

Abelmoschus esculentus: A Nutritional Bank For Anti Hyperlipidemic Formulations

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Abstract: *This review explores the botanical, nutritional, and medicinal aspects of Abelmoschus esculentus, commonly known as okra. Emphasizing its cultural and culinary significance, the paper delves into the plant's morphology, phytochemical composition, and potential health benefits. Additionally, it discusses the challenges and opportunities associated with okra cultivation, aiming to provide a comprehensive overview of this versatile and nutritious vegetable.*

Keywords: Okra, phytochemical, nutrients, vitamin, minerals

I. INTRODUCTION

Abelmoschus esculentus, commonly known as okra or ladyfinger, is a flowering plant valued for its edible green seed pods. Belonging to the mallow family (Malvaceae), okra is a warm-season vegetable that is widely cultivated in tropical and subtropical regions around the world. The plant is believed to have originated in Africa, and it has become a popular and versatile ingredient in various cuisines.

Abelmoschus esculentus promotes relief from emotional and mental illnesses like depression and laziness. It has a powerful cure for ulcers and promotes joint health. It is used for sore throats, gastrointestinal irritations and pulmonary inflammations. By modulating how quickly sugar is absorbed from the digestive tract, the fibers in A. esculentus contribute to blood sugar stabilization.

Key features of Abelmoschus esculentus:

Plant Characteristics:

Okra plants are typically annuals, although they can also be grown as short-lived perennials in favorable climates. They have large, lobed leaves and produce hibiscus-like flowers with a distinctive yellow color.

Edible Pods:

The most prized part of the okra plant is its green, elongated seed pods, which are harvested while they are still tender. These pods are mucilaginous, meaning they contain a slimy substance that thickens when cooked. This quality makes okra a popular ingredient in soups, stews, and gumbo dishes.

Culinary Uses:

Okra is a versatile vegetable used in various cuisines, including African, Middle Eastern, Indian, and Southern United States cuisine.

It can be prepared in different ways, such as frying, boiling, stewing, or pickling. The mucilage in the pods is often used to thicken soups and stews.

Nutritional Content:

Okra is a low-calorie vegetable that is a good source of dietary fiber, vitamins (such as vitamin A, vitamin C, vitamin E, vitamin K), minerals (including potassium, magnesium, calcium, iron, zinc), Carbohydrates and proteins.

It is also known for its potential health benefits, including its role in promoting digestive health and managing blood sugar levels.

Cultivation:

Okra thrives in warm climates and is sensitive to frost. It requires well-drained soil and plenty of sunlight to grow successfully.

The plants are relatively easy to cultivate and are often grown in home gardens as well as on a larger scale in commercial agriculture.

Medicinal Uses:

In addition to its culinary uses, okra has been traditionally used in various cultures for its potential medicinal properties. It is believed to have anti-inflammatory effect. Okra mucilage is used in traditional medicine to treat gastric irritations. The natural polysaccharides found in plant mucilages have excellent antioxidant Activity, which prevents cell damage caused by reactive oxygen species.

Global Significance:

Okra is an important food crop in many countries, contributing to local diets and economies. Its adaptability to different climates and its nutritional value make it a valuable asset in addressing food security in certain regions.



Synonyms

- Veg.
- Hibiscus esculentus.
- Gumbo.
- Abelmoschus esculentus.
- Lady's-finger.
- Veggie.
- Bhindi

II. CHEMICAL CONSTITUENTS

- Tannins
- Alkaloids
- Carbohydrates
- Terpenoids,
- Steroids
- Flavonoids
- Proteins and polyphenols

Vitamin C
Carotene
Thiamine
Folic acid
Riboflavin
Oxalic acid
Niacin
Amino acids. (Bencharsi, 2012)

CLASSIFICATION

Kingdom: Plantae
Clade: Tracheophytes
Clade: Angiosperms
Clade: Eudicots
Clade: Rosids
Order: Malvales
Family: Malvaceae
Genus: *Abelmoschus*
Species: *A. Esculentus*

GEOGRAPHICAL SOURCE

Okra originated from the Abyssinian center, an area that includes Ethiopia, a portion of Eritrea, and the eastern, higher part of the Anglo-Egyptian Sudan. The crop was probably taken into Egypt by Moslems from the East who conquered Egypt in the seventh century. (Rosa, 2010)

III. PHARMACOLOGICAL ACTIVITIES

Hypolipidemic Effects:

Okra has been studied for its potential to reduce lipid levels, which can be beneficial for individuals with high cholesterol.

