

Āyurveda

The overall aim of the Āyurveda theme was to present a compilation on correlation between traditional kitchen spices and materials used in Indian homes, use in Āyurvedic practices and recently being investigated and established by modern medicinal approaches. The origin of this compilation resides in the fact that the biggest strength of the Indian medicinal system, Āyurveda, has been its long span of human use case and its incorporation in components of daily use including food ingredients viz. spices. It is in common public knowledge that seasonal fruits, vegetables, food grains and Indian kitchen products, individually or in combinations, have been beneficial to keep individuals healthy and sometimes even help recover from disease conditions. This knowledge, sadly, is getting lost or given less importance in modern days. A reference material, which connects Indian kitchen products, along with its' associated health benefits and encompassed medicinal active components, could be an important starting point for various Āyurveda researchers and practicing groups. Often, accounts of these kitchen items are found in various local languages which researchers and practitioners find difficult to associate with and even difficult to find references in modern medicinal research repositories. Hence, we have created a compendium of names of Indian kitchen products from different parts of India and in various Indian languages, with description of medicinal active agent and use cases, as available in previous records of ayurvedic practices and modern medicinal research, to make it easily available for end users, ayurveda researchers and modern medicine scholars to create a robust alternative medicine system in country. Initiation of the process started with tabulating the names of various kitchen spices with their names in different Indian languages and in ayurvedic literature with the source of information (Table 1).

Table 1. Details of six representative kitchen items (Out of total 25) used for creating the reference content.

<u>SN.</u>	<u>English Names</u>	<u>Marathi Names</u>	<u>Hindi Names</u>	<u>Gujarati Names</u>	<u>Tamil Names</u>	<u>Punjabi Names</u>	<u>Telugu Names</u>	<u>Ayurvedic Names</u>	<u>References</u>
<u>1</u>	<u>Sesame seeds</u>	<u>तीळ</u> _____	<u>तिल</u>	<u>તલ</u> Tala	<u>எள்</u> விதைகள் El vitaikal	<u>ਤਿਲ ਦੇ ਬੀਜ</u> Tila dē bīja	<u>నువ్వు</u> గింజలు Nuvvu ginjalu	<u>तिलम्</u>	<u>द्रव्यगुणविज्ञान</u>
<u>2</u>	<u>Turmeric</u>	<u>हळद</u>	<u>हल्दी</u>	<u>હળદર</u> Haladara	<u>மஞ்சள்</u> Mañcal	<u>ਹਲਦੀ</u> Haladī	<u>పసుపు</u> Pasupu	<u>हरिद्रा</u>	<u>अग्निपुराण</u> <u>, द्रव्यगुण</u> <u>विज्ञान</u>
<u>3</u>	<u>Ginger</u>	<u>आले</u>	<u>अद्रक</u>	<u>આદુ</u> Ādu	<u>இஞ்சி</u> Iñgi	<u>ਅਦਰਕ</u> Adaraka	<u>అల్లం</u> Allam	<u>आर्द्रक,</u> <u>शृङ्गवेर</u>	<u>द्रव्यगुणविज्ञान, अग्निपुराण,</u> <u>Indian Medicinal Plants</u> <u>(C.P. Khare)</u>
<u>4</u>	<u>Mustard seeds</u>	<u>मोहरी</u>	<u>राई,</u> <u>सरसों</u>	<u>સરસવના</u> દાણા Sarasavanā dānā	<u>கடுகு</u> விதைகள் Katuku vitaikal	<u>ਰਾਈ ਦੇ ਬੀਜ</u> Rā'ī dē bīja	<u>ఆవ</u> గింజలు Āva ginjalu	<u>सर्षप</u>	<u>भावप्रकाश</u> <u>निघण्टु</u>
<u>5</u>	<u>Garlic</u>	<u>लसुण</u> _____	<u>लहसुन</u>	<u>લસણ</u> Lasana	<u>பூண்டு</u> Pūntu	<u>ਲਸਣ</u> Lasana	<u>వెల్లులి</u> Vellulli	<u>लशुनः,</u> <u>उग्रगन्धकः</u>	<u>अग्निपुराण</u>
<u>6</u>	<u>Carom seeds</u>	<u>ओवा</u> _____	<u>अजवायन</u>	<u>કેરમ બીજ</u> Kērama bīja	<u>ஓமம்</u> Ōmam	<u>ਕੈਰਮ ਦੇ ਬੀਜ</u> Kairama dē bīja	<u>కాయరమ్</u> విత్తనాలు Kyāram vittanālu	<u>यवानी</u>	<u>भावप्रकाश</u> <u>निघण्टु, द्रव्यगुणविज्ञान</u>
<u>7</u>	<u>Asafoetida</u>	<u>हिंग</u> _____	<u>हींग</u>	<u>હિંગ</u> Hiंगा	<u>பெருங்காயம்</u> Peruṅgāyam	<u>ਹਿੰਗ</u> Higa	<u>ఇంగువ</u> Inguva	<u>हिङ्गु</u>	<u>द्रव्यगुणविज्ञान</u>
<u>8</u>	<u>Cumin seeds</u>	<u>जीरे</u> _____	<u>जीरा</u>	<u>જીરું</u> Jīrum	<u>கீரகம்</u> Cīrakam	<u>ਜੀਰੇ ਦੇ ਬੀਜ</u>	<u>జీలకర్ర</u>	<u>जीरकः</u>	<u>अग्निपुराण</u> <u>, द्रव्यगुण</u> <u>विज्ञान</u>

						<u>Jirē dē</u> <u>bīja</u>	<u>Jilakarr</u> <u>a</u>		
9	<u>Fennel</u>	<u>బడిశెప</u> -	<u>सौंफ</u>	<u>వరియాని</u> <u>Variyāni</u>	<u>పెరుఞ్ఱిర</u> <u>కమ్</u> <u>Peruñcirak</u> <u>am</u>	<u>ఢేఱిల</u> <u>Phainila</u>	<u>సోపు</u> <u>Sōpu</u>	<u>మధురికా,</u> <u>శతపుష్పా</u>	<u>ద్రవ్యగుణవి</u> <u>జ్ఞాన</u>
10	<u>Black</u> <u>Pepper</u>	<u>కాఱి</u> <u>మిరి</u> — _____	<u>काली</u> <u>मिर्च</u>	<u>కాఱా మరి</u> <u>Kālā</u> <u>marī</u>	<u>కఱుమిలకు</u> <u>Karumilak</u> <u>u</u>	<u>వాలి</u> <u>మిరచ</u> <u>Kālī</u> <u>miraca</u>	<u>నల్ల</u> <u>మిరియ</u> <u>లు</u> <u>Nalla</u> <u>miriyālu</u>	<u>మరిచ</u>	<u>ద్రవ్యగుణవి</u> <u>జ్ఞాన</u>
11	<u>Cinnamon</u>	<u>దాలచిని</u> _____ -	<u>दालचीनी,</u> <u>वज</u>	<u>తజా</u> <u>Taja</u>	<u>ఇలవఙ్క</u> <u>ప్పట్టై</u> <u>Ilavaṅgapp</u> <u>attai</u>	<u>దాలచిని</u> <u>Dālacinī</u>	<u>దాల్చిన</u> <u>చెక్క</u> <u>Dālcina</u> <u>chekka</u>	<u>త్వక్</u>	<u>ద్రవ్యగుణవి</u> <u>జ్ఞాన</u>
12	<u>Bay</u> <u>Leaves</u>	<u>తమాలపత్ర</u> _____ -	<u>तेजपत्ता</u>	<u>అడకాయ</u> <u>వగరను</u> <u>Atkāyā</u> <u>vagaran</u> <u>u</u>	<u>పిరియా</u> <u>ణి</u> <u>இலை</u> <u>Piriyāni ilai</u>	<u>బే ప్తా</u> <u>Bē patā</u>	<u>బే ఆకు</u> <u>Bē āku</u>	<u>తమాలపత్ర</u> <u>మ్</u>	<u>ద్రవ్యగుణవి</u> <u>జ్ఞాన</u>
13	<u>Cardamo</u> <u>m</u>	<u>इलायची</u> -	<u>इलायची</u>	<u>ఎలయి</u> <u>Ēlacī</u>	<u>ఁలక్కాయ</u> <u>Ēlakkāy</u>	<u>ఱిలారీసి</u> <u>Ilā'icī</u>	<u>ఎలకులు</u> <u>Ēlakulu</u>	<u>ఎలా</u>	<u>భావప్రకాశ</u> <u>నిఘండు</u>
14	<u>Mint</u> <u>Leaves</u>	<u>పుదినా</u> _____ _____	<u>पुदिना</u>	<u>ఘడినా నా</u> <u>పత్తా</u> <u>Phudīnā</u> <u>nā pattā</u>	<u>ఘడినా నా</u> <u>పత్తా</u> <u>Phudīnā</u> <u>nā pattā</u>	<u>పుడినే దే</u> <u>పేతే</u> <u>Pudīnē</u> <u>dē patē</u>	<u>పుడినా</u> <u>ఆకులు</u> <u>Pudīnā</u> <u>ākulu</u>	<u>అజగంధ:</u>	<u>spokens</u> <u>anskrit.</u> <u>org</u>
15	<u>Clove</u>	<u>లవంగ</u> _____ _____	<u>लौंग</u>	<u>లవింగ</u> <u>Laviṅga</u>	<u>కిరాంపు</u> <u>Kirāmpu</u>	<u>లొంగా</u> <u>Lauṅga</u>	<u>లవంగా</u> <u>లు</u> <u>Lavaṅgā</u> <u>lu</u>	<u>లవఙ్గమ్</u>	<u>భావప్రకాశ</u> <u>నిఘండు</u>
16	<u>Saffron</u>	<u>కేశర</u>	<u>केसर</u>	<u>కేసర</u> <u>Kēsara</u>	<u>కుఙ్కుమప</u> <u>్ప</u> <u>Kuṅkumap</u> <u>pū</u>	<u>కేసర</u> <u>Kēsara</u>	<u>కుంకుమ</u> <u>పువ్వు</u> <u>Kuṅkum</u> <u>apuvvu</u>	<u>కుడకుమమ్</u>	<u>భావప్రకాశ</u> <u>నిఘండు, ద్ర</u> <u>వ్యగుణవిజ్ఞా</u> <u>న</u>
17	<u>Chilli</u>	<u>మిరచి</u>	<u>मिर्च</u>	<u>మరయ్య</u> <u>Maracum</u>	<u>మిలగకాయ</u> <u>Milagāy</u>	<u>మిరచ</u> <u>Miraca</u>	<u>మిరపక</u> <u>య</u>	<u>మరిచికా</u>	<u>spokens</u> <u>anskrit.</u> <u>org</u>

