

## CLINICAL APPLICATION OF PLANTS

### Abstract

Ayurveda, Siddha, and Unani are ancient Indian and Greek medical systems. These techniques treat illnesses with medicinal plants and natural materials. These systems are distinct because they are rooted in ideologies and religion. Ayurveda, founded on Hindu philosophy, treats ailments with medicinal herbs and emphasises cosmic harmony. Siddha, one of India's oldest medical systems, treats chronic diseases and elemental imbalances with medicinal herbs. Ancient Greek Unani medicine treats patients' temperaments using medicines and nutrition therapy. Traditional medicine relies on medicinal herbs. Due to their safety and low adverse effects, they have been used for centuries to treat many diseases. Modern research has found neuroprotective and anti-cancer plant-based medications. Many plants have antibacterial, anti-inflammatory, and anti-diabetic properties, influencing modern medicine. Each plant has unique healing properties in Ayurveda, Siddha, and Unani. These herbs are nutrient-rich, antimicrobial, and non-toxic, making them safe and useful for many cures. Traditional medicine prioritises long-term health by treating fundamental causes rather than symptoms. Traditional medicine remains relevant due to continuous research and clinical trials. These approaches use medicinal herbs to bridge traditional and modern medicine.

**Keywords:** Ayurveda, Siddha, Unani, Clinical Application, Herbs

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## I. INTRODUCTION

Ancient tribes generally had unique, conventional methods for treating disease. Many fundamentally good fundamental concepts that have guided healers for ages form the foundation of traditional medical systems. (S. Ansari, 2020) Greek and Egyptian medicine is now primarily historically significant, but Traditional Chinese Medicine (TCM) and Indian Ayurveda are still widely practiced. Traditional medicine has a long history in India. The folklore customs and conventional features of medicinally significant natural materials are extensively covered in the Indian materia medica. (Mukherjee, 2001) Ayurveda, Siddha, and Unani are only a few of the systems on which Indian traditional medicine is founded. These medications are mainly evaluated using phytochemical, pharmacological, and related methodologies and various experimental techniques, including chromatography, microscopy, and others. The government and the commercial sector are looking into all of the possibilities for the best assessment of these systems in order to successfully embrace the treatment techniques offered by conventional medical systems and to help in collecting data to add these items to the national health programme. (Lodha & Bagga, 2000)

## II. BACKGROUND AND RATIONALE STUDY

Herbal medicine, agriculture engineering, and food sciences are domains poised for significant advancement in the coming decades. These fields intersect at the nexus of human health, sustainable agriculture, and food production, making them crucial for addressing global challenges such as increasing population, food security, and healthcare needs. Understanding the rationale behind studying and predicting futuristic trends in these areas is essential for guiding research, policy, and investment decisions. This rationale study aims to provide a comprehensive overview of why investigating futuristic trends in herbal medicine, agriculture engineering, and food sciences is not only relevant but also imperative; Addressing Global Health Challenges, Sustainable Agriculture and Food Security, Innovations in Food Production and Quality, Bio-Based Economy, Interdisciplinary Synergy, Economic Growth and Job Creation, Environmental Conservation, and Health and Wellness.

## III. OBJECTIVES

- 1. Forecast Futuristic Trends:** To identify and analyse emerging trends and technologies in herbal medicine, agriculture engineering, and food sciences that are likely to shape these fields in the coming decades.
- 2. Promote Sustainability:** To explore how these trends can contribute to sustainable agriculture practices, environmentally friendly food production, and holistic healthcare solutions.
- 3. Inform Research and Policy:** To provide insights that guide future research directions, policy development, and investment decisions in herbal medicine, agriculture engineering, and food sciences.
- 4. Enhance Interdisciplinary Collaboration:** To encourage cross-disciplinary collaboration and innovation between herbal medicine, agriculture engineering, and food science professionals.

## **Key Question**

### **Herbal Medicine**

- What are the emerging trends in herbal medicine research and development?
- How can herbal medicine contribute to personalized healthcare and preventive medicine?
- What innovations are on the horizon for the cultivation, processing, and utilization of medicinal herbs?
- How can herbal medicine address the challenges of antibiotic resistance and chronic disease management?

### **Agriculture Engineering**

- What technological advancements are expected to revolutionize agriculture and farming practices?
- How can agriculture engineering help achieve sustainable and efficient food production?
- What role will automation, precision agriculture, and artificial intelligence play in the future of farming?
- How can agriculture engineering contribute to reducing the ecological footprint of agriculture?

### **Food Sciences**

- What novel food processing and preservation technologies will emerge in the coming decades?
- How can food sciences meet the growing demand for nutritious and safe food products?
- What trends will shape the development of alternative proteins and sustainable food sources?
- How can food sciences contribute to minimizing food wastage and improving food security?

