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Mini Review

Evaluating Potential Importance of Cucumber (*Cucumis sativus* L. - Cucurbitaceae): A Brief Review

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Abstract

Cucumber is a one of healthy fruit which have many health benefits of cucurbitaceae family. It maintains blood pressure, regulates hydration, controls sugar, and soothes the skin, helpful in digestion. It also helps to weight loss by reducing fat. Cucumber also contains fibre, potassium, manganese, magnesium and vitamin K, C, A. Cucumber can also have hydrated and antimicrobial properties, and detoxify the body and, prevent cancer and other many bone disease. Economically cucumbers are very important, as cucumbers contain high nutritional, medicinal as well as health beneficial values. In present presentation going to discussed about the economic importance of cucumber (*Cucumis sativus*).

Keywords: Cucumis sativus; cucurbitaceae; economic importance; medicinal properties; hydration; detoxify

Introduction

The cucumber (*Cucumis sativus* L.) plant is a member of the Cucurbitaceae family widely cultivated for its edible fruit. In this family different types of melon such as bitter melon and squash are also included. Cucumbers provide many nutrients and are low in fat calories, sodium and cholesterol. The flavor of cucumber is very good though its nutritional value is low. Cucumbers are very popular for salads. Small fruits of cucumber are often pickled. The cucumber can be grown in home gardens or in greenhouses in cool climates. Cucumber is cultivated as a field crop. The cucumber supposed to be native to Asia, where it has been grown for food from 3000 years. The cucumber was introduced into China in 100 B.C. and into France in the 9th century (Pal *et al*., 2020). Cucumbers consist mostly of water, about ninety five percent. The cucumber helps to prevent dehydration. Cucumber (*Cucumis sativus*) is a widely-cultivated creeping vine plant that bears cucumiform fruits, which are

used as vegetables. There are three main varieties of cucumber. The cucumber, with large, green skin, and few or no seeds are called English cucumber. Armenian, or snake cucumbers, which are long and twisted. They are used as pickles.

The cucumber plant is generally a vine with large leaves and curling tendrils (Fig. 1). The cucumber plant may have more than five or six main stems from which the tendrils branches. The leaves arranged alternately on the vines in this plant. The flowers of the cucumber plants are yellow and about four centimeter in diameter. The fruits of the cucumber plant is a curved cylinder shaped rounded at both ends (Fig. 2). The length of the fruits of the cucumber measures about sixty centimeters and ten centimeters in diameter. The cucumber plants are annual plants; they survive only one growing season. The vines of the cucumber plants may reach up to five meter in length. Cucumber plant may be originates from the foothills of the Himalayas, according to some studies. The cucumbers are generally a fruits but also used as a fresh vegetable and consumed also fresh in salads. Some varieties of the cucumber are grown for pickles. Yellow varieties of the cucumber are generally cooked before consumption. Cucumber (*Cucumis sativus* L.) is an important vegetable crop and having a chromosome number 2n = 14(Pal *et al*., 2020).

China is the largest cucumber producer in the world and India ranks second in the production of cucumber. Cucumber contains up to 90-95 percentages of water. It also contains silicon, potassium, sulphur, vitamins, sodium and acid creating materials which are helpful to make maintain the human blood alkalinity.

Table 1 shows the data of nutrients compounds present in each 100 gm of edible portion of Cucumber.

Table 1: Nutrients present in each 100 gm of edible portion of Cucumber

Nutrient Compounds	**Amount**
Carbohydrates	2.6 gm
Protein	0.6 gm
Calcium	18 gm
Thiamin	0.02 mg
Energy	12 calorie
Riboflavin	0.02 mg
Iron	0.2 gm
Vitamin C	10 mg
Niacin	0.01 mg

(Source: Rashid, 1999)

The silica in cucumber helps to give strength and connecting tissue so helps to relief from joint pain. Cucumber also contains pinoresinol, lignans, secoisolariciresinol and lariciresinol that are helpful to reduce risk of different kinds of cancer. The cucumber plants are also susceptible to a number of fungal and bacterial diseases including anthracnose, Fusarium wilt and downy mildew. The large leaves of vine of cucumber plants form a canopy over the fruits.