							<u>Mirapak āya</u>		
18	<u>Nutmeg</u>	<u>जायफल</u> -	<u>जायफल</u>	<u>ஜாயபல்</u> <u>Jāyaphal a</u>	<u>ஜாதிக்காய்</u> <u>Jātikkāy</u>	<u>ਜਾਇਫਲ</u> <u>Jā'iphal a</u>	<u>ಜಾಜಿ಼ಯ</u> <u>Jājikāya</u>	<u>जातीफलम्</u>	<u>भावप्रकाश</u> <u>निघण्टु, द्रव्यगुणविज्ञान</u>
19	<u>Curry Leaves</u>	<u>कढीपत्ता</u>	<u>करीपत्ते</u>	<u>மீதி</u> <u>மீய்ப்பட்டி</u> <u>Mīthō</u> <u>līmbadō</u>	<u>கறிவேப்பிலை</u> <u>Karivēppil ai</u>	<u>ਕਰੀ ਪੱਤੇ</u> <u>Karī patē</u>	<u>ಕರಿವೆಪ್ಪು</u> <u>Karivēp āku</u>	<u>गिरिनिम्ब</u>	<u>spokens</u> <u>anskrit.</u> <u>org</u>
20	<u>Fenugreek</u>	<u>मेथीदाणे</u>	<u>मेथीदाना</u>	<u>મેથી</u> <u>Mēthī</u>	<u>வெந்தயம்</u> <u>Ventayam</u>	<u>ਮੇਥੀ</u> <u>Mēthī</u>	<u>ಮೆಂತಿ ಕುರ</u> <u>Mentikū ra</u>	<u>मेथिका</u>	<u>द्रव्यगुणवि</u> <u>ज्ञान,</u> <u>भावप्रकाश</u> <u>निघण्टु</u>
21	<u>Mace</u>	<u>जावित्री</u>	<u>जावित्री</u>	<u>ஜாயபத்ர</u> <u>Jāyapatr a</u>	<u>ஜாதிக்காய்</u> <u>Jātikkāy</u>	<u>ਜਾਇਫਲ</u> <u>Jā'iphal a</u>	<u>జాపత్రి</u> <u>Jāpatri</u>	<u>जातीपत्री</u>	<u>द्रव्यगुणवि</u> <u>ज्ञान,</u> <u>भावप्रकाश</u> <u>निघण्टु</u>
22	<u>Black Stone Flower</u>	<u>दगडफूल</u> —	<u>पथर के फूल</u>	<u>காளா</u> <u>புத்தரஞ் சூல்</u> <u>Kāiā</u> <u>paththar anum</u> <u>phūla</u>	<u>கருப்பு கல் மலர்</u> <u>Karuppu kal malar</u>	<u>ਕਾਲੇ ਪੱਥਰ ਦਾ ਫੁੱਲ</u> <u>Kālē pathara dā phula</u>	<u>నల్ల రాతి పువ్వు</u> <u>Nalla rāti puvvu</u>	<u>शैलेयम्</u>	<u>द्रव्यगुणवि</u> <u>ज्ञान,</u> <u>भावप्रकाश</u> <u>निघण्टु</u>
23	<u>Star Anise</u>	<u>बादियाणा</u> -	<u>चक्रफुल</u>	<u>ஸ்டார்</u> <u>வரியாளி</u> <u>Stāra</u> <u>variāi</u>	<u>நட்சத்திர சோம்பு</u> <u>Natcattira cōmpu</u>	<u>ਸਟਾਰ ਸੌਫ</u> <u>Satāra saumph a</u>	<u>స్టార్ సొంపు</u> <u>Stār sōmpu</u>	<u>तक्कोलम्</u>	<u>spokens</u> <u>anskrit.</u> <u>org</u>
24	<u>Coriander</u>	<u>कोथिंबीर</u>	<u>धनियाँ</u>	<u>காசா</u> <u>Dhānā</u>	<u>கொத்தமல்லி</u> <u>Kottamalli</u>	<u>ਧਨੀਆ</u> <u>Dhanī'ā</u>	<u>కొత్తిమీర</u> <u>Kottimīr a</u>	<u>धान्यकम्</u>	<u>अग्निपुराण</u>

25	<u>Long Pepper</u>	<u>पिंपळी</u> _____	<u>पिप्पली</u>	<u>லாம்பி மர</u> <u>Lāmbī marī</u>	<u>நீண்ட மிளகு</u> <u>Nīṇṭa milaku</u>	<u>ਲੰਬੀ ਮਿਰਚ</u> <u>Labī miraca</u>	<u>పొడవైన మిరియం లు</u> <u>Podavai na miriyālu</u>	<u>पिप्पलिः,</u> <u>पिप्पली</u>	<u>अग्निपुराण</u>
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Detailed Description of Some representative identified Kitchen materials/spices/food ingredients:

1) Sesame Seeds-



- **Botanical name-** Sesamum Indicum

• **Characteristics/ गुणधर्म** - Sesame seeds contain oil in them. The ancient text भावप्रकाशनिघण्टु mentions various characteristics of the oil that is extracted from the sesame seeds. It says that the sesame seed oil is thick, laxative and aphrodisiac. It promotes colour and strength. Sesame seeds are found in 3 types- black, white and red. Sesame seeds are pungent, bitter, sweet and astringent in taste. They have hot potency. The parts used as spice and medicine are mainly the seeds, which are then extracted oil from or grounded to make paste. Seeds are also used in direct form.

- **Used Case-** Seeds, Oil, Paste.
- **In Kitchen-** The as a spice and seasoning agent seed are used, for garshining something. The seeds are made into fine paste to add in the gravies to enhance the taste. The oil from the sesame seeds is used for cooking.
- **In Ayurvedic Practices-** The oil is used in the preparation of the medicines. Seeds are also directly consumed for health benefits and as a medicinal remedy for variety of diseases.

• Remedies for various diseases-

- Agni purana mentions that the preparations made up of cooked barley, with horse gram, green gram, śigru (Moringa leaves), ingudi along with bitter and astringent vegetables, in sesame oil are good for diabetes.¹
- The oil extracted from sesame seeds, fruits of behada and ingudi are beneficial for curing leprosy.
- It is mentioned in the book dravyagunavidnyan that it has the ability to kill kṛmis or pathogenic organisms.²
- Those who are suffering from stiffness of the thighs should consume foods containing black pepper and sesame seeds.³
- Consumption of sesame and drinking cold water along with eating cold food are said to strengthen teeth and also give supreme satisfaction.
- Gargling with sesame oil is mentioned for strengthening teeth.
- Sesame seeds can lower cholesterol levels and also decrease the risk of cancer.⁴

The main component of Sesamum Indicum lignans are identified as sesamin, seasmol, sesamolin and sesaminol. These are widely investigated for their medicinal properties such as anti-inflammatory and anticancer action [5]. The anti-diabetic properties of S. Indicum has been studied in the murine model (genetic and induced) through direct feed where the findings assert

the positive impact of sesame on the diabetic disorders and improved markers have been observed for the study period [6,7,8]. Another exploration supports a dose dependent anti-malarial effect from the in vivo studies in mice with their findings [9]. It has been utilised for skin ailments and have been reported to positively affecting the dermatitis conditions in murine models [10]. It has also been investigated for other medicinal benefits through active components and found to be hepatoprotective [11,12,13] anti-rheumatoid [14] and anti-inflammatory and anti-oxidant [15] with anti-cancerous activities [16,17,18,19,20,21].

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- **Supplementary Information-** It is a good lubricant for our body. It has got usage for weight loss as well as weight gain. There is a remedy for destroying dog's poison as well which requires drinking the solution of sesame oil, juice of arka plant, jaggery and flesh in equal proportion.

Turmeric-



- **Botanical Name-** Curcuma longa

•**Characteristics/गुणधर्म** - Turmeric is one of the easily available spices, originally from India. Due to its antibacterial properties it is like a boon for ayurvedic medicines. Turmeric is pungent and bitter in taste. It possesses hot potency. It is also known for its quality for improving complexion.

- **Used Case-** Rhizome, powder.
- **In Kitchen-** The turmeric powder is a part of Indian cuisine most often used as a seasoning agent to enhance the taste of several food items.
- **In Ayurvedic practices-** The powder of turmeric is widely used in preparation of Ayurvedic medicines. Turmeric powder is applied on wounds and cuts as a first aid.
- **Remedies for various diseases-**
 - It is mentioned in the Agni Purana that turmeric paste and Citraka should be applied as the remedy of piles.
 - It is said in the book named bhavprakasha nighantu that a diabetic patient and the person who is suffering from cough disorders should drink the juice extracted from turmeric rhizome.
 - The ancient Āyurvedic texts do mention Turmeric as the one having antibacterial properties.³
 - It has high anti-inflammatory and antioxidant potential. The ointment prepared with the use of turmeric is used to produce a scab on the chickenpox thus healing it. ⁵
 - As turmeric possesses the ability to kill kṛmis¹ or pathogenic organisms it is used for the treatment of diseases occurring due to pathogenic organisms.¹
 - It is also beneficial for urine production. ⁶
 - It is one of the best medicines for Jaundice.²
 - It is also consumed to get rid of Acidity.
 - Turmeric is applied on skin to remove itchiness which lasts long.
 - It is also useful in the remedies for Goitre and liver disorders.