### **Interdisciplinary Synergy**

- How can the convergence of herbal medicine, agriculture engineering, and food sciences lead to innovative solutions?
- What interdisciplinary research areas hold the most promise for addressing global challenges?
- How can professionals from these fields collaborate to develop bio-based materials, pharmaceuticals, or sustainable farming practices?

### **Economic and Environmental Impact**

- What economic opportunities and challenges are associated with the futuristic trends in these fields?

- How can investments in herbal medicine, agriculture engineering, and food sciences stimulate economic growth and job creation?
- What environmental benefits can be expected from adopting emerging technologies and practices in agriculture and food production?

### Health and Wellness

- How can herbal medicine contribute to holistic health and wellness in the future?
- What role will personalized nutrition and dietary recommendations play in preventive healthcare?
- How can the integration of herbal medicine, agriculture engineering, and food sciences promote healthier and more sustainable lifestyles?

## IV. PRINCIPLE OF THERAPEUTIC APPROACHES IN TRADITIONAL SYSTEM OF MEDICINE

### 1. Ayurveda

The foundation of Ayurveda was laid by the ancient Vaisheshika and Nyaya schools of Hindu philosophy and reasoning. (Mukherjee et al., 2017) Ayurveda is said to have originated from the Hindu God Brahma, who is revered as the universe's creator, both before these schools were established and even now. (Parasuraman et al., 2014) To disseminate information, poems known as "Shlokas" that discuss the therapeutic properties of plants were employed. (A. Chauhan et al., 2015) Four well-known knowledge compilations (Vedas) known as the Yajur Veda, Rig Veda, Sam Veda, and Atharva Veda are said to form the basis of the Hindu medical system. (K. Patwardhan, 2012) According to Ayurveda, the universe is made up of the elements Vayu (Air), Jala (Water), Aakash (Space or Ether), Prithvi (Earth), and Teja (Fire). (S. Kumar, 2014)

### 2. Siddha

One of India's oldest medical systems, Siddha, is regarded as the mother of Tamils and Dravidians in South India in antiquity. Siddha translates as established truth. (Sathasivampillai et al., 2017) One who has obtained a Siddhi is also referred to as a Siddha. A person on the way to becoming a Siddha is said to have emerging paranormal skills known as siddhis. These talents do not characterize a Siddha established in the Pranav-the-Aum, the spiritual foundation of creation. (Subbarayappa, 2001) The Siddhars were the people who founded this Siddha system of thought. Siddhars were moral individuals and mystics who attained extraterrestrial abilities. (Karunamoorthi et al., 2012)

### 3. Unani

In the Indian subcontinent, Unani medicine, a traditional medicine primarily based on herbs, is used. (A. Parveen et al., 2020) The Greek philosopher Hippocrates (460–377 BC) and his companions are credited with developing it. But with the support of the Persian and Arab empires, it developed and spread, eventually reaching the Indian subcontinent by the middle of the 14th century. (Nazamuddin et al., 2014) Dietary and pharmaceutical therapy is used to administer treatment by the patient's temperament. (Alam et al., 2021) Unani

medicine prioritizes promoting good health and treats diseases in various ways, including medication, food therapy, and controlled therapy. (Sheehan & Hussain, 2002) Numerous clinical trials have demonstrated the effectiveness and few side effects of Unani drugs. (Vina, 2020) Many herbal medicines have recently undergone standardization, quality control, toxicity profiling, and validation of the formulations listed in the Unani Pharmacopoeia of India. (Sher et al., 2011)

## V. ROLE OF MEDICINAL PLANTS IN THE MANAGEMENT OF DISEASES

Human ailments have been treated using medicinal plants for thousands of years. More people are becoming aware of the importance of traditional medical practices and medicinal plants in addressing global health problems. Drugs made from plants are becoming more widespread worldwide. Modern research on medicinal plants or medicine has resulted in breakthroughs in the neuroprotective evaluation of several plants utilized in conventional medical systems. Cancer treatments now use plant-based cancer specialists. Clinical studies are conducted all around the world with anti-cancer specialists such as vincristine, taxol, vinblastine, analogs, irinotecan, and topotecan, as well as etoposide produced through epipodophyllotoxin. (Sohani, 2021)

The use of plant derivatives as an indigenous remedy in traditional systems of medicine has been linked to the use of plant derivatives in contemporary treatment. Several plants have discovered significant antibacterial, antifungal, anti-cancer, antidiuretic, anti-inflammatory, and anti-diabetic effects. (A. K. Garg et al., 2021)

### 1. Ayurveda

Every plant or herb has a distinctive quality that may be used to treat a variety of diseases and problems. (Pathak- Gandhi & Vaidya, 2017) Medicinal plants including aloe, turmeric, tulsi, pepper, elaichi, and ginger are widely used in ayurvedic home remedies since they are regarded to be the most effective treatments for throat and skin diseases. Ayurvedic herbs are a fantastic option for things or remedies because to their high therapeutic value since they are a rich source of nutrients, have antibacterial and anti-inflammatory qualities, and are naturally non-toxic. (Torwane et al., 2014), (B. Patwardhan et al., 2004).

