

INTRODUCTION

In our everyday culinary practise, capsicum pods (chilli pepper) are the world's second most eaten vegetable crop and spice after tomatoes. *Capsicum chinense*, *Capsicum annuum*, *Capsicum baccatum*, *Capsicum frutescens* and *Capsicum pubescens* are five indigenous species that are widely cultivated in various areas of India. According to the Guinness Book of World Records, the chilli pods of *C. chinense* Jacq (locally known as Bhut Jolokia in India's Assam state) are the world's hottest Capsicum type. Apart from its vast commercial usage as a culinary spice, as well as its use in other food items such as seasoning mixes and in the canning business. Capsicum also has a diverse spectrum of medical and/or pharmacological possibilities. Capsaicinoids, the active components in Capsicum pods, have been used in medicine to treat gastritis, musculoskeletal, arthritis, toothache and chronic indigestion, neuropathic pain, various pharmacological illnesses and microbiological infections.



Nutritional properties of Capsicum

Nutritive value Chilli peppers are high in minerals, vitamins, and amino acids that are necessary for human wellness and survival. Peppers include a diverse range of phytochemicals, including vitamins, phenolics, and flavonoids, which act as anti-oxidants and may help to prevent degenerative illnesses. Peppers are high in vitamin C, the antioxidant vitamin E, and most B vitamins, especially vitamin B5. They are also high in magnesium, potassium, iron, and calcium and phosphorus. Peppers come in a variety of genera and hundreds of kinds and sorts. They are eaten fresh as unripe fruits, matured red or various colours, and dried. The nutritional and anti-oxidant content of different species, variations, and intake modes varies.

CAPSICUM— A POTENTIAL SOURCE OF NATURAL NUTRACEUTICAL AND MEDICINAL PROPERTIES

P. Sudheer Kumar Reddy
Department of Vegetable Science,
Dr. YSRHU, College of Horticulture, Anantharajupeta

OTHER NATURAL COMPOUNDS IN CAPSICUM

- **Capsanthin:** Capsanthin, a strong antioxidant found in red bell peppers, it is responsible for their beautiful red colour.
- **Violaxanthin:** This is the most prevalent carotenoid antioxidants in yellow bell peppers.
- **Lutein:** While lutein is plentiful in greener (unripe) bell peppers and black paprika and it is lacking in ripe bell peppers. A sufficient consumption of lutein may enhance eye health Reliable Source.
- **Quercetin:** The polyphenols antioxidant may be effective in reducing some chronic illnesses such as coronary artery disease and cancer.
- **Luteolin:** Like quercetin, luteolin is a polyphenol antioxidant which may have a number of health benefits.



MEDICINAL PROPERTIES OF CAPSICUM

- **Diabetes:** Capsaicin has a number of anti-diabetic properties. These include lowering resistance to insulin, which makes it simpler for blood glucose from the circulation to enter cells. Capsaicin also aids in the prevention of obesity, which is an important risk indicator for diabetes. Capsaicin has been shown in trials to lower the levels of triglycerides, total cholesterol and low density lipoproteins, which are sometimes known as "bad cholesterol." They also claim it can boost high-density lipoproteins, or "good cholesterol."
- **High blood pressure:** Capsaicin lowers high blood pressure through a variety of mechanisms. These include the release of chemicals that expand blood vessels, the suppression of an enzyme that constricts blood vessels, and the stimulation of greater urine, which lowers blood pressure by assisting in the removal of excess fluid.
- **Obesity:** Capsaicin improves weight reduction by enhancing hunger satisfaction and reducing fat cell formation and accumulation.

- **Improve Your Eye Health:** Capsicum is extremely useful to eye health. Capsicums contain significant levels of lutein and zeaxanthin, two phytochemicals that protect the retina from damage caused by oxidation. Because our eyes are immediately bombarded by oxygen and light, they can stimulate the creation of free radicals, which cause cell damage. These two carotenoids neutralise free radicals, safeguarding our eyes. Consuming meals high in carotenoids may safeguard your eyes against macular degeneration and the impacts of blue light.
- **Reduce Anxiety:** Capsicum is abundant in magnesium and vitamin B6, both of which are necessary for nerve function and can help ease anxiety and avoid panic attacks. Magnesium also aids in the normal control of heartbeat.
- **Prevents Cancer:** Capsicum has antioxidant and anti-inflammatory qualities that have been linked to the prevention of some malignancies. The pigment lycopene found in capsicum has been shown to reduce the incidence of cervix, prostate, pancreatic, and bladder cancer. In fact, orange pepper has been shown to reduce the growth rate of prostate cancer by 75%.
- **Improves Bone Health:** Manganese, a mineral found in capsicum, is a cofactor in the development of bone cartilage as well as collagen and is required for bone mineralization. Capsicum contains Vitamin K, which helps to build bones and prevent against osteoporosis.
- **Pungency agent - Capsaicin** Capsaicin, a hot pepper alkaloid, is utilised as an analgesic in topical creams, nasal sprays, and dermatological patches

to treat pain. Fruit pungency, which is perhaps the most notable flavour feature of peppers, is peculiar to the genus *Capsicum* and is caused by alkaloid substances known as capsaicinoids. Capsaicinoids are generally referred to as capsaicin since it is the most frequent of the seven capsaicinoids, followed by dihydro capsaicin. Minor capsaicinoids are the remaining five chemicals (norcapsaicin, nordihydrocapsaicin, nornordihydrocapsaicin, homocapsaicin, and homodihydrocapsaicin). Capsaicin and its related components are the active chemicals in pepper that are associated with its anti-microbial, anti-carcinogenic, and other therapeutic qualities. Pungency is measured using the Scoville organoleptic technique and High-performance Liquid Chromatography (HPLC). Pungency is determined by the pepper plant's genetic composition as well as other environmental conditions. *C. annuum* is the most varied in pungency among cultivated peppers, with *C. chinense* and *C. frutescens* having the greatest and *C. baccatum* having the lowest, while *C. pubescens* is mild.

CONCLUSION

- ▶ *Capsicum* cultivation and use have a long history, however there is no record of it being used as a medical herb. Pepper's medicinal and health advantages are extensively proven around the world. However, questions concerning safety, efficacy, quality, and development, as well as possible dangers, particularly those associated with aflatoxin contamination, must be investigated. Farmers, on the other hand, may help reduce aflatoxin contamination at the farm level by eliminating deformed fruits and enhancing drying methods.