Curcumin is identified as main polyphenol found in the rhizome of Curcuma longa (turmeric). Scientifically classified as 1,7-bis(4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione and commonly referred as diferuloylmethane [3]. It has been highlighted for anticancer activity with HepG2 as anti-angiogenesis agent without being cytotoxic to other cells [4]. Curcumin is also reported for suppressing nuclear factor kappa B (NF-κB) and the further products of NF-κB pathway in Breast Cancer Cells further inhibiting lung metastasis of human breast cancer in nude mice model [5,6]. Similarly, in colorectal cancer it suppressed NF-kappaB and NF-kappaB-regulated gene products expression (e.g. c-myc, bcl-2, cyclin D1, cIAP-1, bcl-xL, COX-2, MMP-9, ICAM-1, VEGF and CXCR4) showing anti-cancer anti-metastatic effects [7]. Curcumin suppresses small cell lung cancer cells [8]. Anti-oxident and

anti-inflammatory activity has been evaluated by mechanism of inhibition of NF- κ B which regulates other markers of proinflammatory and proliferative nature such as cyclin D1, iNOS, MMP-9, and COX-2 [9]. Curcumin dissolved in the DMSO has shown anti-parasitic activity with resisting the growth of chloroquine-resistant *Plasmodium falciparum* [10]. In another study reduction in GFR (50%) and kidney enlargement (60%) was observed by feeding spent turmeric to diabetic rats. Degree of relative renal enlargement is observed in diabetes. Curcumin, was found effective in ameliorating diabetic condition prevented kidney enlargement [11]. *C. longa* also shows hepatoprotective features in an animal study as comparison to silymarin as standard medication [12].

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- **Supplementary Information-** It is mentioned in the ancient Sanskrit texts that turmeric has got multiple uses. It has got the content of Curcumin. According to its uses, turmeric has various synonyms. As it enhances the skin tone it is known as काञ्चनी- giving a golden tint to the skin. Also, it is known as गौरी as it imparts fairness to the skin. It has got antibacterial properties that is why it is known as कृमिघ्ना. Turmeric is used in traditional ceremonies since very ancient days considering it highly auspicious. Hence, भद्रा is one of its synonyms. It has got main usage in the traditional wedding rituals as well as it is important in the other ceremonies as well.

3) Ginger-



- **Botanical Name-** Zingiber officinale
- **Characteristics/गुणधर्म** - It is aphrodisiac in nature. It is purgative, heavy for digestion and penetrating. It is hot in potency and pungent in taste. It is said to be the best appetizer.
- **Used Case-** Fresh rhizome, dried form (white coloured powder)
- **In kitchen-** The fresh rhizome of the ginger is usually grated to add into food preparations along with garlic paste. Both fresh grated fresh rhizome and powdered form is added to the tea to enhance its flavour.
- **In Ayurvedic Practices-** Ginger paste is used to cure headache as the ginger paste can be applied on the forehead.
- **Remedies for various diseases-**
 - It improves taste and relieves lack or loss of appetite.
 - It increases vigour because of its aphrodisiac nature.
 - It boosts digestion and also helps relieving abdominal colic pain.
 - Even it has been mentioned in Agni Purāṇa that mixed extracts of ginger and nutmeg in oil removes the intestinal colic. Moreover, it says that this mixture cures the diseases of the lips.¹
 - It has anti-inflammatory potential helping to reduce swelling and edema.
 - It has been found to be useful in respiratory tract related diseases.
 - It helps cure Asthamā.
 - Paste of ginger is applied on the forehead for curing headache.
 - While explaining the remedy for fever in Agni Purāṇa, dhanvantari says that the person in fever should fast by the physician advise for the protection of his strength and afterwards he should be fed with dry ginger and gruel of fried paddy.²
 - It is effective in dizziness, motion sickness, weight loss and conditions like arthritis, menstrual pain, etc.
 - Consuming ginger also benefits the health of the eyes and imparts good, clear vision.

Ginger essential oil (GEO) has major components as citral with compounds identified as geranial 10.5% and neral 9.1%, α -farnesene, α -zingiberene, β -sesquiphellandrene and camphene. The volatile oil of fresh ginger, shows potential of reducing symptoms of experimental colitis [3]. GEO also has been investigated for hepatoprotective efficacy and against the non-alcoholic fatty liver disease (NAFLD) where it has been found to be significantly effective [4]. As an ingredient of ginger [6]-Gingerol is pungent and has been found anti-angiogenesis, anti-tumor-promoting in the studies carried out with different cell lines (e.g. mouse melanoma cell line B16F10, human non-small cell lung carcinoma cell line A549, Human aorta smooth muscle cells (HASMC), NIH3T3 fibroblasts, etc.) [5]. In an animal study, anti-dyslipidaemia & hyperglycaemia effects have been found significant with ethanolic extracts of zingiber rhizomes [6] and antioxidant activity was asserted by lipid oxidation model of linoleic acid/water emulsion system with thiobarbituric acid reactive substances (TBARS) and dried root extracts CO₂ extracts [7]. Another investigation of ginger extract (6-, 8-, 10-gingerol or 6-shogaol) reports anti COX-2 activity on exposure to E.coli LPS in U937 cells [8]. Anti-

proliferative and apoptotic effects were seen in SW-480 cells with possible inhibitory mechanisms involves ERK1/2/JNK/AP-1 pathway for anticancer and chemopreventive efficacy by [6]-gingerol in case of colon cancer [9]. Another study reports the negative effects on the diabetes associated pathways in-vitro experiments for potential antidiabetic effects [10].

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Supplementary Information- The juice of venison is mentioned as food patient suffering from pulmonary diseases. For Asthma patient dry radish compounded with venison or cakes or bird's flesh with curd and pomegranate juice, green-gram, horse-gram, black pepper etc. should be fed. Also, the juice of citron as a dressing, along with honey, grapes, vyosa (dried ginger, long and black pepper), wheat, cooked barley, and Sali rice should be given as food.

4) Mustard seeds-



- **Botanical Name-** Brassica juncea
- **Characteristics/गुणधर्म** - There are 40 known species of these mustard seeds in the entire world. The seeds are widely seen in black, reddish-brown and yellow colour. The oil extracted from these seeds is hot in nature and possesses a pungent taste. Due to its hot and pungent taste, it is bad for the pitta dosha. The seeds are known for aggravating the digestive fire. The leaves of these mustard plants are also consumed on a large scale as they also contain medicinal properties. Mustard oil is also a good preservative and has been in use since ancient times. The yellow mustard seeds are said to be the best amongst all varieties. Mustard seeds contains a lot of vital nutrients such as vitamins and minerals.
- **Used Case-** Seeds, Oil, Leaves.
- **In Kitchen-** Mustard seeds are used on a daily basis in the Indian kitchens. They are used as a seasoning agent. Also, mustard seeds are finely ground into paste, sauce. Mustard oil is also used for cooking.
- **In Ayurvedic practices-** Mustard oil is used in the preparation of Ayurvedic medicines.
- **Remedies for various diseases-**
 - These are effective if one is suffering from headaches and migraines.
 - Mustard oil is also an excellent remedy for the ear-aches and other disorders related to the ear.
 - Leaf paste is utilised as treatment in headache by applying directly on the head.¹
 - Mustard oil is used in the treatment of curing blisters on the skin.²
 - It destroys the fat accumulation in the body.
 - It also helps healing leprosy, itching of the skin and also helps balancing the kapha dosha.
 - The seeds of mustard have magnesium that is an essential nutrient mineral for nervous system, pain and strain management. Also it soothes the nerve system in different parts of our body.³
 - If one is suffering from the problem of indigestion then mustard seeds can help to get rid of it.
 - The seeds are packed with fiber, which helps in easy bowel movement and enhances the digestive power of the body.
 - Mustard seeds also contain selenium due to which they are good for our bone strength.
 - Mustard seeds also help in strengthening our hair, nails, and teeth.
 - Mustard seeds contain anti-inflammatory and anti-oxidant properties to help in pain relief in the parts like gum, teeth, and bones.³

Brassica Juncea has been reported for medicinal benefits related to showing anti-obesity activity [5,6,7] Hepato-protective [7] anti-oxidant [8] and anti-microbial [9] properties with different animal model studies. Another medicinal benefits that have been strongly reported in association with B. Juncea are Anti-hypoglycemic and anti-diabetic in various scientific reports [10,11,12]. Also, some of the reports have suggested its Antidepressant [13] and anxiolytic like activity [14] are also

beneficial for health. B. Juncea have been found to be anti-cancerous in in vitro model of cell line studies [15].