Herbal medicinal plants are a common therapeutic option because of their reputation for safety and absence of negative effects. Since they are in tune with nature, they have a greater advantage over products that have undergone chemical processing and artificial cures. (Garodia et al., 2007) Ayurvedic herbs are known for treating illnesses at their root and assisting in the maintenance of long-term health and fitness, in contrast to conventional therapies and drugs. (S. Kumar et al., 2017)

### 2. Siddha

Since the beginning, traditional medical systems have been popular for treating various illnesses in numerous nations, including China, Japan, and India. The Siddha system of medicine (SSM) is one of India's historical, traditional medical systems. It is mainly used in the country's southern region to treat various illnesses, including chronic disorders. In contrast to other well-known conventional medical systems like Ayurveda (popular Indian

medicine), TCM (traditional Chinese medicine), and Kampo (traditional Japanese medicine), it is, however, far less well-known to the scientific community. (Arjun et al., 2009) The Siddha medical system uses various medicinal plants to treat many diseases, including vitiligo, diabetes, ulcers, psoriasis, COPD, asthma, and other skin conditions. (Sathasivampillai et al., 2017) Aconitum heterophyllum, Aquilaria malaccensis, Adhatoda beddomei, Nardostachys jatamansi, Withania somnifera, Zinger officinale, Cuminum cyminum, and others are a few of the plants utilized in Siddha system of medicine. (Khare, 2004), (Esakkimuthu et al., 2021)

In Siddha medicine, the seven physical components (Udal Thathukkal) elements are maintained, with the balance between the three senses of humor. (Thas, 2008) Therefore, it is recommended to use a medicine, healthy food, and a disciplined lifestyle to help restore the balance of humor in a sick state. In a distinctive approach, the treatment addresses the fundamental problem rather than just the symptoms. For instance, instead of anti-pyretics and anti-microbials, medications that increase a person's immunity and reduce the likelihood of infection are given to treat fever. (Sundarrajan & Arumugam, 2017)

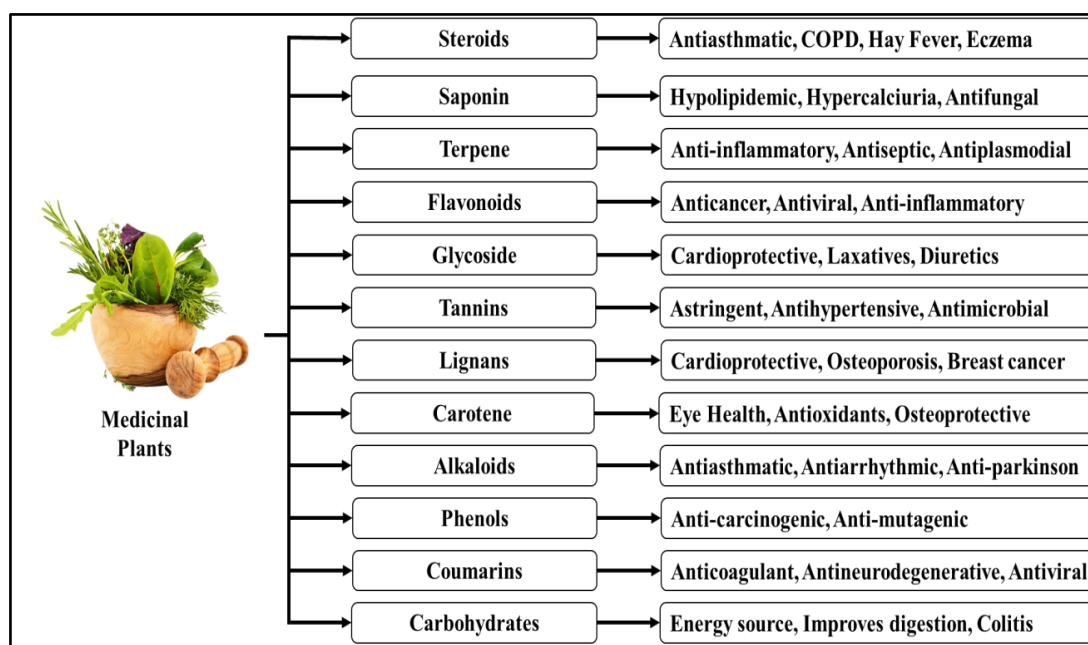
The Siddha system of medicine can be divided into three (three) main categories. (Ravishankar & Shukla, 2007)

