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Indian spices: An update

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Abstract

This paper represented the therapeutic uses of some species. From an ancient time the spices are used to impart flavor and taste to food. Beside this some of the species have very important medicinal value to treat acute or chronic diseases. They are also popular for their aromatic and pungent taste. Most of species like pepper, garlic, onion, cumin, nutmeg, chilies, clove and asafetida etc. are widely used for their medicinal property as well as for incredible taste. Oleoresin and terpene oils are the most important components from the spices that are popularly known for imparting spicy taste. Both components were found to be useful in medicines. Spices are rich in oleoresins, terpenoids, vitamins, alkaloids, flavonoids, prostaglandins and essential oils.

Keywords: Spices, terpenoids, alkaloids, medicinal uses

Introduction

Though recently there has been a tremendous growth of the traditional systems of health care worldwide, in countries like India, China and Brazil. Healthcare scenario has always been associated with the traditional system of medicines.

These countries are still having very rich biological as well as cultural diversity and the traditional health care systems have a deep influence on current health care scenario in these nations [1].

Plants were used much before for healing and health, food itself is a part of health, thus vegetable sources are the first ever known substances for health and healing [2].

Herbs and spices are among the most versatile and widely used ingredient in food processing. As well as traditional role in colouring and flavoring food, they have been increasingly used as natural preservatives and for their potential health promoting properties like antioxidants. India grows over 50 different varieties of species. Total production of spices in India is around 2.7 million tones and it is exported to 150 countries. The Indian share of the world trade in spices is 45-50% as well as very high utilization, as spices is faddism in India, but spices have a very important medicinal value in the treatment of acute and chronic disease [3].

Spices are aromatic, pungent, substances. Spices do not make a significant contribution to nutrition as they are consumed in small quantities.

The saying "One man's meat is another man's poison" applies particularly to spices. Spices should be used to bring out the best flavor in food and make it more appetizing rather than to give food a pungency which irritates the mouth and masks the original flavor [4].

The spices are known to contain terpenoids as their main constituents which exerts a wide spectrum of activities like antiseptic, diuretic, stimulant, carminatives, anthelmintic, analgesic, anti-rheumatic, aromatic, counter-irritant etc.[5].

Names, biological sources, families and the medicinally important parts for few widely used spices in India are listed in table 1.

Table 1: List of spices that are medicinally important and widely used in India.

Sr. No.	Vernacular Name	Biological Source	Family	Plant Parts Used for Activity
1.	Asafoetida (Hing)	*Ferula anthrax, F.foetida*	Umbelliferae	Resin
2.	Cardamom (Elaichi)	*Elettaria cardamomum*	Zingiberaceae	Seed
3.	Chillies (Mirch)	*Capsicum annum, C. fastigiatum, C.minimum, C.frutescens.*		
4.	Cinnamon (Dalchini)	*Cinnamomum zeylanicum, C.verum*	Luaraceae	Bark
5.	Clove (Lavang)	*Eugenia caryophyllata, Syzygium aromaticum*	Myrtaceae	Buds
6.	Coriander (Dhania)	*Coriandrum sativum*	Umbelliferaea	Fruits
7.	Cumin (Jira)	*Cuminum sativum*	Umbelliferaea	Fruits
8.	Garlic (Lasun)	*Allium sativum*	Liliaceae	Bulbs
9.	Onion(Pyaj)	*Allium cepa*	Liliaceae	Bulbs
10.	Nutmeg (Jaiphal)	*Myristica fragrans, Myristica malabarica*	Myristicaceae	Kernels
11.	Pepper (Miri)	*Piper nigrum*	Piperaceae	Fruits
12.	Turmeric (Haldi)	*Curcurma longa, C.domestica.*	Zingiberaceae	Roots
13.	Fenugreek(Methi)	*Trigonella foenumgraceum*	Leguminosae	Seeds
14.	Ginger (Adrak)	*Zingiber officinale*	Zingiberaceae	Roots

