

Review Article

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Hot Pepper-History-Health and Dietary Benefits & Production

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ABSTRACT

Hot pepper (chillies) is known from prehistoric time in Peru. They are believed to have originated in the tropical America. It is also said that chillies have originated in the Latin American region of the Mexico and Guatemala as a wild crop around 7500 B.C. as per the remains of the pre-historic Peru. The people native to these places domesticated this crop in and around 3000 B.C evidenced by remains found in pottery from Puebla and Oaxaca. chilli is said to be the first ever domesticated crop from any damage from birds. Columbus carried chilli seed to Spain in 1493. The cultivation of chilli spread rapidly from Spain to Europe. Chillies became popular in the whole of Asia rapidly and native Asians started cultivation this crop as well. The south Asian climate suited this crop and since its introduction in the 16th Century has been increasingly cultivated in south Asia. Chillies are the cheapest spices available in India and are eaten cross all groups of people. The most important chilli growing states in India are Andhra Pradesh, Maharashtra, Karnataka and Tamil Nadu, which together constitute nearly 75% of the total area. Andhra Pradesh tops the list in dry chilli production followed by Tamil Nadu, Maharashtra, Orissa and Karnataka. Chilli production major countries in India 38% & China 7%. Chillies are rich in vitamins A and C. they are also packed with potassium, magnesium and iron. They more scientifically recognized application in the treatment of asthma, arthritis, blood clots, cluster, headaches, postherpetic neuralgia and burns.

Keywords

Hot pepper,
Production,
Vitamins, Chillies

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Introduction

Chilli (*Capsicum spp.*) is one of the most important commercial crops of India. It is grown almost throughout the country. There are more than 400 different varieties of chillies found all over the world. It is also called as hot pepper, sweet pepper, bell pepper. Its botanical name is "*Capsicum annuum*". Chili is fruit of the plant '*Capsicum annuum*' and '*Capsicum frutescens*' (Banerjee

et al., 2014) that come from the genus *Capsicum* belonging to the family of Solanaceae which also includes tomato, and potato (Meghavansi *et al.*, 2010) *Capsicum* is derived from the Greek word 'Kapsimo' meaning 'to bit'.

Originally from South and Central America, their popularity continues to grow across the world due to their ease of cultivation, frequent sharp taste and attractive appearance (Kumar

et al., 2006) There are more than 200 common names in use for these spices. The fruit of chilli plants have a variety of names depending on place type (Kalloo *et al.*, 2005). It is commonly called chilli pepper, red or green pepper or sweet pepper in Britain, and typically just capsicum in Australian and Indian English. The large mild form is called bell pepper in the US and Canada. It called paprika in some other countries (although paprika can also refer to the powdered spice made from various capsicum fruit).

The original Mexican term Chilli (now chile in Mexico) came from the Nahuatl word chilli or Xilli. It is universally called by different names such as Pimenton, Poudre de Guinee, Filfil Ahmar, Paprika, Spaanse, Peper, Peperone, Pimento, Struchkovy pyeret, Togarashi, Hesiung Yali chiao, Lal-mirch. Indian subcontinent, chillies are produced throughout the year. Two crops are produced in *Kharif* and *Rabi* seasons in the country (Anu and Peter, 2003) Chilli grows best at 20-30 °C. Growth and yields suffer when temperatures exceed 30 °C or drops below 15 °C for extended periods (Rai *et al.*, 2013).

A history

World

Chillies peppers are thought to have originated in the northern Amazon basin and so, by natural geographic spread, are indigenous throughout Central America, South America, the West Indies and the most southerly states of the U.S.A. The Tepin or chiltepin pepper (*Capsicum annum* var *Glabriusculum*) is reputed to be oldest variety in the world and it's commonly called the 'Mother Chilli'.

It grows wild in northern Mexico and up into Arizona and Texas where it is now the state Chilli. It is areas of extremely low rainfall

such as the Sonoran desert; it can be found thriving in the partial shade provided by a Desert Oak or Mesquite. In these conditions this supposedly annual plant has been known not only to survive but also to fruit for up to 20 years. This is an interesting feature of most chillies, if they are in conditions they like, they will not only thrive for several years they will also be more prolific fruiters in their record, third and fourth years.