- Divine method (Deva Maruthuvam)
- Human or rational approach (Manida Maruthuvam)
- Surgical procedure (Asura Maruthuvam)

### **3. Unani**

Unani medicines have been utilized to treat a wide range of medical issues in both simple and complex formulations. In Unani medicine, a wide range of oro-dental problems have been treated using a variety of single and combination medications. (Rai et al., 2020) Unani remedies can cure several oral conditions, including toothaches, gingivitis, stomatitis, bleeding gums, plaque, tooth decay, and dental caries. (Rai et al., 2020)

Numerous therapeutic techniques, including medication therapy, diet therapy, and Ilajbit-Tadbeer, have been referenced in the Unani School of Medicine for treating sickness. The Unani medicine system offers various efficient therapeutic options with little to no side effects. The Unani therapy is also far more affordable, accessible, and cost-effective. (Aquil et al., 2019)



**Figure 1:** Medicinal plants and their major chemical constituents with uses

## VI. PLANTS AND THEIR CLINICAL APPLICATION

Plants have long been used to heal a variety of human illnesses. Different plant parts, such as leaves, stems, bark, roots, and others, are used to stop problems before they start, cure their symptoms, or make abnormalities normal again. (M. R. Khan et al., 2022) Due to the fact that "herbal remedies" do not always adhere to the findings of scientific research, mainstream medicine views "herbal medicines" as an alternative kind of therapy. Opium, aspirin, digitalis, and quinine are just a few examples of pharmaceuticals that are routinely prescribed by doctors and have a long history of usage as herbal treatments. Nowadays, active substances extracted from higher plants are used in contemporary medicine, and roughly 80% of these active substances show an excellent association between their current therapeutic application and their traditional uses. (Teka et al., 2022)

**Table 1: Some plants with their chemical constituents and clinical application**

Sl No	Plant Name/Botanical Name/ Common Family	Part Used	Chemical Constituents	Clinical Application	References
1.	Amla/ <i>Emblica Officinalis</i> /Euphorbiaceae	Fruit	vitamin c, chelbulinic acid, gallic acid, chelbulagic acid, apeigenin, quercetin, etc.	Anti-diabetic, Help in digestion, Cardiotonic, Hair growth, Improve kidney health, Antioxidant, Liver tonic	(Patil & Killedar, 2021), (S. S. Yadav et al., 2017)
2.	Guava/ <i>Psidium guajava</i> L. /Myrtaceae	Leaf & Fruit	Vitamins A and C, iron, phosphorus, calcium, oleic acid, guaijavarin, quercetin, flavonoids, and saponin are a few examples.	Anti-microbial, Anti-cough, Anti-diarrheal activity, Reduced cholesterol level, Weight loss, Anti-cancer, Anti-acne	(Díaz-de-Cerio et al., 2017), (Shetty et al., 2018)
3.	Fig / <i>Ficus Carica</i> Linn. / Moraceae	Leaf, Fruit & Root	Copper, Manganese, Magnesium, Potassium, Gallic acid, Chlorogenic acid, Flavonoids, Benzyl aldehyde, Benzyl alcohol, Furanoid, Linalool, Pyranoid etc.	Help in digestion, Anti hypertension, Weight loss, Cardiotonic, preventing constipation, curing reproductive problems, Help in joint strength.	(V. Garg et al., 2019)
4.	Vasaka / <i>Adhatoda Vasica</i> Nees/	Leave,	Vasicine,	Anti-tussive, Anti-	(S. P. Singh &



	Acanthaceae	Bark, Root & Flowers	Vasicinone, Quinazoline alkaloids, Anisotine, Glycoside, Saponin, Tannins, Flavonoids, Carbohydrates, Terpenes, etc.	asthmatic, Antitubercular, Memory enhancer, Anti-inflammatory, Antispasmodic, Sedative, Used in Jaundice & Piles	Das, 2021),(Arora, 2019)
5.	Ashwagandha / <i>Withania Somnifera</i> / Solanaceae	Fruit & Root	Withanolide, Withaferin A, Withanoside Iv, Withanoside V, Withanolide A, Viscosalactone B, Withanolide D, Withanone, (-)-Anaferine	Anti-inflammatory, Immunomodulatory, Anti-aging, Antioxidant, Anti-viral, Antihyperglycemic, Hepatoprotective, Anti-stress, Neuropharmacological activity, Antifungal, Anticonvulsant, Anti-tumor activity	(N. Singh et al., 2011), (Ng et al., 2020)
6.	Marigold / <i>Calendula Officinalis</i> /Asteraceae	Petals	(E, E)-allo-ocimene, bicyclo germacrene, (E)-tagetone, Piperitone, (+)-cis-sabinol, Elemene, Calendic acid, Officinocide, Quercetin, Iso quercetin, Astragalin, etc	Heal skin wounds, burn & rashes, Anti-cancer, Detoxification the body, Anti-inflammatory, Menstrual pain, Headache, and toothache.	(S. Chauhan et al., 2022),(Ulbricht et al., 2008)
7.	Fennel / <i>Foeniculum Vulgare</i> /Apiaceae	Seed	Anethole, Fenchone, Estragole,	Help in digestion, is Used for heartburn,	(H. W. Lee et al., 2020)