Chemical composition and biological activities of the different spices:-

1) **Asafoetida: -** It is popular spice used in daily food by Indians. It was found to contain mainly ferulic acid, umbellic acid [5] and ketonic substance known as umbelliferone. It has many activities. Powder of Asafoetida is used as carminative [5], it is also used in fainting, flatulent colic and chronic bronchitis [6] as well as it is used to treat asthma in adults [7]
2) **Cardamom:** In India, the cardamom is cultivated in Kerala, Karnataka, Tamilnadu, West Bengal and Assam. It is one of the most important spices that are used daily. It was found to contain the constituents like cineole, terpenyl acetate [6], borneol, terpineol as a major chemical composition. Triturated powder of this fruit is mainly used as carminative, stimulant, and diuretic [5]. It is also used in the treatment of gonorrhea and as an anti-microbial [8].
3) **Chilly:** It is traditionally known as mirch. It is one of the most important spices, bark and seeds contain capsaicin and along with this it also contain ascorbic acid [7], thiamin, capsanthin, capsorubin [7]. It was found to contain acyclic glycoside (as geranyllinalool derivatives) like capsainosides I-V. It is widely used as stimulant and used in osteoarthritis [6], post hepatic neuralgia & painful diabetic neuropathy, it also increases fibrinolytic activity.
4) **Cinnamon:** In India every food contains this spice as it is very popular in daily meal and locally it is well defined as Dalchini. It contains cinnamic aldehyde [5, 6], cinnamyl acetate [9], p-hydroxy cinnamyl [10], eugenol etc. as a major constituent. It is used as flavoring agent, astringent, carminative & germicidal. Mostly extracts of bark and leaves are used in medicines as well as in perfumes [5].
5) **Clove (Lavang):** From long time India is one of the major importer of clove, but now it has been cultivated in Konkan region of Maharashtra state. Clove constituted eugenol, caryophyllene, isoeugenol, fernasol, sitosterol, campesterol etc. as a major chemical constituent. Medicinally it is used as stimulant, aromatic and anti-carcinogenic. It is popularly known as oral analgesic as it gives relief from toothache [5, 6], it was found to be useful in indigestion, in most of the region it is used as an antimicrobial [11] and hepatoprotective [12].
6) **Coriander (Dhania):** It contains mostly (+) linalool (coriandrol) as important chemical constituent while other constituents are pinene, terpinene, limonene, cymene etc. Fruit contains 0.4%-1.1% of oil. It is used in curries as a flavoring agent, medicinally it is used as carminative [5] and it is mainly recommended in anemic conditions [7] etc.
7) **Cumin (Jira):** It is one of the spices which contain cuminic aldehyde, pinene and terpinol [5] as major constituents. Seeds contain 3.5% of oil in which cumin is present and its fruit contain cuminol. It is popularly used as carminative and in intestinal colic [7].
8) **Garlic (Lasun):** It is a part of Indian food and it contains allylpropyl disulphide, diallyl disulphide, allin allicin [5, 6, 7] etc. as its main constituents. It is reported as anthelmintic, appetizer, diuretic and hepatoprotective [12]. Mostly it is useful in bronchitis, piles, asthma, tumors, leucoderma, hypoglycemic, antioxidant [13], aphrodisiac [14], and in memory functions [15]. Garlic also contains thiols, disulfides, trisulfides, thiosulphinates that are proved to be very useful in treatment of diabetes.
9) **Onion (Pyaj):** It is very well known component of the diet. Red onion contains quercetin and prostaglandin which is very useful in asthma [5]. It is rich in chemical constituents like allyl propyl disulphide, cysteins, sulfoxide, propyl disulphide, allyl sulphide etc. It is used effectively in body pain, bleeding, tumors, malaria, asthma, and scabies. It is reported as aphrodisiac [14].
10) **Nutmeg (Jaiphal):** It is dry fruit which contain mostly elemicin, sabinene, pinene, eugenol, myristicin and used carminative, infantine diarrhea, chronic rheumatism and antimicrobial [5].
11) **Pepper (Miri):** In Maharashtra, It is cultivated in Ratnagiri and Culaba districts. It is one of the spices which contain alkaloids like piperine [5, 6], piperetine, limonene [5], sabinene, pinene, cymene [17] etc. Olio-resin gives spiciness to pepper and this is a best remedy for common cold, antioxidant [13] and hepatoprotective [18].
12) **Turmeric (Haldi):** It is a God's gift to human being as it is most important in spice and widely used for its excellent medicinal property. This is mostly available and distributed in different regions of Maharashtra like Satara, Sangli, Kolhapur, Pune, Nanded, Chandrapur, Osmanabad, Yavatmal, Parbhani districts etc. Olio-resin in one of the major component obtained from turmeric. This drug contains curcuminoid, curcumin, dicaffeoyl methane. Pharmacologically it is widely used as wound healing [19], antioxidant [13, 20] antibacterial [21], hepatoprotective in jaundice [12], diuretic, choleretic, in smallpox and chickenpox.
13) **Fenugreek (Methi):** It is well known spice that is included as spice in food by Indian peoples and it contains alkaloids and it contains alkaloids such as trigonelline, furestenol glycoside such as trigofoenosides A-G [22], 4-hydroxy isoleucine [23] and it is used in treatment of various diseases like as antidiabetic, antiulcer, anticancer, and for lowering cholesterol level [22]. It also possesses insulin stimulating activity [23].
14) **Ginger (Adrak):** It is a good spice among the all spices. It contains chemically cineol, pinene, cymene, gingiberone [24] and it is mostly used as hepatoprotective [12], antiulcer [25], an antiplatelet [26, 27]. It is also used as prophylactic in the treatment of motion sickness [28] from long ago.