The tepin is truly a wild pepper and it is further south in Peru and Bolivia where we find possibly the earliest domestication on variety of chilli, Recoto or Locoto, some 5000-6000 year ago. Evidence has also been found for chilli cultivation in Ecuador from around the same period. Later the Aztecs were famous for their love of chilli and it featured heavily in their diet (Dave, *et al.*, 1999) The ancient Inca and Aztec civilization used and worshipped the chilli. The Aztec used chilli in normally every meal and created the first chilli chocolate (The name chilli derives from the ancient Aztec dialect of Nahuatl which called the pepper chiltepin) the Incas worshipped the chilli as one of four mythical deities who feature in the Incan creation story (May, *et al.*, 2012.)

Chilli was brought to the rest of the world by Christopher Columbus who discovered America in 1493. Columbus had set from Spain to reach India to bring spices such as black pepper back to this country. Columbus not only mistook America for India but also mistook chilli as a black pepper. That is how chilli got cultivated around the globe after Columbus.

Diego Alvarez Chanca, a physician on Columbus second voyage to the west Indies in 1493 brought the first chillies to Spain and first wrote about their medicinal qualities in 1494. From Europe chillies spread rapidly to India, China and Japan. In Europe they first were

grown in the monastery gardens of Spain and Portugal as botanical curiosities but the monks experimented with their culinary potential and discovered that their pungency offered an inexpensive substitute for black pepper corns, which were so costly that they were used as legal currency in some countries. Within 50 years of its discovery the humble chillies pepper had spread across most of the then known world (Dave, 1999). From Spain chilli spread to South Asian countries like India and China, chilli was introduced in China and further to Japan, Soon chilli was accepted as important spice in the local cuisines.

At first it was used only for ornamental purpose as many exotic plants then unknown but soon became a common food. It is assumed that the monks of the Royal Monastery of Santa Maria de Guadalupe, in Estremadura, Spain were the first European to discover the taste of hot pepper and add them to their kitchen. Originally cultivated in monasteries, seeds were then spread throughout Spain and Europe by traveler monks (Kenneth, *et al.*, 2000) It was in 1600 that through trade routes from South America. Portuguese and Spanish traders introduced the chilli pepper in Africa, India in Asia (Rai, *et al.*, 2004).

The spread of chilli peppers to Asia was most likely a natural consequence of its introduction to Portuguese traders, who aware of its trade value would have likely promoted its commerce in the Asian spice trade routes then dominated by Portuguese and Arab traders. Today chillies are in integral part of South Asian and South East Asian cuisine. Chilli is considered as one of the most important commercial spice crop and is widely used universal spice, named as wonder spice. Different varieties are cultivated for varied uses like pickles vegetables, spice and condiments (Wilson, *et al.*, 1991).

India

Every Indian woman knows this simple truth: the chillies rules the kitchen. But did you know before the Portuguese brought it to India, no one in India ever used chillies? Seems unbelievable but apparently before Vasco-Di-Gama came along and changed everything we used Pippali (long pepper) and not chillies. Long pepper is native to Bengal and in the 16th Century it also grew wild on the Malabar Coast. According to the French trader Jean Baptiste Tavernier, long pepper used to be thrown into Muslims pularos by the handful. It was used not just in cooking but also ayurveda as a cure for impotency. People think Portuguese took most of the spices from India but truth be told while we had pepper here they were the ones who brought us the chillies. Chillies were brought from South America to India by the Portuguese through their trading colony of Goa. India is now the largest producer and exporter of chillies in the world, growing a wide variety of different type.

In India two types of pepper existed before the arrival of chilli pepper- Black pepper and Pippali. Black pepper was called round pepper and Pippali was called the long Pepper. In ancient India, Black Pepper corn, Triphala, Timur and Pippali were the source of hotness in cooking; chilli pepper was introduced to India only about 500 year back by Portuguese and Spanish traders. During the 16th Century, Chilli and Pippali were both used interchangeably. It was easier to grow chilli pepper, so the Pippali become less available (Sanatombi *et al.*, 2010).

Portugues traders introduced chilli pepper to India during 16th 'Vindaloo' still remains one of the hottest dishes prepared in Goa using chilli pepper, an old Portuguese colony in India. At present there are four types of chilli pepper used in India- namely- Lal Mirch,

Hari-Mirch, Degi- Mirch (Paprika) and shimla Mirch (Sweet bell pepper). In 1498 the Portuguese explorer Vasco-da- Gama reached Indian Shores bringing with him the pungent spice. Chilli was brought to Asia by Portuguese navigators during the 16th Century. Chillies became extremely popular in India after it was first brought to India by Vasco-Da-Gama. Chilli found its way in ayurveda, the traditional Indian medical system. According to ayurveda, chilli has many medicinal properties such as stimulating good digestion and endorphins, a nature pain killer to relieve pains.