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5) Garlic-



- **Botanical Name-** Allium sativum
- **Characteristics/गुणधर्म** - It is a very useful herb. It is pungent and hot in nature. This herb is loaded with antioxidants. Its roots are pungent in taste. Leaves are bitter in taste and the stem has an astringent taste.
- **Used Case-** Bulb, Powder.
- **In kitchen-** The garlic is used on a large scale in food preparations. It is either consumed raw as paste to enhance the taste or it is fried.
- **In Ayurvedic practices-** Raw bulb is used or it is boiled with coconut or sesame oil to cure earaches.
- **Remedies to various diseases-**
 - It helps in digestion.
 - This herb is loaded with antioxidants that help in reducing the oxidative stresses in the body.
 - Allium sativum protects the cells from free radical damage.
 - A. sativum minimizes the bone loss in females by balancing the estrogen level.
 - It is also effective in overcoming estrogen deficiency.
 - It is a known medicine for problems like digestive system, gastric disorders, indigestion, heartburn, stomach ache, bowel movements, bloating, and flatulence.
 - Further A. sativum is beneficial in the Cholera and Diarrhea treatments.
 - It regulates the blood pressure levels in the body promoting a healthy heart with proper dietary intake.
 - The antibacterial properties of A. sativum are useful in curing infections like cough and throat problems.
 - A. sativum helps in insulin release and maintaining its level. As this herb affects sugar levels hence it is good for diabetic patients.
 - Agni Purāṇa mentions the medicinal use of Garlic as the remedy for ear-ache. It says that putting the juice of garlic, ginger and śīgru in ear is a good remedy for ear-ache and bleeding of the ears.¹

Allium Sativum is being looked upon for its component allicin. Allicin has been reported containing sulfur and further produces second degradation compounds as identified as sulfur dioxide, diallyl sulfide (DAS), diallyl disulfide (DADS), diallyl trisulfide (DATS), with enzymatic reactions within gastric juices. Such second degradation substances show antidiabetic, antibacterial, antifungal, antiviral, antihypertensive, anti-inflammatory, and anti-cancerous effects. A. Sativum has been investigated for applications on the gastrointestinal (GI) cancers, leukemia, and skin cancers as well [2]. Another variety Allium Ursinum known as wild garlic has also been investigated for its sulphur rich components in gastrointestinal, cardiovascular, and respiratory disorders [3]. A. Sativum has been reported for insecticidal antimicrobial & antioxidant properties with its extracts [4,5,6]. Also, in animal model it has shown antioxidant and anti-lipidomic effects [7] along with higher radical

scavenging capacity with dried extracts [8]. Some of the reports have also mentioned it beneficial in cardioprotective and free radical scavenging aspects for health[9].

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6) Carom seeds-



- **Botanical Name-** Trachyspermum ammi Sprague
- **Characteristics/गुणधर्म** - These seeds are the fruits of this plant. The extract of these seeds is evaporative in nature. It is hot in nature and has a pungent and bitter taste. It has a great benefit for digestion. It decreases semen.
- **Used Case-** Seeds
- **In Kitchen-** These seeds are roasted to add in various spice preparations. Also the leaves are used for making pakoras.
- **In Ayurvedic practices-** The oil extracted from these seeds are used in the remedies and medicines related to indigestion, etc.
- **Remedies for various diseases-**
 - It is widely used as a remedy for indigestion. It helps to alleviate indigestion, bloating and gas by releasing the digestive enzymes.
 - It can give relief from acidity, heartburn and acid reflux.
 - It also has anti-inflammatory qualities and also it relieves the pain from conditions like arthritis.
 - It is also mentioned in the Ayurveda Mahodadhi book that essential oils in carom seeds can heal vata, pitta, cough, cold and asthma.¹
 - It can boost metabolism thus controlling weight.
 - It lowers the bad cholesterol levels and reduces the risk of cardiovascular diseases.²
 - It relieves menstrual pain.
 - It is a good detoxifier for the body.
 - The extract of T. ammi leaves can kill the pathogenic organisms.
 - Also, the paste of T. ammi leaves is applied on wounds caused by insect bite.
 - In case of chronic cough, carom seeds act as a powerful expectorant as they expel the excess mucus from the lungs.³

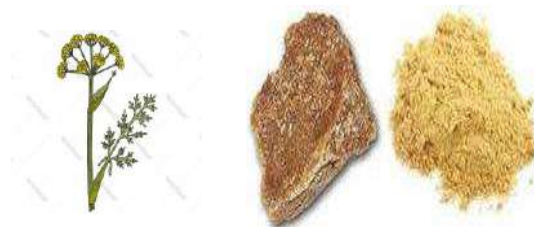
In the chromatographic analysis thymol was found to be major component in the Trachyspermum Ammi extracts. It also shows high anti-oxidant potential which may assist in detoxification of body [4]. T. ammi has been mentioned to be anti-fungal and anti-microbial in properties investigated by experimental reports [5]. Explorations on mitigation of peptic ulcers through T. ammi extracts not only supports its applications in indigestion, acidity, heart burn, acid reflux, gastric disorders, stomach ache, bloating, bowel movements, flatulence, like digestive problems and gastric disorders but also extends medicinal application towards gastrointestinal cancers [6]. Other reports finding suggest the pain reliving potential of T. ammi extracts for neuropathic pain application [7]. T. ammi extracts have potential in treatment for arthritis [8] and diabetic neuropathy as found in the mouse model studies [9]. T. ammi has been further explored for cytotoxic, antilithiasis, nematicidal, anthelmintic and antifilarial activities. Trachyspermum ammi also shows anti-hypertensive, anti-spasmodic, antiseptic,

anthihistamine, antiparasitic, vermicide, antiscorbutic, emmenagogue, antinociceptive properties [10].

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7) Asafoetida-



- **Botanical Name-** Ferula assa-foetida
- **Characteristics/गुणधर्म** - The form in which it is used is the gum-like substance obtained from a specific tree. It is hot in nature and has a pungent taste. It is available in 2 colours- the white and the black one. The black one does not have a good aroma. The white gum-like substance obtained from the tree is aromatic and is usually used in medicines. It has great digestive properties. It is meant for promoting taste.
- **Used Case-** Gum, powder.
- **In Kitchen-** It is primarily used as a flavouring agent in the food preparations.
- **In Ayurvedic practices-** Ferula assa-foetida is a traditional medicine since ages. It is mainly used in the remedies related to indigestion.
- **Remedies for various diseases-**
 - As it is hot in nature it cures cough and gases occurring in the body.
 - It cures Admana (Flatulence), Sula (abdominal colic) and gulma (abdominal tumors) and in general all abdominal diseases. Here, formulations like Hinguvastaka curna, hingukarpura are used. Thus, it is mentioned in Bhavprakasha Nighantu.¹
 - Dravyagunavidnyan says that for this the asafoetida used should be the roasted one.
 - Also, hingu with distilled water of Ajamoda is also used as a remedy.
 - Also it cures worm infestations. For this, the solution is prepared with 2gm of Hingu in 100 ml. water is used as an enema.
 - It triggers pitta dosha.
 - Asafoetida is used as a remedy to cure respiratory disorders like asthma, Wind pipe's shotha(a swelling which may be because of an inflammatory process in any part of the body or may be general), dry cough and also for herbal treatment of respiratory disorders like Kukasa (Whooping cough) and Swasa (Dyspnoea). For these disorders, a remedy is made by making a decoction of asafoetida mixed with water.
 - In the treatments related to antarika jvara (Typhoid) and cholera hingu is used as an enema.
 - In the early stage of visuchika, the hingu along with karpura, marica and ahiphena is useful.
 - An emulsion made up of hingu is dropped into the nostrils to get relief from migraines.
 - Hingu when mixed with coconut oil works as an excellent remedy even for snake bites.²
 - Asafoetida has the potency to cure ear diseases as well. For this, we need to mix asafoetida powder with oil.

Ferula assa-foetida has been undertaken for clinical trial on dyspepsia and possibly extends application in other major stomach ailment such as appetite, digestion bloating, postprandial fullness, and motion sickness [3]. Further, anti-parasitic activities of asafoetida have been established through experimental findings on different parasitic models [4,5]. Another aspect of asafoetida has been found to be

antidiabetic and antihyperlipidemic in diabetic rat models where it is also reported to preserve kidney functions [6]. Asafoetida has an relaxant effect on the smooth muscles, due to which it has a wide applicability in respiratory disorders like cold, cough as well as asthma [7,8]. Asafoetida has been reported for antimicrobial and antifungal activity, which may be indicative towards its utility as treatment for cholera and typhoid like infections [9]. Further it has been taken up in a clinical trial for dysmenorrhea with associated symptoms like headache, nausea, vomiting, vertigo and fatigue, asafoetida has been found to be alleviating the symptoms and thus it can be utilised in case of other type of headache earache and migraine like cases [10].

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8) Cumin seeds-



- **Botanical Name-** Cuminum cyminum.
- **Characteristics/गुणधर्म** - It is a very famous ingredient of the spices found in the Indian kitchens. It is available in 3 colours- brownish-white, black and green. In India, mostly the white and the black variety is used on a large scale. All these 3 types of Jiraka are Ruksa(Dry in Action), pungent in taste and it has got hot potency. It is a good appetizer.
- **Used Case-** Seeds, powder.
- **In Kitchen-** Cumin seeds is a regular spice used for tempering the vegetables thus enhancing the flavour and taste. Also cumin powder is added to a variety of food items.
- **In Ayurvedic practices-** A decoction made from cumin and coriander seeds is given to a person to cure the diseases occurring due to heat in the body.
- **Remedies for various diseases-**
 - It is beneficial for overall bodily strength.
 - It promotes taste and is vital for the vision of the eyes.
 - It cures diseases related to Vata, abdominal disorders, Diarrhoea and Vomiting.
 - It is also beneficial in curing cough and cold disorders.
 - Paste made from white Jiraka seeds mixed with jaggery is given as a treatment during fever. Here, it aggravates hunger, promotes clear urine and suffices the heat in the body.¹
 - Extracted seed oil is beneficial in various skin diseases.²
 - White coloured cumin seeds increase the breast milk if taken internally soon after childbirth.³
 - The powder made up of black coloured cumin seeds along with jaggery is beneficial for curing Malaria.⁴

The cumin seeds have been studied in the diabetic rats where they are found to significantly reduce blood glucose levels and increase glycosylation in the total haemoglobin within plasma and tissue lipids [5,6]. Additionally, the studies on cumin have reported antinociceptive and anti-neuropathic properties of cuminaldehyde, which is a major constituent of Cuminum cyminum seeds [7]. It might be assistive in improving hunger, vision and bodily strengths. Further, anti-fungal and anti-oxidant properties from C. cyminum essential oil have also been reported in the reports. These benefits may be assistive in detoxification of the body through the excretory system[8] with observed moderate antioxidant properties and high antimicrobial activities [9].