			Limonene, 4-Anisaldehyde, Phellandrene, $\alpha$ -Pinene, Camphene, Sabinene etc.	Menstrual cramp, Anti-cancer, prevent anemia, Antacid, Stimulating milk secretion, and Laxative.	
8.	Castor / <i>Ricinus Communis</i> Linn. /Euphorbiaceae	Root & Leaves	Ricinoleic, Oleic, Stearic, Palmitic, Linoleic, Linolenic, Dihydrostearic & Ecosanoic acid, etc.	Birth control, Laxative, Leprosy, Syphilis, Antioxidant, Anti-inflammatory, Anti-microbial activity, Hepatoprotective, etc.	(Lima et al., 2022)
9.	Belladonna / <i>Atropa Belladonna</i> /Solanaceae	Leaves, Fruits, Flowers & Roots	Atropine, Hyoscyamine, Belladonnine, Butylscopolamine, Butabarbital, Methylscopolamine bromide, N-methylpyrroline, 7-glu-coside, Homatropine, etc.	Parkinson's disease, whooping cough, haemorrhoids, nerve issues, and anti-asthmatic irritable bowel syndrome, motion sickness, and colic.	(Almubayedh et al., 2018),(Kwakye et al., 2018)
10.	Carrot/ <i>Daucus Carota</i> Linn. / Apiaceae	Root	$\beta$ -Carotene, Carotol, Falcarinol, Bisabolene, Falcarindiol, Lycopene, Vitamin C, Vitamin A,	It improves vision; Ant diabetes is Immunomodulator, Cardiotonic, improves oral health, regulates blood pressure,	(Que et al., 2019)

			Vitamin B1, $\alpha$ -Carotene etc.	Improves digestion & anti-cancer.	
11.	Coca / <i>Erythroxylum</i> <i>Coca</i> /Erythroxylaceae	Leaves	Alkaloids, Cocaine, Cinnamyl Cocaine, Cocamine, Tropacocaine, Glucosides, Cinnamylcocaine, Hygrine, Hygroline, Cuscohygrine, etc.	Fast-acting anti-depressant medication, Gastrointestinal ailments, Local anesthesia, Motion sickness, Used in stress & Altitude illness treatment.	(Weil, 1978), (Calatayud & González, 2003)
12.	Rose / <i>Rosa</i> <i>Rubiginosa</i> /Rosaceae	Flowers & Root	Geraniol, Citronellol, Phenethyl alcohol, Nerol, Farnesol, Methyl eugenol, Eugenol, Rubixanthin, Rose oxide etc.	Anti-depressant, used in grief, Nervous stress, Adipsia, Healing old cough, Wound Healing, Anti-allergic, Good for skin health, Headache & Migraine	(Ayati et al., 2018),
13.	Henna/ <i>Lawsonia inermis</i> Linn. /Lythraceae	Bark, Root, Flower, Seed	Fat, Resin, Tannins, Quinones, Coumarins, Xanthonenes, Phenolics, Flavonoids, Saponins, Proteins, Alkaloids, Terpenoids, Quinones, Coumarins, and 2-hydroxy-1,4-	Analgesic, Anti-inflammatory, Hepatoprotective, Hypoglycaemic, Antihypertensive, Anti-hemorrhagic, & Intestinal Antineoplastic.	(Chaudhary et al., 2010), (Borade et al., 2011)