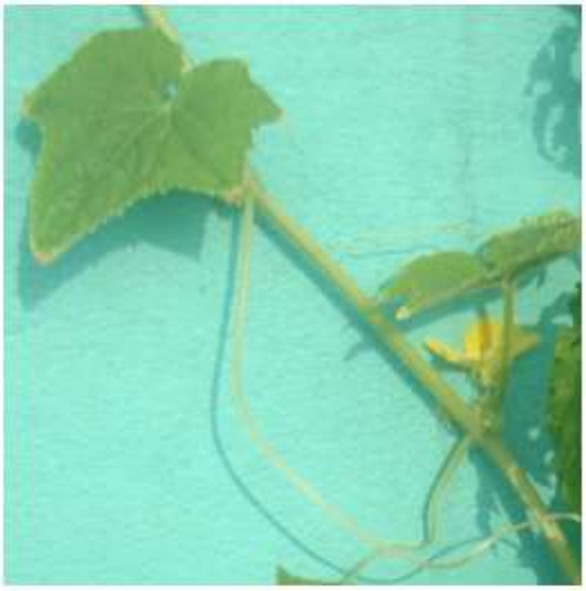

Fig. 1: Cucumber Plant.

Fig. 2: Fruits of cucumber plant

The cucumber also contains high levels of cucurbitacin in it which is a bitter-tasting nutrient as a member of the Cucurbitaceae family plants. It reduces sodium intake and increasing potassium intake which may help to prevent high blood pressure. The cucumber generally is a vegetable crop; so the economic importance of it varies according to the part of the world. The cucumber is most popular in USSR, the USA, Europe, and Asia. The crop of cucumber is the fourth most important vegetable after tomato, cabbage and onion in Asia, the second most important crop after tomato in Western Europe (Wilcox *et al*., 2016). In Nepal, cucumber cultivated from terai to high hills altitude and 825 species ranging from 100 meter to 1800 meters (Khanal *et al*., 2020). Cucumber (*Cucumis sativus* L.) is a popular vegetable of Cucurbitaceae family having 118 genera (Ali *et al*., 2016).

Economically cucumbers are very important, as cucumbers contain high nutritional, medicinal as well as health beneficial values.

(I) Medicinal Values

As a member of the Cucurbitaceae family of plants, cucumbers contain high levels of bitter-tasting nutrients known as cucurbitacin which prevent cancer. The fiber found in cucumber can help to manage cholesterol and prevent related cardiovascular problems according to American Heart Association. Cucumber also contains potassium and magnesium so it reduces sodium intake and increases potassium intake may help to prevent high blood pressure.

Cucumbers play a great role in diabetes. Preventing and controlling the cucumber contains substances which help to lower blood sugar and stop blood glucose from rising too high. One theory is that the cucurbitacins in cucumber help to regulate insulin release and the metabolism of hepatic glycogen, a key hormone in the processing of blood sugar. Cucumbers may have anti- inflammatory properties. Some research has suggested that cucumber's nutrients may provide benefits for skin health.

Cucumbers are a good source of potassium, magnesium and dietary fiber. These nutrients are known to lower blood pressure, thus reducing the risk of heart diseases. Research has also proved that regular consumption of cucumber juice was helpful in reducing blood pressure in elderly people with hypertension. Cucumber acts as a coolant for our stomach. The soluble fibre in cucumbers helps in slowing our digestion. Also the high content of water in cucumber makes our stools soft, prevents constipation and keeps our bowel movements regular (Chakraborty and Rayalu, 2021).

(II) Nutritional Values

Cucumbers have a refreshing, good taste with 95 percent water content. The cucumber helps to relieve dehydration and is good to eat in hot weather. People eat cucumber as a salad mostly. It also features in some beauty products. Staying hydrated is essential for maintaining a healthy intestine, preventing constipation avoiding kidney stone and more. Cucumber is one of the most hydrating foods and also contain with vitamin K and vitamin D, Vitamin K helps improve calcium absorption.

(III) Health beneficial values

All that water in cucumbers can help keep us hydrated. Plus, the fiber gives us helps to stay regular and avoid constipation. The vitamin K helps blood clot and keeps ours bones healthy. Vitamin A has many benefits, like helping with vision, the immune system and reproduction. It also makes sure organs like our heart, lungs and kidneys to work properly.

Cucumbers contain magnesium, potassium, and vitamin K. The three nutrients above are vital for the proper functioning of the cardiovascular system. Potassium and magnesium can lower the blood pressure. The cucumber if eat in regular basis it has been found to decrease bad cholesterol and blood sugar levels as well. Cucumber also contains a range of vitamin A, B vitamins, and antioxidants, including a type known as lignans. Antioxidants help to remove free radicals from the body. Generally free radicals come from natural bodily processes, and outside pressures such as pollution. The free radicals If collected large amount in the body, they can l damage the cell and caused various types of disease. The lignans found in cucumber and other things help to lower the risk of cardiovascular disease and many types of cancer. The cucumbers can also increase the beauty and have good effects on the skin. The juice of cucumber when apply on skin makes it soft and glowing. Cucumber regulates hydration and maintains blood pressure and sugar, soothes skin, helped in digestion, reduces fat and help to weight loss (Chakraborty and Rayalu, 2021).

Conflict of Interest

The authors declare that there is no conflict of interest with present publication.

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