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Multi Beneficial Uses of Spices

(*Divyashree N)
Ph.D. Scholar, University of Horticultural Sciences, Bagalkot, Karnataka
*Corresponding Author's email: divyashreenbalaji199095@gmail.com

Abstract
Spices are groups of food adjunct that have been in use for thousands of years to enhance the sensory quality of food. Apart from flavouring, spices are also used in botanicals, beverages, preservatives, pharmaceutical and other industries. Since, each of the spices possesses more than one health beneficial property and there is also a possibility of synergy among them in their action, using spice in diet can make life not only more spicy but also more healthy.

Keywords: Spices; Botanica; Preservatives; Nutraceuticals; Pharmaceuticals; Cosmetics

Overview
Since ancient times, spices have been used extensively in the culinary arts to flavour food. Spices are aromatic vegetable substances that are used whole, broken, or pulverised. They are used mostly for seasoning food, not for nutritional purposes. These spice components give meals their distinct flavour, fragrance, and pungency. Spices with volatile oils provide flavour and scent, while oleoresin adds pungency.

Due to its diverse agroclimatic conditions, India is known as the home of spices. The world's biggest producer, importer, and exporter of spices is India. India is the exclusive exporter of oleoresins and spice oils. Six percent of the GDP is derived from agriculture and spices. Of all the spices, the most produced in the nation is chilli (22.71%), which is followed in production by garlic (21.93%), turmeric (16.92%), and cloves (0.02%). In Karnataka and India, respectively, the area under main spice was 2.13 and 30.75 million hectares, with production of 3.69 and 57.43 million tonnes and productivity of 1.7 and 1.9 t/ha. Karnataka is fifth with 3.7 million tonnes produced, whereas Andhra Pradesh leads all Indian states in terms of output of spices with 11.88 million tonnes. The trend for India's spice production is upward each year, with a little fluctuation in 1991 and 1992. 5.74 million tonnes of spices are produced in India at the moment. India has been producing and exporting more spices over the years, mostly as a result of rising exports and domestic demand. As more and more spices are used in a variety of ways, this tendency is predicted to continue.

Spices have multiple uses
In addition to being used as seasoning and flavouring, spices are extensively used in natural remedies, pharmaceuticals, nutraceuticals, aromatherapy, beverages, natural colouring, perfumes, dental preparations, cosmetics, and botanicals as insecticides. As a result, they are important to the local economy of the nation that produces them. various spices produce a wide variety of compounds, which give them various qualities.

These phytochemicals generally have the ability to respond to environmental changes, attract helpful creatures and repel harmful ones, and act as photoprotectants. The most significant family of aroma chemicals is likely terpenes and their derivatives, particularly monoterpenes, which contribute scent to about 90% of spices.

Spices have been scientifically shown to have many more advantageous physiological effects in the last two to three decades, indicating that their use as food adjuncts went beyond flavour and taste. Diabetes, heart disease, and inflammatory conditions like cancer and arthritis are among the health issues that impact humanity that have drawn a lot of attention. Spices and their active ingredients have been researched recently as potential preventative or ameliorative agents.