			naphthoquinone, among others.		
14.	Fenugreek/ <i>Trigonella Foenum-Graecum</i> Linn. /Fabaceae	Seed & Leaves	Trigonelline, Diosgenin, Yamogenin, Hydroxyisoleucine, Protodioscin, Sotolon, 3-octen-2-one etc.	Constipation, Loss of appetite, Gastritis, breast milk production and flow, Anti-diabetic, used in painful menstruation, Arthritis, Anti-hypertensive, Obesity, Breathing problems, Muscle pain, migraine.	(Basch et al., 2003),(Bahmani et al., 2016)
15.	Black Nightshade/ <i>Solanum Nigrum</i> Linn. /Solanaceae	Fruits, Flowers, & Leaves	Steroidal saponins, alkaloids, Flavonoids, Coumarin, Lignin, Organic acids, Volatile oils, Polysaccharides, etc.	Antibacterial, Anti-tussive, Indigestion, Antiproliferative, Antiseizure, Antioxidant, Anti-viral, Anti-inflammatory & Hepatoprotective.	(Atanu et al., 2011),(R. Jain et al., 2011)
16.	Lemon Grass/ <i>Cymbopogon Jwarancusa</i> Schult. /Poaceae	Roots	Citronellal, geraniol, nerol, myrcene, geraniol, geraniol, geraniol, etc.	Colds, Seasonal fever, Anti asthmatic, Antitubercular, Rheumatic pain, Back pain, Toothache & Nervous Disorders	(Prasad et al., 2014), (Soorya et al., 2021)
17.	Black berry/ <i>Syzygium Cumini</i> Linn. /Myrtaceae	Fruit, Leaves, Bark & Seeds	Quercetin, Myricetin, Myricitrin, Kaempferol, Phenolic acids,	Antihyperglycemic, Antihyperlipidemic, Cardioprotective, Anti-inflammatory, Antioxidant & Anti-	(Ayyanar & Subash-Babu, 2012)

			Tannins, Terpenes, Ellagic acid, Ferulic acid, Chlorogenic acid, Gallic acid etc.	diabetic.	
18.	Small Fennel/ <i>Nigella Sativa</i> Linn. /Ranunculaceae	Seeds	Thymoquinone, Dithymoquinone, Longifolene, (+)- $\alpha$ -longipinene, Damascenine, Dithymoquinone, Thymohydrquinone, Thymol, Pinene etc.	Blood pressure medications, liver tonics, diuretics, digestive aids, anti-diarrheal medications, appetite stimulants, analgesics, and treatments for skin conditions.	(Sharma et al., 2009), (Gali-Muhtasib et al., 2006)
19.	Common Witch-Hazel/ <i>Hamamelis Virginiana</i> /Hamamelidaceae	Leaves & Bark	Hexen-2-ol, Hexenol, Eugenol, Safrole, Tannins, Gallic acid, Monogalloylhamamelose, Essential oil, Sesquiterpene etc.	Anti-inflammatory, Anti-diarrheal, Mucus colitis, used in blood vomiting, Antitubercular, used in itching, Used in hemorrhoid, and Antibacterial.	(Abbas et al., 2020)
20.	Hemp/ <i>Cannabis</i> /Cannabaceae	Leaves & Flower	Tetrahydrocannabinol, Cannabidiol, Cannabinol, Cannabigerol,	reduce epileptic seizures, improvement of cardiovascular health decrease	(Aggarwal et al., 2009)

			Cannabichromene, Cannabielsoin, Cannabitol, Cannabicyclol, etc.	glaucoma used for sleep disturbances, protecting the brain after strokes, irritable bowel syndrome is treated with Analgesic, used in dementia.	
21.	Linseed/ <i>Linum usitatissimum</i> Linn. /Linaceae	Flower & Seed	Alpha-linolenic acid, Linatine, Secoisolariciresinol, Diglucoside, Secoisolariciresinol, Cyanogenic Glycoside, Cinnamic acid, Glucoside, Hydroxymethylglutari c acid etc.	effects that are anti-tumor, anti-oxidant, anti-microbial, anti-inflammatory, anti-obesity, anti-diabetic, anti-diarrheal, anti-malarial, hepato-protective, reno-protective, immunosuppressive, antiarrhythmic, and cognitive.	(Palla et al., 2015),(R. Ansari et al., 2018)
22.	Neem/ <i>Azadirachta Indica</i> A. Juss. /Meliaceae	Leaves, Flowers, Seeds, Fruits, Roots & Bark	Nimbin, Azadirachtin, Gedunin, Salannin, Azadirone, Azadiradione, Epoxyazadiradione, Nimolicinol, Quercetin, Epicatechin, Catechin, Isomargolonone etc.	Neuroprotective, Antinephrotoxicity, Antigingivitis, Anti-malarial, Hepatoprotective, Wound healing, Anti-pyretic, Anti-cancer, Immunomodulatory, Anti-viral, Antibacterial, Antifungal, Anti-	(S. Ahmad et al., 2021), (V. S. Kumar & Navaratnam, 2013)