References

1. Tyler VE. Pharmacy international, 1986; 7:203.
2. Samantha MK. Ind. I Pharm. Edu. 1999; 33(3):202-204.
3. Peter KV. Handbook of Herbs and Spices, Woodhead publishers: 2004; II:1-367.
4. Kirtikar KR, Basu BD. Indian Medicinal Plants, 2nd edition, vol.3, International book distributor, Dehradun, 1987, 2138.
5. Kokate CK, Purohit AP, Gokhale SB. *Pharmacognosy*, 21st edition, Nirali prakashan, Pune, 2002, 313-429.
6. Tyler VE, Braddy LR, Robbers JE. *Pharmacognosy*, 9th edition, Lea & Febiger, Philadelphia, 1988, 103.
7. Evans WC. Ln.: Trease and Evance (Eds.), *Pharmacognosy*, 14th edition Saunders, Florida, 2001, 255.
8. Iyenger MA. Indian Drugs, 2004; 40(10):622.
9. Arganor JD, Dewik PM, Evance WC. *Planta Med.* 1979; 35:342.
10. Schoroder Ha. Phytochemistry. 1968; 7:57-61.
11. Mathew J. Indian Drugs. 2005; 42(1):28.

12. De S, Ravishankar B, Bhavsar GC. Indian Drugs. 1993; 30(8):135-163.
13. Naik SR. *Indian Drugs*. 2003; 40(9):501-516.
14. Indurwade NH, Kosalge SB. Indian Drugs. 2005; 42(2):67-71.
15. Dhingra D, Kulkarni Sk. Indian Drugs. 2003; 40(6):313-319.
16. Orabi KY, Mossa JS, El-Feraly FS. Journal of Natural Products. 1991, 54:856.
17. Martins AP, Salgueiro L, Vila R, Tomi F, Canigueral S, Casanova S, *et al*. Phytochemistry, 1998; 49:2019.
18. Mishra SH, Suresh Kumar SV. Ind. J Pharm. Sci. 2004; 66(3):365-367.
19. Shinde AD, Bhise SB. Indian Drugs. 2004; 41(6):376.
20. Rao MN. Research Bulletin. 1996, 06.
21. Lutomski J, Kedzia B. Journal Plant Medica. 1963; 19(9):26.
22. Gupta Jain Thakur. *Phytochemistry*. 1986; 44(4):563.
23. Heafele C. *Phytochemistry*. 1997; 44(4):563.
24. Govindarajan VS. CRS Critical Reviews in Food Science and Nutrition. 1982; 17:1-96.
25. Goyal RK. Indian Journal of Pharmacology. 2002; 34(2):100.
26. Bakon J. Revelence for Medicine and Psychiatry Medicine Hypothesis. 1988; 20:271-278.
27. Dwiwedi, Amrita. Indian Drugs. 1993; 30(11):539-548.
28. Mowbrey DB, Clayson De. *Lancet*. 1982; 1:655.