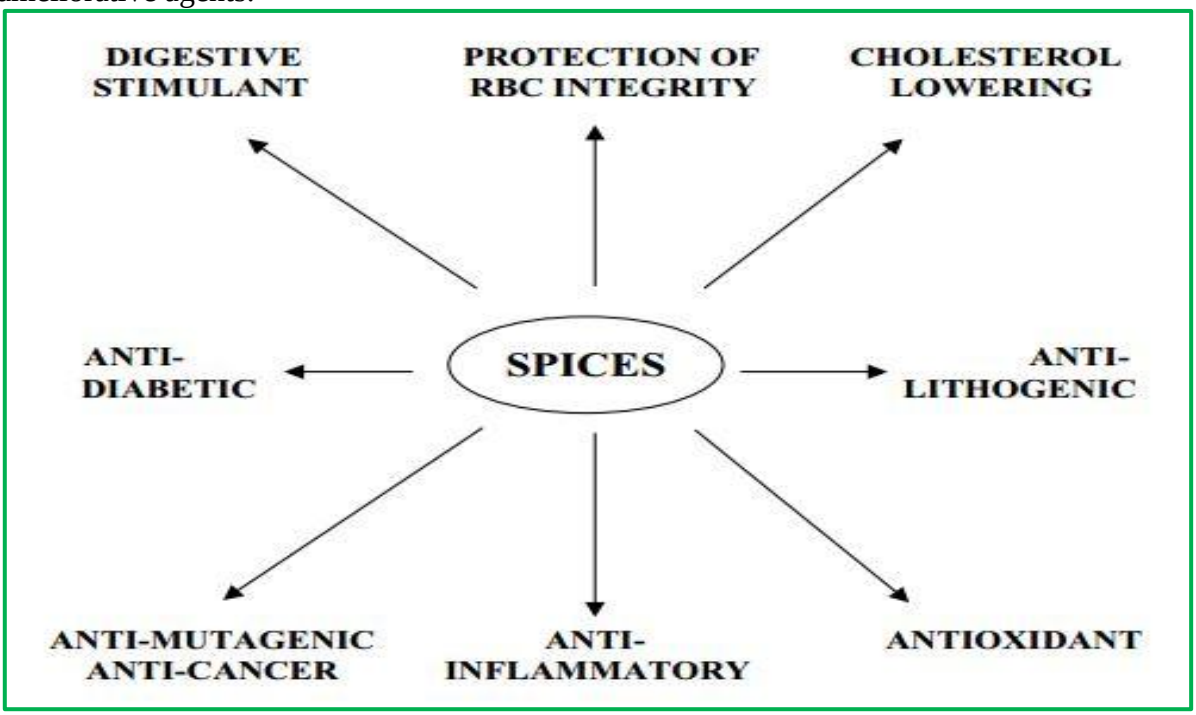

Figure 1. Summary of multibeneficial physiological effects of spices

Spice in a botanical: Because spice extracts include active ingredients that aid in the management of insects and storage pests, they can be utilised as natural botanical remedies. Green bean aphid, thrips, and whitefly infestation were reduced with the use of 10% sprays of extracts from Senegal pepper, Industrial pepper, and black pepper. Granary weevil (Sitophilus granarius) and grain borer (Rhizoper thadominica), two important storage pests in wheat, were effectively reduced by 0.5% and 5% of black pepper and red pepper powder, respectively. The generation of potent, pungent active ingredients may be the cause of this activity.

Spices as an organic way to preserve: Chemical components that are taken from natural sources, such as flavonoids and phenolic compounds, have the inherent capacity to safeguard items by preventing microbial development, oxidation, and specific enzymatic reactions that occur in the food. The food, meat, and pharmaceutical industries are currently placing increased emphasis on preservatives generated from spices. The primary uses of clove, garlic, ginger, cinnamon, thyme, oregano, and rosemary are as preservatives. The vase life of carnation flowers has been extended by adding 300 parts per thousand of dill and coriander oil. This is because it reduces microbial proliferation and xylem channel blockage.

Spices that are added to drinks: Due to their inherent antioxidant and antibacterial qualities, beverages produced with spices are considered highly appreciated natural products. It functions as a natural health drink in addition to aiding in long-term storage. The beverage business uses spices like cardamom, black pepper, ginger, mint, cumin, cinnamon, ginger, ko-kum, and curry leaf. The Food Safety and Standards Act of 2006 permits the production of nutraceuticals drinks containing spices such as jaljeera, kalam khatta, kokum sharbat, and masal chai. A 0.5% extract of ginger can be added to beverage preparations, and it can help

increase antioxidants, anti-nutritional factors, and sensory attributes, which can help cure fatal diseases.

Using spices as nutraceuticals: In order to meet the demands of the conventional food sector, the growing demand from the nutraceuticals sector is propelling the global consumption of Indian spices. Approximately fifteen percent of the nation's spice production is currently derived from non-traditional uses of spices, such as nutraceuticals. In India, one of the most popular nutritional products is Chawanprash. Spice elements include cloves, cinnamon, several curcuma species, saffron, and long pepper. Because they are high in antioxidants and a strong source of vitamin C, they also improve digestion, boost immunity, and guard against heart disease, impotence, coughing, asthma, fever, and rough speech.

A class of progressive neurological conditions known as neurodegenerative illnesses includes conditions like meningitis, multiple sclerosis, Alzheimer's disease, Parkinson's disease, brain tumours, and multiple sclerosis that impair or completely destroy neuronal function. Over 10 million individuals worldwide experience neurodegenerative disorders each year. It has been demonstrated that certain spices, such as turmeric, red pepper, black pepper, clove, ginger, garlic, coriander, rosemary, saffron, and cinnamon, have anti-neurodegenerative effects.

Cosmetics and beauty care: Beauty and cosmetics have been around for as long as people have. Human beauty has always been preserved and enhanced by the use of herbs and spices. For instance, skin care products contain turmeric. In the field of wellness, health, and beauty, cosmeceuticals and anti-aging products are becoming more and more popular. The beauty and cosmetic sector is the primary user of spices such as turmeric, cardamom, clove, aniseed, coriander, basil, saffron, garlic, and sage.

Applying a 0.5% cream containing turmeric extract helps control sebum production on human skin; those with oily skin or acne will benefit greatly from this feature. The crocin and cicrocrocin content of saffron (Crocus sativus) is primarily responsible for this effect, as it regulates the melanin generation in skin. It has been claimed that 0.3% of saffron used in cream and lotion will give brighter and shinier skin. Saffron is a complexion promoter in skin care.

Spices used in the medical field: Spices are essential to the pharmaceutical sector. The active ingredient found in spices works as a natural antioxidant and has anti-inflammatory, anti-arthritic, anti-carcinogenic, anti-cholesterolemic, and antidiabetic properties.

Additional use for spices: In addition to being employed as defensive spray (including capsaicin and pepper) and as an ingredient in fragrance chemicals, spices like saffron, turmeric, and red chilli are also utilised in the textile industry. Certain spice oils can be readily transformed into aroma chemicals. Creams for pain relief can be made with the capsaicin found in chillies and the myristicin found in nutmeg, mace, and nutmeg. For example, the eugenol in cloves can act as a natural precursor to vanillin, which is found in vanilla.

Adverse consequences of spices

In addition to its many positive advantages, overindulging in spices also have some potential negative repercussions. Spicy cuisine and chilli consumption were associated with an increased risk of gastric cancer. Spices can either increase or decrease intestinal epithelial permeability. For example, the use of paprika and chilli can loosen cell connections and promote permeability. On the other hand, the use of black pepper and nutmeg may cause cell swelling. Increased cardamom intake results in impotence, while nutmeg produces a psychedelic experience.

In summary

In addition to giving our food flavour, spices are essential and natural parts of our daily diet and have other positive physiological consequences.Not only has optimal spice consumption been shown to be safe, but it also has a number of positive benefits. A spiced diet is likely to result in a healthy life since spices have multiple health benefits and may work in concert with one another.

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