				inflammatory, Antioxidant, Anti-diabetic, Antiulcer.	
23.	Papaya/ <i>Carica Papaya</i> Linn. /Caricaceae	Fruit, Leaf, Seed, Bark & Latex	Carpaine, Papain, loliolide, Nictoflorin, Methyl gallate, Campesterol, Cycloartenol, Benzyl isothiocyanate, Citropten, etc.	Anti-protozoan, anti-bacterial, anti-fungal, anti-viral, anti-inflammatory, anti-hypertensive, hypoglycemic, hypolipidemic, wound-healing, free radical scavenging, anti-sickling, neuroprotective, diuretic, abortifacient, and antifertility characteristics are among their list of properties.	(Vij & Prashar, 2015),(Krishna et al., 2008)
24.	Holy Basil/ <i>Ocimum Sanctum</i> Linn. /Lamiaceae	Leaves, Stem, Flower, Roots & Seeds	Eugenol, Rosmarinic acid, Estragole, Elemene, $\beta$ -Bisabolen, Borneol, Camphene, (-)-germacrene D, Methyl eugenol etc.	Actions that are anti-emetic, antispasmodic, analgesic, adaptogenic, and diaphoretic as well as anti-fertility, anti-cancer, anti-diabetic, anti-fungal, anti-microbial, hepatoprotective, and cardioprotective.	(Mahajan et al., 2013)
25.	Shatavari/ <i>Asparagus Racemosus</i>	Root &	Quercitin, Rutin, and	Antioxidant,	(Bopana &

	Willd. /Asparagaceae	Flowers	Hyperoside are sitosterol 4,6-dihydroxy-2-O (2-hydroxybenzaldehyde analogues. Flavonoids, Racemoside A, B, C, steroidal saponin, 8-methoxy-5, 6, 4'-trihydroxyisoflavone, 7-o-D-glucopyranoside, Racemosol, and asparagine	Antibacterial, Anti-diabetic, Anti-viral, helps in fetal development, helps to fight PMS, improves fertility, Anti tumor, Anti-cancer, Anti-depressant, Cardioprotective, Prevents osteoporosis.	Saxena, 2007),(Kumar, S., Mehla, R. K., Dang, 2008)
26.	Garlic/ <i>Allium Sativum</i> Linn. /Amaryllidaceae	Leaves & Roots	Allicin, S-Allylcysteine, Alliin, Diallyl trisulfide, Ajoene, Diallyl disulfide, diallyl sulfide, Allyl methyl sulfide, Diallyl tetrasulfide, etc.	Antibacterial, Antifungal, Antiparasitic, Anti-hypertensive, used in hypercholesterolemia, Anti-diabetic, Preventing blood clotting & Hepatoprotective, immunomodulator.	(Londhe et al., 2011), (Narayan Labh & Ratna Shakya, 2014)
27.	Mulberry/ <i>Morus Indica</i> Linn. /Moraceae	Fruit & Leaves	Flavonoid, Gallic Acid, Quercetin, M. nigra, M. rubra, Linoleic acid, Palmitic acid, Oleic acid, Ascorbic acid	Anti-cancer, Immunomodulator, improves blood circulation, promotes brain health, Antioxidant, improves	(Ercisli & Orhan, 2007),(Boro et al., 2021)



			etc.	vision, Anti-diabetic, Reduced cholesterol level & helps digestion.	
28.	Indian Bay Leaf/ <i>Cinnamomum Tamala</i> Nees. & Eberm. /Lauraceae	Leaf & Bark	Monoterpenes, Trans-sabinene Hydrate, (Z)-ocimene, Myrcene, -pinene, -sabinene, 21-sesquiterpenes, Germacrene A, and -gurjunene, among others.	Treatment of bad odour of mouth, Anti scar, Anti-inflammatory, Used as dental carries, Anti-tussive.	(Mir et al., 2004)
29.	Ashok/ <i>Saraca Asoca</i> /Fabaceae	Bark	1-oleo-dipalmitin, Lupeol, Campesterol, $\beta$ -Sitosetrol, Stigmasterol, Glochidiol, Ursolic acid, Glycosides, Flavonoids, Tannins, Saponins etc.	Anti-pyretic, Anti-inflammatory, Anti-acne, prevent internal bleeding, Anti-diarrheal, Helps in gynecological problem, Anti-diabetic, Treatment of kidney stone, Anti asthmatic, and Antioxidant.	(N. K. Yadav et al., 2015), (Pradhan et al., 2009)
30.	Jasmine/ <i>Jasminum Officinale</i> /Oleaceae	Flower	Isobutylene epoxide, 2-Propanol, 1-Propoxy, 5-hexene-2-one, Hydroperoxide pentyl, Beta-Butyrolactone, Methyl dihydro	Anti-cancer, Aphrodisiac, used in hepatitis, prevent liver cirrhosis, Used in dysentery, Sedative, Skin disorder.	("Pharmacological and Therapeutic Properties of <i>Jasminum Officinale</i> . L: A Review," 2022)