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9) Fennel seeds-



- **Botanical Name-** *Foeniculum vulgare*
- **Characteristics/गुणधर्म** - One of the widely used ingredients in the spices is Fennel seeds. It is classified in the same family as carrots. It is widely used not only as a spice but has a great usage in medicines and as a mouth freshener. It is hot in nature and has a pungent taste. It has penetrating qualities.
- **Used Case-** Seeds, Powder, Oil.
- **In Kitchen-** Fennel seeds are rarely used as a spice for adding a distinct flavour to the food items. The powder is mostly added to the pickles.
- **In Ayurvedic practices-** The powder made from the roasted fennel seeds is mainly used in the churnas which are meant for better digestion.
- **Remedies for various diseases-**
 - It cures fever, diseases occurring due to imbalances of vata and kapha doshas.
 - It helps heal wounds.
 - It is also beneficial in curing diseases related to eyes.
 - It is utilized in the digestive disorder treatments of like flatulence, dyspepsia, abdominal colic and constipation.¹
 - As it is a great mouth freshener, the fennel seeds are chewed to relieve foul breath.
 - Due to its penetrating qualities, it is beneficial for curing cardiac diseases.
 - Fennel seeds are also useful for nursing mothers.²
 - The seeds are effective in conditions like Amenorrhea.
 - Paste of the fennel seeds added with rock salt and ghee is applied to cure honey bee's poisoning.³
 - The oil essence and distilled water cures diarrhea.

Foeniculum vulgare is investigated and reported for anti-inflammatory, analgesic and antioxidant activities with effectively inhibitory to acute and subacute allergic type IV reactions. It is also reported to significantly improve superoxide dismutase (SOD) and catalase activities and helps in regulating high-density lipoprotein/cholesterol levels in plasma [4]. Extracts from *F. vulgare* essential oil majorly contains estragole, limonene, fenchone and α -pinene like constituents [5] with higher antifungal activities [6,7]. *F. vulgare* essential oil shows a significant hepatoprotective effect in male Sprague–Dawley rats [8]. Some findings on male wistar rats, guinea pig, and swiss mice with *F. vulgare* essential oil's component anethole, showed a significant anti-thrombotic properties and anti-platelet activities, with destabilizing clotting effects and vasorelaxant action [9]. with *F. vulgare* demonstrates anti-cataract action in male Wistar rats [10,11].

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10) Black Pepper-



- **Botanical Name-** Piper nigrum
- **Characteristics/गुणधर्म** - One of the most ancient spices native to India is the black pepper. It was known as black gold during ancient times. It was very expensive as it possessed various qualities. It is a great flavouring agent in various cuisines across the world. Its Sanskrit name is maricha which is said to be derived from the word used for one of the names attributed to Sun. It is said that black pepper contains all the qualities of the Sun as black pepper is extremely hot in nature. It has a pungent taste and is like a boon for the human body.
- **Used Case-** Dried fruits which are known as peppercorns, Powder.
- **In kitchen-** Peppercorns are crushed to get finely powdered form. That black pepper powder is used to season a variety of food items.
- **In Ayurvedic practices-** The powder is used as churna mixed with other powders mostly for relieving kapha and vata doshas.
- **Remedies for various diseases-**
 - Agni Purana mentions the juice of venison prepared with mixture of neem, parpafaka and vegetables, vidanga (embelia ribes), black pepper, musta, kustha, lodhra, and natron, is good for curing leprosy.¹
 - The juice of venison is prescribed as a good food for people suffering from pulmonary consumption.²
 - Black pepper, horse-gram, green-gram, etc. along with dry radish in a mixture with venison or cakes or bird's flesh or mixed with curd and pomegranate juice, utilizing the juice of citron as dressing, along with honey, grapes and vyosa (dried ginger, long and black pepper), cooked in barley, wheat and Sali rice should be given as food to an asthma patient as mentioned in Agni Purana.²
 - Old wheat, barley, sali rice prepared with soup made of green-gram dihaika and masdra (different kinds of pulses), sesamum, venison juice along with saindhava (a kind of rocksalt), ghee, grapes, dried ginger, amalaka (a kind of myrobalan) and black pepper is prescribed to be consumed.
 - Black pepper has also got carmanative properties.
 - It is useful in Dyspepsia and Flatulence.
 - For curing cough and other respiratory diseases, bhavaprakasha nighantu mentions the remedy that black pepper powder should be mixed with ghee, honey and sugar.³
 - For dental diseases as well gargling with black pepper powder turns beneficial.
 - In the treatment related to piles and rectal prolapse, jiraka and black pepper is to be given along with honey on a daily basis.
 - A powder made up of pippali and black pepper is an excellent remedy for curing dysentery.
 - In the early stage of Cholera, an equal quantity of black pepper, ahiphena and hingu in 250mg dose should be given every 2-4 hours.

- For curing night blindness, black pepper which is rubbed with curds is used as Collyrium.⁴
- The oil extracted from the seeds of Black pepper is applied externally on the skin to cure leucoderma, eczema and excessive itching.

Piper nigrum have been investigated and reported with positive outcomes for skin diseases and treatment such as vitiligo like depigmentary disorders and may extend to other skin ailments with its stabilizing effects for epithelial barriers in the airway diseases such as asthma or allergic rhinitis [5]. Piperidine from P. nigrum also shows antiproliferative activity as a medicinal prospect [6]. Pain relieving properties of P. nigrum's essential oil has been established positively in a study with double-blind, placebo-controlled, randomized parameters [7]. Another medicinal perspective of wound healing in albino rats using anemic burn wound model shows positive outcomes suggesting applications for curing leprosy as well [8]. herbal mixture extract rich in piperine are validated for an anti-inflammatory [9] and anti-allergic effect [10] in which P. nigrum inhibited pro-inflammatory cytokines and inflammatory cells significantly. P. nigrum shows a significant prospect for immunotherapy in allergic asthma treatment [11] along with in-vivo cough suppressive activity [12] and its synergistic effect with piperine on the nasal epithelial allergic rhinitis mouse model.

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11) Cinnamon-



- **Botanical Name-** Cinnamomum zeylanicum.
- **Characteristics/गुणधर्म** - Cinnamon is a spice prepared from inner bark of the genus Cinnamomum tree species. Cinnamon is loaded with antioxidant and inflammatory compounds. Since ages, it has been a part of medicines according to our ayurvedic texts. It is specially habitant of Srilanka. Cinnamon possesses hot potency and a pungent taste. The bark is made into powder and oil can also be extracted out of it.
- **Used Case-** Bark, Oil.
- **In Kitchen-** Cinnamon is highly used as an aromatic condiment and flavouring additive in variety of cuisines such as breakfast cereals, sweet and savoury dishes, snacks, bagels, and even beverages like teas, hot chocolate and other traditional food.
- **In Ayurvedic practices-**
- **Remedies to various diseases-**
 - Due to its hot nature, it cures the diseases arising from kapha and vata imbalances.
 - The cinnamon which is sweet in taste suffices the pitta dosha.
 - It is also given to people for chewing to improve oral health.
 - It enhances the freshness of the mouth breath and imparts dental strength.
 - Chewing cinnamon can also benefit relief from vomitting sensation.¹
 - Water like paste of cinnamon is applied on the skin to improve skin tone and problems like brown spots, acne, etc.
 - Cinnamon paste is also beneficial to cure headache and swollen areas.
 - Cinnamon oil and paste can be also applied on the penis to cure erectile dysfunction.²
 - Applying cinnamon oil for scorpion bite is also beneficial as it pacifies the pain and swelling. This oil is also good for healing cuts, bruises, etc.

Cinnamomum zeylanicum essential oil shows a strong antibacterial and antifungal activity with cinnamaldehyde and inhibits biofilm formation [3]. Also C. zeylanicum Extract and its major constituents like cinnamaldehyde inhibits multiple cellular pathways viable in cancer, showing anti-tumor properties [4]. Further the mouthwash and spray prepared with essential oil of C. zeylanicum was validated positively for oral candidiasis treatment and showing significant antifungal effect [5,6]. Ethanolic extracts from the bark of C. zeylanicum was found effective for the wound healing in wistar rats for all the excision, incision and dead space wound models. It significantly enhanced the wound's breaking strength, the rate of contraction and the period of epithelization [7]. Cinnamon reduces serum CRP levels showing anti-inflammatory properties [8]. Anti-inflammatory properties, were also confirmed in other studies by down-regulation of production of nitric oxide and TNF- α for the treatment of age-related inflammatory conditions [9]. Animal studies on inflammation and rheumatoid arthritis in rat models with carrageenan-induced paw edema (CPE) and adjuvant induced arthritis (AIA) also confirms the lowering of nitric oxide and TNF- α production [10]. In another study essential oil of C. zeylanicum demonstrates strong anti-proliferative effects with inhibition several

inflammatory markers via modulating the global gene expression with altering signalling pathways in skin cells important for inflammation, tissue remodelling, and cancer [11].

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12) Bay leaves-



- **Botanical Name-** Cinnamomum tamala.
- **Characteristics/गुणधर्म** - The leaves of the Cinnamomum zeylanicum are called bay leaves. The bark of this tree is Cinnamon and the leaves are also used as spice. The leaves contain volatile oil. It is sweet in taste, hot potent and is light for digestion.
- **Used Case-** Leaves, Oil.
- **In Kitchen-** The leaves are used as whole spice for flavour enhancement in the food items.
- **In Ayurvedic practices-** Bay leaves are mostly used in the treatments related to oral cavities.
- **Remedies for various diseases-**
 - It is beneficial for improving digestion. It cures diseases like flatulence, abdominal colic, indigestion, diarrhea.¹
 - It cures diseases related to Kapha vata doshas' imbalances.
 - C. tamala is used in the treatment of nausea, anorexia, common cough/cold and piles like disorders.
 - Bhavpraksha nighantu says- for the remedy of cough and dyspnoea, the dried leaves and the bark are prepared as powder and mixed with honey for medication.²
 - Also it is mentioned in that book that in the case of common cold the powder of the dried leaves and the bark should be inhaled along with the powder of twak, maricha and ela.²
 - Bay leaf is very beneficial for fertility, especially for the health of the womb.
 - It removes the lethargy of the womb and makes it strong for fertility.³
 - Also it relieves the menstrual blood to flow again which has stopped during pregnancy.³
 - It is also used to treat the inflammation of the uterus and dysmenorrhea.