Barely 30 years after Vasco-da-Gama set foot in India locals were enthusiastically growing chillies on the western coast (they were called Gowai Mirchi suggesting that were originally grown in Goa) From there chillies spread to south India and then to the North. Long pepper is now, only used in some arcave vegetables pickles. Before it was black pepper that as used to give the pungency that is so characteristic of Indian food. In one of the section of Ain-i-Akbari, written in 1590 A.D., there is a list of 50 dishes cooked in Akbar's court all them used only black pepper to impart spiciness.

While the black pepper vine grows almost only in Karala, chillies can be grown in almost every backyard or cultivated in the fields all over the country. Thus they were easily available everywhere at a low price. (Pandey, Sing, 2004). India is the world's largest producer, consumer and exporter of chilli peppers. Guntur in Andhra Pradesh produces 38% of all the chillies produces in India and the state of Andhra Pradesh as a whole contributes 75% of India's chilli exports. There are more than 400 different varieties of chillies found all over the world. The World hottest chilli 'Naga Jolokia' is cultivated in hilly terrain of Assam in a small town Tezpur India (Mathur *et al.*, 2000).

Today it is unimaginable to think of India cuisine without the hot spice, chilli. India has become world's largest producer and exporter of chilli, exporting to USA, Canada, UK, Saudi, Arabia, Sinapore, Malaysa, Germany, and many countries across the world. It contributes 38% of world's total production of chilli.

Some of the hottest chillies are grown in India. Indian chillies have been dominating international chilli market. Majority of chilli grown in India is cultivated in states such as Andhra Pradesh, Maharastra, Karnataka, Gujrat, Tamil Nadu and Orissa. India spice sector is zooming at great pace. During the time period the exports of various spices and spice products have shown a remarkable increase of 25% both terms of their quantity and value (Kumar *et al.*, 2011). India in producing more than 8 million tones of spice and is exporting around 180 spice products in over 150 nations.

Inaugurating the Sugandha Sangamam at Guntur in Andhra Pradesh, an initiative to make development of chillies sustainable and assured that every possible step would be taken improve the quality of spices produced in Andhra Pradesh and ensure better prices to the farmers. The event was organized by the spice Board in association with the world price organization (Chadha, 2002).

Production

Spice Board support production, processing, certification and marketing of organic spices. Country- wise share in chilli Production Inida (37%), China (7%) followed by Bangladesh (5%), Pakistan (5%), Peru(5%), Thailand (4%), Myanmar (3%), Viet Nam (2%) and others (29%). India is the largest exporter of chillies meeting nearly half of the world's consumption Demand. China also exports to an extent of about 19% of total exports in the

world. Peru Contributes for nearly 9% followed by Spain. Rest of the exports are scattered across a number of countries each contributes in minor Quantities. Major important includes US with 24% followed by Malaysia 12% and Sri Lanka 9% of total Imports’.

India Red chilli production for 2019-20 is estimated at 12 lakh MT compared to earlier estimate of 12.45 lakh MT, while previous year’s production was 10.50 lakh MT (Agriwatch). India Hybrid seed market value 313.8 crore.

Health benefits of hot pepper

Improves digestive health and metabolism

One of the biggest advantages of capsaicin is its contribution to gut health and weight loss. Contrary to popular belief, chili peppers can actually be an anti-irritant to your stomach and a great way to treat stomach ulcers. Secondly, chili peppers, especially in its powder form, is rich in antioxidants and other compounds that can soothe other digestive issues, like upset stomachs, intestinal gas, diarrhea, and cramps. Peppers are able to accomplish this because they stimulate gastric juices and work against the acidity in your digestive tract. Thirdly, chili peppers can accelerate your metabolism. By speeding up your metabolism, you curb your cravings and improve the rate at which you burn fat. In general, it is thought that the consumption of chili peppers along with other healthy lifestyle practices can improve weight loss.

May reduce risks of cancer

Chili peppers also present a potential natural remedy for fighting cancer. According to the capsaicin and antioxidants in chili peppers can kill cancer cells in leukemia and prostate cancer. This is largely due to the high

antioxidant and anti-inflammatory properties of chili peppers. For example, in the case of prostate cancer; capsaicin reduces the growth of prostate cancer cells by triggering a depletion of the primary types of cancer cell lines. Similar effects can be found in breast, pancreatic and bladder cancer.

