Order :	Cucurbitales
Family :	Cucurbitaceae
Genus :	Cucurbita
Species :	Cucurbita maxima

Vernacular names

Common name :	Pumpkin, Squash
Hindi :	Kaddu
Tamil :	Pucani
Kannada :	Kumbala kaayi
Malayalum :	Kumpalam
Marathi :	Kashiphail
Assam :	Kumra
Telugu :	Gummadi
Bengali :	Kumara
Urdu :	Kaddu

Geographical distribution

Cucurbita pepo is native to north America (northeastern Mexico and southern USA).

Parts Used

Seed, Flower, Fruit, Leaves.

Botanical description

Leaves: More or less round with five deep lobes and serrated edges. Solid dark green or yellow-green or with white grey-green. Long leaf-stalks hold the leaf blades above flowers and fruits. Stem and leaves of many cultivars bear fine, glassy prickles.

Flowers: Large, showy, bright yellow/orange. Separate male and female flowers are borne on the same plant.

Fruits: Extremely variable in size, shape, colour and texture. Fruits stems (peduncles) are not corky and are ridged all round, widening slightly at the base. Flesh is pulpy. Fruits of wild plants are normally bitter.

Seeds: Smooth, oval and flattened, with one end slightly more pointed than the other. Light to dark beige. (Towensend *et al.*, 1980 & Mabberley *et al.*, 2008).

Chemical Constituents

Fruits: Fruits contain polysaccharides, vitamins (including β -carotene, Vitamin A, Vitamin B2, α -tocopherol, Vitamin C, Vitamin E), protein amino acids (alanine, arginine, aspartic acid, etc), phenolics, flavanoids, carotenoids and minerals (especially potassium). Pumpkin is high in β -carotene, which gives it yellow or orange colour is a major source of vitamin A. It is also high in carbohydrates and minerals. (Chigwe *et al.*, 1994 & Craig *et al.*, 1994).

Seeds : Seeds have a high nutritional value, provides good quality oil and excellent source of protein. Due to the presence of highly unsaturated fatty acids (palmitic acid, stearic acid, oleic acid and linoleic acid). Pumpkin are rich source of calcium, iron, vitamin A, oil (25-55%), rich in unsaturated oleic and linoleic acids, protein (25-35%) with high amounts of arginine, aspartate and glutamic acid but

deficient in lysine and sulphur containing amino acids. (Fahim *et al.*; 1995).

Leaves : Pumpkin leaves contain lots of vitamins and minerals which includes Potassium, calcium Folic acid, Iron, vitamin E and vitamin B6, vitamin A, vitamin C, Magnesium, Phosphorus, Thiamine, Niacin, Dietary fibers, Riboflavin, Copper, Manganese and Protein.

Flower: Pumpkin flower contain around 95% water, protein, Lipid, Carbohydrates, Polyunsaturated fatty acid.

Pharmacological Activities:

Sana Bardda *et al.*, (2016) reported oil from pumpkin (*Cucurbita pepo* L.) seeds: evaluation of its functional properties on wound healing in rats. The composition and content of certain bioactive constituents of the cold pressed oil obtained from pumpkin seeds were analyzed and studied for their wound healing properties and also content of tocopherols, fatty acids and phytosterols were determined. This study showed the significance of oil from pumpkin seeds as a promising drug to healing wounds in animal assays. As a whole, pumpkin's oil would be recommended in the nutritional and medicinal purpose.

Sandhya Suresh *et al.*, (2018) reported the pharmacological activity and phytochemical of several medicinal plants has been scientifically documented. *Cucurbita moschata* and *Moringa oleifera* are the medicinal plant and used as nutraceuticals, food supplements, folk medicines, pharmaceutical intermediates and chemical entities for synthetic drug. The present review is useful for investigations on the medicinal activity of *Cucurbita moschata* and *Moringa oleifera*.

Maher Mohmoud Hashash *et al.*, (2017) evaluated for their proximate values and mineral composition. In addition to the total phenolic and flavonoid contents and antioxidant activities by using (DPPH, ABTS and TAC) of the defatted methanolic extract of fruits, and seeds of (*C. pepo*) were determined. The fresh fruit pulp and fruits had a high content of β -carotene. Although fruits and fruit pulp contained high amount of magnesium, potassium, sodium, phosphorus manganese and

calcium but the seeds have highest values. Parallel to the results revealed the seeds have a high content of phenolic and flavonoid and also higher antioxidant activity.

Roman- Ramos et al., (1992) reported to cure wounds and used to treat hemorrhoids and fever. The current medical use of *Cucurbita ficifolia* is for the treatment of diabetes type 2. It has shown acute hypoglycaemic activity in temporally hyperglycemic rabbits, in alloxan-diabetic rabbits and recently, in type 2 diabetic patients.

K. Dhiman et al., (1992) investigated for their cytotoxic, hepatoprotective, anti-inflammatory and cardiovascular effects. The family *Cucurbitaceae* includes a large group of plants which are medicinally valuable. Seeds or fruits parts of some cucurbits are reported to possess purgatives, emetics and antihelminthics properties due to the secondary metabolite cucurbitacin content. They are highly oxygenated, tetracyclic triterpenes containing a cucurbitane skeleton characterized.

Uses of Cucurbita pepo

Pumkin helps to prevent skin diseases, measles, jaundice, insomenia, colic, eye disorders reducing cell damage in the body, cancer and improve immune function, Hypertension and arthritis, reduced bladder and urethral pressure. Lower levels of gastric, breast, lungs, colorectal cancer and prostate cancer. (Binns et al; 2004 & Jian et al; 2005).

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