Wound healing and gastroprotective activity of Cinnamomum tamala leaves were confirmed with the experimental gastric ulcers study in rat model with significant reduction in lesion due to leaf extracts [4]. Similarly in another context a study shows that C. tamala possesses significant therapeutic benefits in the problems associated to psychological ailments with properties such as anti-stress, anxiolytic, anti-depressant etc. [5]. C. tamala, shows antidiabetic properties, along with high antioxidant effects and hypolipidemic properties in diabetic rat model [6]. Another study with castor oil induced diarrhoea showed 50% ethanolic extract of C. tamala presenting the anti-diarrhoeal potential along with affecting mast cell degranulation in vitro [7]. The extract exhibited significant antidiabetic properties along with anti-dyslipidemic effect [8]. Further in another context C. tamala leaves enhance muscle strength and endurance in an experimental study on resistance trained males [9] and additionally its effect on alleviating menstrual pain and dysmenorrhea was also confirmed with a clinical trial [10].

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13) Cardamom-



- **Botanical Name-** Elettaria Cardamomum.
- **Characteristics/गुणधर्म** - Elettaria Cardamomum is among the ancient spices in Indian cultural and tradition. It has got multiple uses. From the ancient times E. Cardamomum was used as a medicine in the ayurvedic preparations. It is mentioned in the ancient Indian texts that it was also used to give gifts to the people. Due to its refreshing smell, people also used it as a mouth freshener. The essential oil found in Cardamom pods and resin was mixed to make perfumes since olden times. It is sweet and pungent in nature. It is easily digested so it is also used as a digestive aid. It has also got cooling properties.
- **Used Case-** Pods, seeds, powder, oil.
- **In Kitchen-** The cardamom pods are used as a spice due to its aroma, strong and rich flavour. It is mostly used in the sweet food preparations to enhance its flavour.
- **In Ayurvedic practices-** It is mostly used in the treatments related to nausea, vomiting and indigestion.
- **Remedies for various diseases-**
 - Various formulations made by cardamom pods are useful in balancing the disturbances of tridoshas.
 - The oil extracted from cardamom pods is applied as a remedy for the toothache.¹
 - It is used in the treatments related to a number of digestion related diseases.
 - The powder of cardamom is immersed in the goat's urine and a collyrium is made out of it which cures cataract.²
 - Cardamom Powder mixed with amla juice is proven beneficial in dysuria and cystitis.³

The Elettaria Cardamomum fruits shows gastroprotective effect in rats [4]. E. cardamomum aqueous extracts good antioxidant, antidiabetic and anti-obesity activities [5]. Further another report shows antimicrobial effects of essential oil from E. cardamomum against gram negative bacteria and inhibition to biofilm formation [6]. seeds are efficacious in impotence and premature ejaculation.

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14) Mint leaves-



- **Botanical Name-** *Mentha spicata*.
- **Characteristics/गुणधर्म** - One of the unique spices which is often used as a seasoning agent, appetiser and also sometimes used as a mouth freshener. It is easy for digestion and has a pungent taste. It possesses hot potency and is known for dealing with the diseases caused by kapha and vata doshas. It is also Carminative, stimulant, antispasmodic, antiemetic, diaphoretic, antiseptic.
- **Used Case-** Leaves, flowers, powder, oil.
- **In Kitchen-** The fresh mint leaves are used as a garnishing agent and also powder is added to season food items.
- **In Ayurvedic practices-**
- **Remedies for various diseases-**
 - *Mentha spicata* extracts from the leaves with water is gargled as natural mouth freshener.
 - Tea preparations of *M. spicata* leaves and dried flowers are prescribed for tracheobronchitis and hypertension remedies.¹

Mentha spicata demonstrated antioxidant, antimicrobial and anticancer potential in in-vitro experimental studies [2]. Further, free-radical scavenging potential with DPPH was found to be reported in the literature multiple times [3]. Additionally, essential oil from *M. spicata*'s leaves shows excellent larvicidal actions on mosquitoes' species such as *Culex quinquefasciatus*, *Anopheles stephensi* and *Aedes aegypti* etc. [4]. *M. spicata*'s extracts demonstrate tyrosinase inhibition abilities along with strong radical scavenging activity [5].

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15) Clove-



- **Botanical Name-** Syzygium aromaticum
- **Characteristics/गुणधर्म-** Syzygium aromaticum is one of the ancient spices native to the maluku islands. Then onwards, since ancient times it was cultivated in the dense rain forests areas of Southern India. One of the greatest producers of S. aromaticum is India and hence huge exports of clove occurs from India all over the world. S. aromaticum possess a pungent taste and is hot in nature.
- **Used Case-** Dried Buds, Oil.
- **In Kitchen-** Clove is used to enhance the aroma and flavours as a spice in the food.
- **In Ayurvedic practices-** Clove oil is used as a remedy to cure toothache.
- **Remedies for various diseases-**
 - Clove is beneficial for curing diseases occurring due to imbalance of kapha and pitta doshas.
 - It is a great pacifier for pitta imbalance.
 - It cures flatulence and abdominal pain.
 - It is also used in the treatments related to cough, dyspnea, hiccups and emaciation.¹
 - It is highly used in the treatments related to Cholera, thirst and vomiting.²
 - Clove also has been used like a mouth freshener. It also promotes voice clarity, taste sensation.
 - Clove essence is mixed with sesame oil to cure earache.
 - The paste made by mixing clove powder with warm water is applied externally to relieve pains.

Syzygium aromaticum oil has major components as eugenol and β -caryophyllene [3] 50% ethanolic extract of S. aromaticum shows aphrodisiac effect on normal male rat's sexual behaviour [4,5]. The scavenging capacity of S. aromaticum's extracts, essential oil, and eugenol, are free radical scavenging [6] Eugenol have been reported as inhibitory to acetylcholinesterase (AChE) and butyrylcholinesterase (BChE), which further strengthens its medicinal prospects as anti-cholinesterase molecule for management of Alzheimer's like cognitive disorders [7]. Also, S. aromaticum possess excellent cytotoxicity toward MCF-7 cells; showing a significant applicability as anticancer agents [8]. In another context S. aromaticum has good anti-biofilm activity against candida and anti-bacterial properties against all H. pylori strains which are antibiotic sensitive and resistant. Further, the extracts have been reported to lower the genes expression of H. pylori reducing its virulence [9,10]. The S. aromaticum dried flower buds caused significant tumour reduction after administration of carcinogen, and the evidence were backed by down regulation of proliferation markers [11]. S. aromaticum extract also showed antibacterial potential against gram-negative uropathogens in a dose dependent manner, similar to present beta-lactamase and non beta-lactamase molecules [12]. Essential oil of S. aromaticum, along with its constituent eugenol, shows great antiulcer activity. The ability to enhance the synthesis of mucus is a significant gastroprotective factor helpful in the treatment of gastric ulcers [13].

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16) Saffron-



- **Botanical Name-** Crocus Sativum.
- **Characteristics/गुणधर्म-** One of the rarest and the most expensive spices available is the Saffron. It is said to have been available in the Pampore region of Kashmir since 2500 years ago. Even before using it as a flavouring agent in varieties of food items, people used Saffron to dye their clothes as the colour produced by extracting the saffron was very permanent in nature. Saffron is also called as Kunkumam in Sanskrit. Saffron is pungent in nature and bitter in taste. It is also known for its quality which promotes complexion. It is also oily in nature.
- **Used case-** Stamens
- **In Kitchen-** Saffron is used to enhance the flavour in spicy as well as sweet food preparations.
- **In Ayurvedic practices-** It is mostly used in the treatments related to digestive disorders.
- **Remedies for various diseases-**
 - The paste of saffron stigma is applied on skin to cure conditions like Melasma pigmentation.
 - It is also used to cure diseases related to head which are occurring due to predominance of pitta and rakta is alliviated by taking the ayurvedic treatment known as Nasya which contains ghee cooked with sugar and saffron paste.
 - Saffron mixed with honey is used as a remedy to cure retention of urine.¹
 - Saffron powder taken along with ghee or milk is a great brain tonic and promotes immunity.²
 - It cures disorders like diarrhea, flatulence, abdominal pain, dyspepsia and is also applied internally over the abdomen.

Crocus sativus stigmas are used as Saffron, that shows anti-oxidant properties and enzyme inhibitory activities [3]. The main constituent is termed as trans-crocetin which shows permeation through intestinal and blood brain barrier [4]. A significant antibacterial effect is observed with dose-dependent in the gut microbial populations, modulation of brush border membrane in functionality, morphology, mineral absorption, and iron status.[5] On of the greater medicinal potential reported for saffron extract is on A β amyloid load and associated toxicity. C. sativus extracts increase the cell-based blood-brain barrier (BBB) model tightness and enhances clearance transport of A β with reduced A β amyloid deposition and associated pathological changes in a mice model study. C. sativus extract enhances A β amyloid clearance mechanisms such as ApoE pathway, and enzymatic degradation. C. sativus major active constituent crocin, is reported for anti-oxidant and anti-inflammatory properties, and C. sativus extract also upregulated synaptic proteins and reduced neuro-inflammation [6].