Antiulcer Properties: Some research suggests that okra may have a protective effect on the stomach lining, indicating antiulcer properties.

Neuroprotective Activity:

Compounds in okra have shown potential neuroprotective effects, which could be relevant in the context of neurological disorders.

Wound Healing:

Okra extracts have been investigated for their role in promoting wound healing, possibly due to their anti-inflammatory and antioxidant properties.

Anticancer Potential:

While preliminary, some studies have explored the anticancer properties of okra, particularly in relation to certain types of cancer cells.

Antispasmodic Activity:

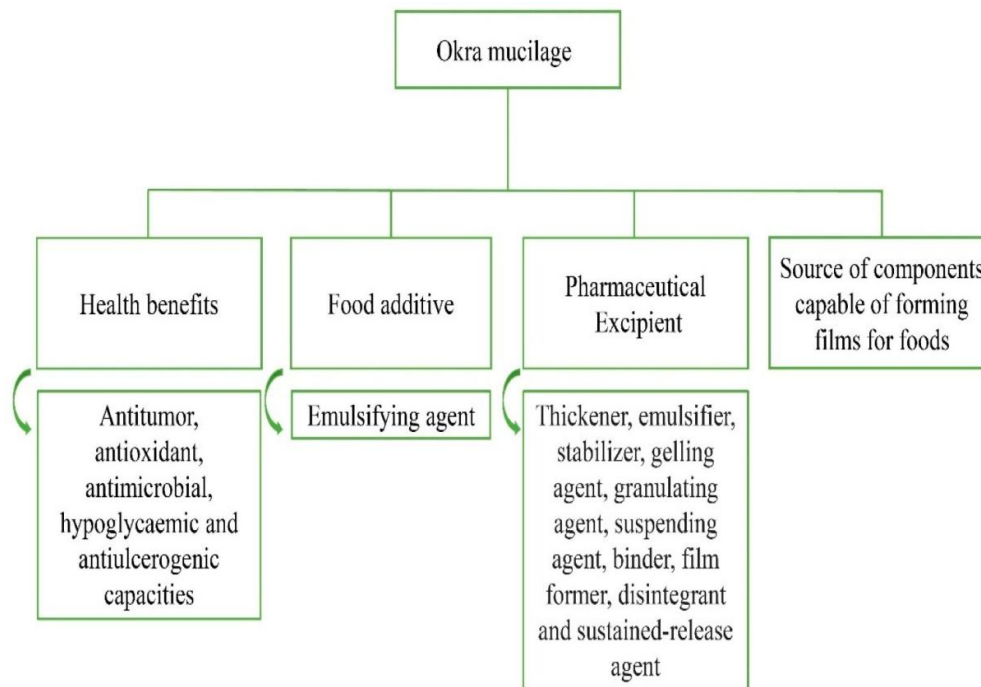
Okra has been traditionally used for its soothing effects on the digestive system, suggesting antispasmodic activity.

Cardioprotective Effects:

Research has indicated that okra may have cardioprotective benefits, including potential positive effects on heart health.

Antiviral Properties:

Okra has been studied for its antiviral activity against certain viruses, showcasing its potential in viral infection management.



PLAN OF WORK

FIRST METHOD

Step 1 Extraction of mucilage

Hibiscus esculentus fruit were used for isolation of mucilage. Firstly Fruit were washed with water to clean it from dirt if any and grinded into in a mixer. The material obtained was soaked in warm water for 4 h, boiled for 2 h and kept aside for 2 h for release of mucilage into water. After a period of 2 h material was squeezed in a muslin bag to remove the mark from the filtrate.