Fights fungal infections, colds, and the flu

The characteristic red color of chili peppers is an indication that it is rich in beta-carotene or pro-vitamin A. Vitamin A is key in maintaining a healthy respiratory, intestinal, and urinary system. Also, vitamin A and vitamin C in the chili peppers are vital in building up your immunity against infections and illnesses. If you suffer from congestion or allergies, a capsaicin nasal spray can help relieve your symptoms. Moreover, capsaicin has a number of antibacterial properties that can fight chronic sinus infections. If you are suffering from a high fever, hot chili peppers can not only relieve the pain, but they can also stimulate the immune system to fight off the virus. Chili peppers can also be used for their anti-fungal properties. Specifically, it can kill food pathogens; bacteria like *H. pylori* and cure a number of inflammatory bowel diseases.

Provides joint pain relief

In addition to being a natural source of pain relief for headaches and migraines, chili peppers can be used to reduce joint pain. Essentially, you can apply the chili pepper to the skin to reduce the presence of chemical P. Chemical P is the compound responsible for transmitting pain messages to the brain. Capsaicin binds with pain receptors and induces a burning sensation that may desensitize your pain receptors over time. In this way, capsaicin acts as a pain reliever. Typically, it can be used to treat shingles, joint pain, and HIV neuropathy.

Supports cardiovascular health

Chili peppers can also be a great, natural way to support your cardiovascular system and prevent heart disease. Chili peppers are high in potassium, which is a mineral with a number of functions in the human body. Potassium combined with folate can reduce your chances of developing heart disease. Moreover, potassium can help relax your blood vessels, which makes blood flow much easier on your body. Chili peppers also contain riboflavin and niacin. The latter is responsible for maintaining healthy cholesterol levels and in turn, lower the risk for heart disease. Chili peppers can also protect fats in your blood against free radicals. For example, one study found that eating fresh chili increased the resistance of blood fats to oxidation, which is free radical damage to your triglycerides and cholesterol levels.

May improve cognitive functions

One of the key ways of maintaining a strong cognitive performance is a proper amount of oxygen and iron. Fortunately, chili peppers are rich in iron. This leads to an increase in the blood flow and hemoglobin production in your brain. In turn, chili peppers can help improve your cognitive performance. Additionally, they can also decrease your chances of developing cognitive disorders like dementia and Alzheimer's.

Promotes red blood cell growth

In addition to maintaining heart health, chili peppers can also help with new blood cell formation. This is due to the fact that chili peppers are rich in copper and iron. As such, they are able to treat symptoms of anemia and fatigue. Additionally, chili peppers also contain folic acid, which is key to fighting anemia and producing healthy red blood cells.

This is particularly valuable for pregnant women because a deficiency in folic acid could mean birth defects in newborn babies.

Improve ocular health

Like we mentioned before, the vitamin A in chili peppers is important to building a strong immune system. However, it is also important in keeping your eyesight healthy and strong. It is known for preventing night blindness and ocular degeneration. One tablespoon of chili pepper in your diet continents 9% of daily recommended need of vitamin A.

Keeps you hair and skin healthy

The vitamin C in chili peppers does not just strengthen your immune system. It also creates and maintains collagen, which is a key protein found in healthy hair and skin. Specifically, cayenne pepper is a great natural ingredient that can add some spice to a beauty routine. Cayenne pepper can be mixed into a face mask to deal with skin inflammation. It can also treat wrinkles, acne scars, and dark spots. Cayenne pepper is able to do this because it essentially stimulates blood flow which leads to flawless skin.

Chilli is reported to be native of South America and is widely distributed in all tropical and sub-tropical countries including India. The Portuguese are most responsible for inflicting chilli peppers on the world. They took to them right off and transported to Arrica and to their trending post in Goa, India. At the time the Portuguese empire, the first truly global empire, traded with and often colonized areas as wider spread as south America, East and West Africa, China, India, and Japan. Inaugurating the Sugandha Sangamam at Guntur in Andhra Pradesh, an initiative to make development of chillies sustainable and assured that every possible step would be taken improve the quality of

spices produced in Andhra Pradesh and ensure better prices to the farmers. chilli Production India, China followed by Bangladesh, Pakistan, Peru, Thailand. Worldwide export of chillies, accounted to 8 lakh tones. All that being said, the next time you put together a meal considers adding a dash of spice. As you can see, with chili peppers, a little can go a long way. So, a slight burn on your tongue or a teary eye might be worth its amazing health benefits.

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