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17) Chilli-



- **Botanical Name-** Capsicum annum.
- **Characteristics/गुणधर्म-** One of the famous spices which has around 400 species worldwide is Chilli. It is not native to India originally as it was brought to India by a Portuguese sailor long long back. Since then India is perfectly suited for the cultivation of chillies so for many years various varieties of chillies are exported from India worldwide. It is hot and pungent in nature and also it is easy for digestion. It pacifies the disturbances of kapha and vata dosha but it triggers the pitta due to its hot nature.
- **Used Case-** Fruits, Powder
- **In Kitchen-** Chilli is used on a daily basis in a number of food items to enhance the spicy flavour.
- **In Ayurvedic practices-** It is mostly used in the ayurvedic medicines which are used as remedies to stimulate digestion.
- **Remedies for various diseases-**
 - It is stimulative in action.
 - It accelerates oxygenation of the cells.¹
 - It helps increase gastrointestinal secretion.
 - It has carminative, antispasmodic and antiseptic qualities.²
 - Chilli has been used in creams and ointments which help reduce muscle pain.³

Capsicum annum has capsaicin as a major bioactive compound which is explored for various therapeutic applications in analgesic and metabolic anomalies like diabetes, obesity, airway diseases, cardiovascular, cancerous growth, itch, gastric, and urological disorders. [4] C. annum has been studied for antioxidant capacity, gastrointestinal, and polyphenol bioaccessibility [5]. C. annum extracts also show effects of improving digestive enzyme activities and are reported to replace chlortetracycline in action and effect due to their antioxidant capacity, anti-inflammatory function [6] C. annum extracts show significant free radical scavenging properties against nitric oxide, DPPH, and superoxide radicals along with inhibitory capacity to acetylcholinesterase [7]. C. annum extracts have been reported for antibacterial and inhibition of the biofilm formation for therapeutics using a rat model showing significant effects on the wound closure at infection site [8]. Methanol and aqueous extract of C. annum were found effective Salmonella typhimurium, Vibrio cholerae, and Staphylococcus aureus as well [9,10].

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18) Nutmeg-



- **Botanical Name-** *Myristica fragrans*.
- **Characteristics/गुणधर्म-** One of the ancient spices which does not originally belong to India. *Myristica fragrans* is traced back to East Moluccas and cultivated and then was cultivated long back in many parts of Southern India. Nutmeg is bitter and is pungent in taste. It has got hot potency. It is also purgative and is light for digestion. The seeds are majorly used as spice which are called as jatiphalam in Sanskrit.
- **Used Case-** Seeds, Powder, Oil.
- **In Kitchen-** The powder is used to enhance the taste of sweet food preparations.
- **In Ayurvedic practices-** It is mostly used in the remedies for curing diseases related to the abdomen.
- **Remedies for various diseases-**
 - It is used for freshening bad breath.
 - It relieves the bad odour of the feces.
 - It is also used in the treatments related to cardiac diseases, worm infestations, cough as well as vomiting.
 - The extracted essential oil from the Nutmeg seeds is beneficial for abdominal diseases.
 - It is stimulant and also anulomaka so it is highly used in the remedies of diarrhoea, dysentery and cures abdominal pain.¹
 - As mentioned in Agni Purana the preparations with wheat, Sali rice, green gram, cow's urine, rksha, khadira, abhaya, panchakola (the five spices- long pepper etc.), along with venison, neem, dhatri (a variety of myrobalan), snake-gourd, citron juices, nutmeg, dried radish and saindhava are good for dropsy.²
 - The oil prepared with seeds is applied on male genitals for promoting erectile function.³

Myristica fragrans have been investigated to treat digestion related ailments such as dyspepsia treat and other gastrointestinal tract symptoms. It has also been reported to be anti-Inflammatory, anti-oxidant, anti-bacterial against *H. pylori* which extends medicinal benefits possibility for treatment of peptic ulcers, and gastric cancer [4]. Also, the essential oil from *M. fragrans* shows anti-angiogenic activity [5]. The medicinal benefit of *M. fragrans* includes antidiabetic and antihyperlipidemic Effects [6] and antimicrobial activity with sabinene, pinene and myristicin as major bioactive components [7, 8]. *M. fragrans* shows anthelmintic effects on *Anisakis simplex* L3 larvae with myristicin as main larvicidal compound [9]. An experimental study 50% ethanolic extract of *M. fragrans* provides strong evidences of its significant utility of increasing both libido, potency and nervous stimulating property for management of sexual and nervous health [11].

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19) Curry Leaves-



- **Botanical Name-** *Murraya koenigii*
- **Characteristics/गुणधर्म-** One of the very famous spice agent which is mostly used for tempering the food items. *M. koenigii* leaves are a rich in vitamin A, calcium and iron, vitamin C, vitamin B, vitamin B2 like nutrients. They have a heavy distinctive odour and approximately a pungent taste.
- **Used Case-** Leaves, Powder
- **In Kitchen-** Fresh leaves are added to temper the food items. Dried leaves are finely powdered and added to make other powdered spices.
- **In ayurvedic Practices-** Curry leaves have been traditionally used as a digestive aid.¹
- **Remedies for various diseases-**
 - Curry leaves helps in flushing out the toxins and also regulates the fat content of body.
 - It can lower the cholesterol levels in the body.
 - *M. koenigii* leaves keep the retinal integrity and functionality safe and protected.
 - It promotes appetite and thus helps digestion.
 - Curry leaves contain compounds that have significant anticancer effects.²

Murraya koenigii extracts has been investigated widely for several medicinal benefits. It shows modulatory action on hepatic as well as xenobiotic metabolising enzymes in the extrahepatic environment. Additionally, with antioxidant activity, lipid peroxidation, skin-friendly aspects and anti-carcinogenic potential for stomach papilloma in Swiss albino mice *M. koenigii* leaf can be useful for the preventive medications for cancers associated to human stomach and skin. [3]. *M. koenigii* aqueous extract, are reported for anti-oxidant hepatoprotective, and anti-inflammatory properties can be used for treatment of oxidative stress mediated liver diseases [4]. *M. koenigii* leaves are positively reported for age related oxidative stress and the cholinergic pathway in mice showing possibilities of therapeutic application for neuro-protection against neurodegenerative disorders like Alzheimer's [5]. *M. koenigii*, shows protective actions against cadmium-induced oxidative stress in rat heart [6] fungal contaminations as well as aflatoxins [7]. Extracts from *M. koenigii* has shown anti-cancer potential in human non-small cell lung cancer [8], human glioblastoma [9], breast cancer (MDA-MB-231) [10], MCF-7, Hela, P388 like cellular models [11] along with human colon cancer (HT-29) and in several vitro as well as in vivo models for anti-inflammatory activities of girinimbine [12]. Another bioactive constituent O-methylmurrayamine and murrayazoline demonstrated potential anti-cancer properties against DLD-1 colon cancer cells [13]. *M. koenigii* leaves extracts also demonstrate antiobesity and lipid lowering effects [14] with ameliorating insulin resistance and greater pharmacological potential of its bioactive component mahanimbine for preventing obesity [15,16,17,18]. Another study on diabetic neuropathy management reports positively for *M. koenigii* leaves medicinal benefits along with neuropathic pain management as a neurostimulating and analgesic agent [19,20,21]. *M. koenigii* shows great potential against antibiotic resistant bacteria (for example *S. aureus* (210P JTU), *P. aeruginosa* (ATCC 25619), *K. pneumonia* (SR1-TU), *E. coli* (NI23

JTU) and *S. pneumoniae*) due to its bioactive constituents mahanine, mahanimbicine and mahanimbine [11].

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20) Fenugreek-



- **Botanical Name-** Trigonella foenum.
- **Characteristics/गुणधर्म-** One of the most unique spices which comes under the section of leafy vegetables. It is also cooked and consumed as a vegetable is Fenugreek leaves. This leafy vegetable is used as a spice which contains its seeds and its dried leaves which is known as kasoori methi. It has a pungent and bitter taste. It has also got hot potency.
- **Used case-** Leaves, Seeds, Powder.
- **In Kitchen-** The leaves are cooked and consumed as a vegetable. Kasoori methi is mostly used to season and as a garnishing component. The seeds are used as a seasoning agent to enhance the flavour of several food items.
- **In Ayurvedic practices-** It is mostly used in the medicines which cure digestive disorders.
- **Remedies for various diseases-**
 - It reduces vata, kapha and fever.¹
 - It is used to cure digestive problems such as abdominal colic, flatulence, dyspepsia, dysentery and diarrhoea.
 - In the treatment related to Diarrhoea, fenugreek seeds and star anise fried with ghee and consumed with saindhava lavana proves to be beneficial.²
 - Trigonella foenum is found to be effective in the diabetes treatment.
 - For the treatment of fever, the fenugreek seeds are to be consumed along with the honey and the lemon juice.³
 - Fenugreek also effectively works in relieving painful menses and also improves lactation in nursing mothers.
 - The paste of the seeds can also be applied externally for relieving burns, boils, wounds, gout and eczema.⁴
 - It is also used in cosmetic remedies for hairfall, as fenugreek strengthens hair by making them strong thus reduces hair fall.

Trigonella foenum is reported to be anti-parasitic and amebicidal against Acanthamoeba cysts [5]. Further, T. foenum leaves extract are reported to be anti-plasmodial on chloroquine sensitive as well as resistant P. falciparum isolates [6]. T. foenum has, gastroprotective and antiulcer potential. A gastric ulcer study in rats shows cytoprotective, anti-secretory action supporting its antioxidant potential to the gastric mucosa for decreasing the lesion formation and preventing mucosal injury [7]. T. foenum is prophylactic and anti-inflammatory thus it helps in easing the menstruation pain as well as postmenopausal diseases [8,9]. Further, T. foenum is useful in elevation of free testosterone and E2 along with sexual desire and arousal, to enhance sexual arousal and desire in women subjects [10]. Moreover, T. foenum has significant medicinal properties for antiallergic, antioxidant and skin cancer application [11, 12]. It has shown a good level of hemolytic and wound healing properties showing therapeutic potential in allergic reactions as well as skin related disorders [13].