Step 2. Isolation of mucilage

Equal volume of ethyl alcohol was added to filtrate to precipitate the mucilage, the mucilage was separated, dried in oven at about 45°C, powdered and passed through sieve # 80, The powdered mucilage was stored in desicator until further use.”

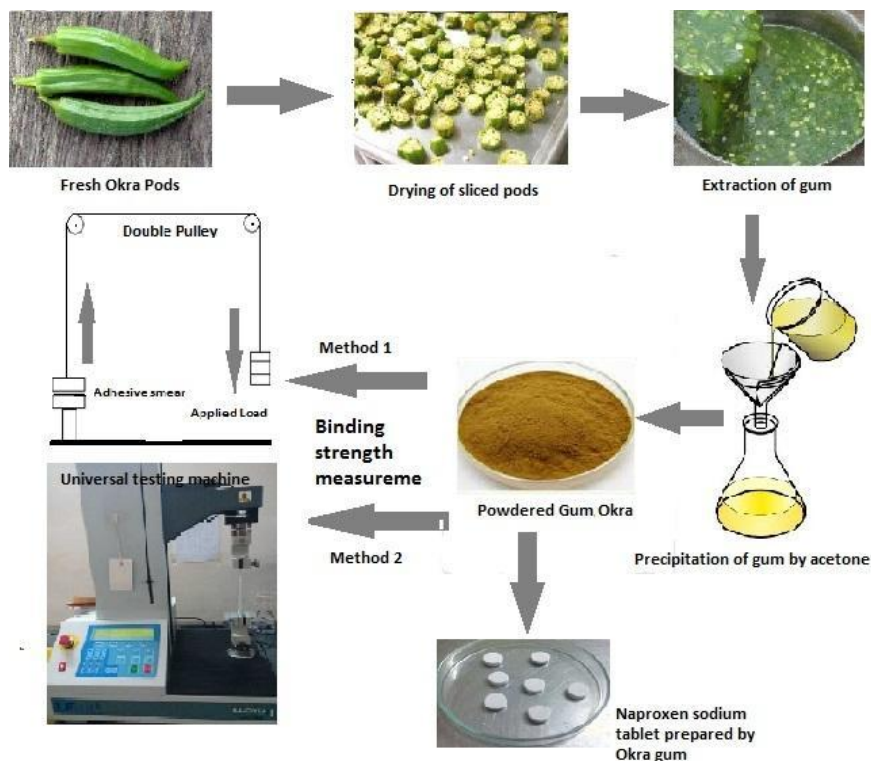
SECOND METHOD

Okra pods (without seeds) were sliced and immersed in water at room temperature. After 12h, with the aid of a muslin cloth, the solid was separated from the liquid fraction (filtrate). Three volumes of ethanol were added to the filtrate and the liquid was slowly stirred by handling until mucilage was precipitated. The mucilage was dried for 12h at 300°C in an oven, pulverized to a fine powder with the aid of a grinder and passed through sieves (mesh 100 and mesh 325). The resultant fine powder was stored in an amber recipient until the moment of use.

TABLET FORMULATION:-

The purified mucilage is mixed with excipients to create a tabletFormulation. Excipients may include binding agents (eg, microcrystalline Cellulose, starch), disintegrants (e.g., croscarmellose sodium), lubricants (e.g., magnesium stearate), and other additives as needed.

The mixture is blended thoroughly to ensure uniform distribution of the mucilage and excipients.



Tablet Compression:

The blended mixture is then compressed into tablet form using a tablet press. The tablet size, shape, and hardness can be adjusted based on formulation requirements.

Drying:

The freshly compressed tablets may undergo a drying process to remove excess moisture and improve stability.

IV. CONCLUSION

Okra, scientifically known as *Abelmoschus esculentus*, is a versatile and nutritious vegetable commonly used in various cuisines. Its unique mucilaginous texture makes it suitable for thickening soups and stews. Additionally, okra is rich in vitamins, minerals, and antioxidants, contributing to a healthy diet. Its potential health benefits and culinary versatility make it a valuable addition to diverse culinary traditions.

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