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21) Mace-



- **Botanical Name-** Myristica fragrans
- **Characteristics/गुणधर्म-** The nutmeg seed which has a covering is also used as spice and that is nothing but mace. Mace is a skin like fleshy red net wrapped around the unripe nutmeg seed. It is called jatipatri or javitri in Sanskrit. It is sweet and pungent in taste. It possesses hot potency and it is known for promoting taste.
- **Used Case-** Coating of the seed
- **In Kitchen-** It is a flavouring agent for a variety of spicy food dishes.
- **In Ayurvedic practices-** It is mostly used in the remedies for curing diseases related to the abdomen.
- **Remedies for various diseases-**
 - Mace spice exhibits antimicrobial properties that help combat various harmful bacteria and fungi.
 - It promotes complexion.¹
 - It cures diseases like cough, vomiting, dyspnoea, thirst, worms and poisonous manifestations.
 - It has a beneficial effect on lipid levels in the body. It can help lower cholesterol and promote heart health.
 - It is found in use as an aphrodisiac. It can enhance sexual desire and performance.
 - It is also used to relieve bronchial disorders and rheumatism.²
 - It is a good digestive aid and improves circulation.³
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22) Black Stone Flower-



- **Botanical Name-** *Parmelia perlata*
- **Characteristics/गुणधर्म-** Black stone flower, is a lichen species utilized as spice in India. Black stone flowers do not have much taste or fragrance in their raw state. It releases a distinctive earthy and smoky flavour when cooked on the head or cooked with hot cooking oil or ghee. It is cold in potency and is light for digestion. We can find about 20-25 species of *parmelia* that are grown in India.
- **Used Case-** Dried lichen, powder.
- **In Kitchen-** Used as a whole spice to enhance the flavour of most of the non-vegetarian dishes and also used in vegetarian dishes sometimes.
- **In Ayurvedic practices-** *Parmelia perlata* is utilized in the form of paste or powder to cure mainly diseases related to heart and imbalances of pitta and kapha doshas.
- **Remedies for various diseases-**
 - It is highly useful in the treatment of cardiac diseases.
 - It subsides pitta and kapha doshas.
 - The cold infusion prepared from black stone flowers is used to cure conditions like diarrhea, thirst and anorexia.¹
 - The paste made from this spice is used to cure headache, freckles, inflammation, wounds and itching.
 - Also the paste made by steaming this spice is utilized in treatment of Basti to cure urinary track disorders.²
 - The spice is finely powdered and is added to honey to cure cough and dyspnea.
 - It also cures leprosy, renal calculi, burning sensation, poisonous manifestations and bleeding from the rectum.

Parmelia perlata is not much explored in the context of medicinal benefits and applications. Previously In a report, *P. perlata* has been discussed to possess reducing antioxidant power to ferric ions (FRAP), free-radical scavenging properties and its cytotoxic effects against human cancer cell lines HepG2 and MCF-7 [3]. It has also shown renal protective effects in the cases of oxalate-induced renal injury in NRK-52E cells along with antiurolithiatic effects [4].

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23) Star anise-



- **Botanical Name-** *Illicium verum*.
- **Characteristics/गुणधर्म-** It is a lesser known spice.
- **Used Case-** Seed pods, seeds.
- **In Kitchen-** It is used to flavour tea and as a whole spice to flavour the food preparations.
- **In Ayurvedic practices-** It is commonly used in Ayurvedic medicines to regulate body processes, ease coughs, and help with digestion.
- **Remedies for various diseases-**
 - It is used as Carminative (used for colic), stimulant, diuretic.¹
 - It is also used in rheumatism.
 - It also pacifies the Kapha and Vata doshas.
 - It is a potential source of antioxidants and is traditionally used to treat various ailments.
 - It helps relieve menstrual cramps, pain and other menstrual problems.
 - Star anise shows an anti-microbial activity.²
 - It has the potential to exhibit antibacterial, antiparasitic, antiviral and antifungal properties.

Illicium verum possess astringent, antimicrobial, and anti-inflammatory effects. It has been utilized for medicinal applications in oral cavity mouthwash. The clinical parameters such as gingival index (GI), index of papillary bleeding (PBI), were significantly different due to treatment at different stages of study [3]. Also trans-anethole, a compound in the *I. verum* fruit oil, shows anxiolytic like effects and potent CNS inhibitory action without much interference in the motor coordination in mice [4,5]. *I. verum* also shows potential application in skin diseases such as atopic dermatitis due to its anti-inflammatory and pro-inflammatory cytokines suppressing effects by blocking expressions level of TNF- α /IFN- γ -induced chemokines. [6,7]. Such anti-inflammatory application of *I. verum* have been further investigated for preventive therapeutic for rheumatism and vascular diseases in a murine model for atherosclerosis involving apolipoprotein E-knockout (ApoE^{-/-}) mice model [8].

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24) Coriander-



- **Botanical Name-** Coriandrum sativum.
- **Characteristics/गुणधर्म-** One of the ancient spices which is largely used in the medicinal preparations related to Ayurveda. It is often used in pairs with the cumin powder. The coriander seeds have an astringent taste and contain oil in them. That is why they are oily in nature. The seeds have a hot potency.
- **Used Case-** Fresh leaves, Seeds, Powder.
- **In Kitchen-** Coriander seeds serve as a great flavouring agent. It is the most aromatic ingredient used to prepare a variety of masala powders in various cuisines.
- **In Ayurvedic practices-** Coriander seeds are used as medicine for diseases related to digestive disorders.
- **Remedies for various diseases-**
 - The seeds are good for digestion, work as a good appetiser and also promote taste.
 - It cures thirst, worm infestations, burning sensation, cough.
 - Coriander seeds subside all 3 doshas.
 - Fresh leaves have similar properties but mostly it cures pitta dosha.
 - Cold infusion of the seeds are useful in Cystitis and Dysuria.¹
 - In Gout, coriander seeds and dry ginger powder are taken along with milk.²

Coriandrum sativum shows significant hypoglycemic and hypolipidemic effects of rat model suggesting cardioprotective benefits additional to the digestive gastroprotective applications [3]. With anti-oxidant and anti-arthritic activities C. sativum leaf powder was assessed in osteoarthritis patients in-vivo showing positive medicinal benefits [4]. Anti-urolithiasis activity of C. sativum herbal formulation significantly prevented crystal nucleation, growth in in-vitro assays [5]. In vitro anthelmintic activities were confirmed by C. sativum seeds extracts against Haemonchus contortus in sheep [6]. Anti-fungal potential of essential oil from C. sativum seed has been reported against ringworm infections causing fungi in human [7].

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25) Long pepper-



- **Botanical Name-** Piper longum.
- **Characteristics/गुणधर्म-** Long Pepper is one of the lesser-known spices. It is a very unique spice. P. longum has all the qualities of a typical spice. It has a pungent taste with mildly hot potency. It possesses oiliness. Freshly collected pippali fruits are sweet in taste. Pippali has been a remedy to a number of illnesses since ancient times.
- **Used Case-** Fruits, Roots, Oil.
- **In Kitchen-** Its fruit and roots are used as a spice in foods.
- **In Ayurvedic practices-** Its fruit and roots are used for the preparation of ayurvedic medicines.
- **Remedies for various diseases-**
 - Long Pepper is useful in indigestion, asthma, cough etc.
 - It acts like a very effective medicine for our body.
 - It is one of the good appetisers, aphrodisiac in nature.¹
 - Indian long pepper fruit and roots contain chemicals that might help kill certain parasites and reduce swelling.
 - It is light for digestion and purgative.
 - It cures Dyspnea, cough, abdominal pain, fever, leprosy, diabetes, abdominal tumours, piles, diseases related to spleen and also cures rheumatism.²
 - Freshly collected pippali fruits can aggravate kapha dosha, increase oiliness and are cold in potency.
 - Dried fruits can aggravate pitta dosha.
 - These fruits when taken with jaggery cures chronic fever, dyspepsia, Dyspnea, anorexia, cardiac diseases, anaemia, worm infestations.
 - Jaggery in the medicines for these diseases, should be taken double to that of pippali.
 - Pippali when taken with honey cures Obesity, Dyspnea, cough, fever and also serves as a good brain tonic and appetizer.
 - It is said in Agni Purana that if nutmeg powder is drunk along with the powders of haritaki and that of long pepper proves beneficial as a remedy for scorpion bite.³

Piper longum shows piperine as a main component for therapeutic purposes. It inhibits ovalbumin-induced asthma by inhibiting airway hyper-responsiveness and eosinophils infiltrations by decreasing T-cell activity and Th2 cytokine elevation [4]. Another study presents the anti-bacterial activity of extracts and bioactive components of P. longum against gram positive bacteria and moderately active against gram negative bacteria [5]. Further P. longum is found to be significantly antidiabetic and shows dyslipidemia

properties in rat models [6,7]. These findings also strongly suggest the anti-obesity effect of *P. longum* extracts with reducing lipid accumulation [8]. *P. longum* possess constituents such as piperlongumine, piperlonguminine, piperine. These have been studied for analgesic, anti-inflammatory, bactericidal and anti-depressant activities [9] which also extends its medicinal applicability in diseases like osteoarthritis known for irreversible joint pain, joint dysfunction and joint destruction [10]. Another aspect of investigation on *P. longum* shows its potential in cancer treatment by promoting cell apoptosis in drug resistant cervical cancer cells [11]. *P. longum* extracts show significant anti-bacterial activity on antibiotic resistant bacteria such as *Staphylococcus aureus* and *Salmonella typhi*. The findings show that *P. longum* extracts have a good prospect to be utilized as a natural antibiotic which can reverse antibiotic resistance in bacteria[12].

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