			jasmonate, 2-butenol 2-methyl, 3-butanoic acid ethyl ester, 3- Butyn-2-ol, Benzyl alcohol, Cis-4- Heptenal, etc.			
31.	Asafoetida/ <i>Ferula</i> <i>Foetida</i> /Umbelliferae	Assa-	Root	Disulfides of isobutyl propanyl, 1- methylpropyl-1- propenyl, 1- (methylthio)-propyl- 1-pro-penyl, and 1- methylpropyl Volatile oil, resin, gum, 3-(methylthio)- 2-propenyl disulfide, R-2-butyl-1-propenyl disulfide, 2-butyl-3- methylthioallyl disulfide, etc.	Treatment of whooping cough, Anti asthmatic, Anti-ulcer, Anti- epileptic, used in stomachache, bronchitis, intestinal parasite, Antispasmodic, weak digestion, and influenza.	(Iranshahy & Iranshahi, 2011), (Mahendra & Bisht, 2012)
32.	<i>Cinchona</i> / <i>Cinchona</i> <i>Spec.</i> /Rubiaceae		Bark	Quinine, Quinidine, Cinchonine, Cinchonidine, Cinchotannic acid, Dihydroquinine, Hydroquinine, Quinic acid etc.	Anti-malarial, Stomachache, Atrial fibrillation, Cardiac depressant, Antiarrhythmic, Anti pyretic.	(Ferreira Júnior et al., 2012), (Maldonado et al., 2017)
33.	Brahmi/ <i>Bacopa</i> <i>Monnieri</i> /Plantaginaceae		Root, Flower& Leaves	Bacoside A, Bacopaside i, loliolide, Oroxindin,	Treatment of osteoporosis, arthritis, Irritable bowel	(Kean et al., 2016),(Vijayaku mar et al., 2010)

			Cucurbitacin b, Rosavin, Stigmastanol, Bacopaside ii, Bascopasaponin c etc.	syndrome, Hypoglycemia, Breast prostate cancer, skin disorder, Immunomodulator, Anti-pyretic,	
34.	Safed Chandan/ <i>Santalum Album</i> /Santalaceae	Heartwood	Beta-Santalol, Alpha-Santalol, Sandalore, (-)- $\alpha$ - Santalene, Ximenynic acid, Cedrol, Esters, Aldehydes, Phytosterols, etc.	Anti-inflammatory, Anti scars, Astringent, Sedative, Anti-aging, Anti-hypertensive, Anti-viral, Helps strengthen gum and teeth, improves digestion, gives a cooling effect, and is anti-microbial.	(Goswami & Tah, 2018)
35.	Chirata / <i>Swartia Chirata</i> /Gentianaceae	Whole plant	Amarogentin, Swerchirin, Swertiamarin, Xanthones, Flavonoids, Glycosides, Triterpenoids, etc.	Hepatoprotective, anti- hepatotoxic, anti- microbiological, anti- inflammatory, anticarcinogenic, anti- leprosy, hypoglycemic, anti-malarial, antioxidative, anticholinergic, CNS depressant, and mutagenic.	(Negi et al., 2010)
36.	<i>Giloe/Tinospora Cordifolia</i> /Menispermaceae	Stem	Tinosporide, Berberine, Palmatine, Syringin,	Anti-pyretic, Anti- diarrheal, Anti asthmatic, Anti-Cancer,	(M. M. Khan et al., 2017), (Choudhary et

			Furanolactone, Alkaloid, Glycoside, Diterpenoids, Lignans, Isoquinolone, etc.	Insecticides, Antidiabetics, Treatment of Jaundice, Dysentery, Bone fracture, Snakebite & eye disorder.	al., 2013)
37.	Gudmar/ <i>Gymnema Sylvestre</i> /Apocynaceae	Leaves	Glucose, Stigmasterol, Betaine, Choline, Gymnemic acid, Tartaric acid, Gurmarin, Calcium oxalate, etc.	Anti-diabetic, Anti-inflammatory, Anti-microbial, Anti-viral, and Hypolipidemic, Used in weight loss, Cataracts, and Obesity.	(Tiwari et al., 2014)
38.	Guggal / <i>Commiphora wightii</i> /Burseraceae	Gum resin	Myrecene, Dimyrecene, Polymyrecene, Z-Guggulsterone, E-Guggulsterone, Z-Guggulsterol, Guggulsterol I-V, 20- $\alpha$ -Hydroxy-4-pregnen-3-one, 20- $\beta$ -hydroxy-4-pregnen-3-one, 16- $\beta$ -hydroxy-4,17(20)Z-pregnadien-3-one; 16- $\alpha$ -hydroxy-4-pregnen-3-one	They are used for obesity, Reduced cholesterol, Anti arthritis, Used skin infections, Treatment of thyroid, Cardioprotective, Brain abnormalities, Anti-inflammatory, Anti-diabetic diabetes, Respiratory woes & Kidney problems.	(Sarup et al., 2015)
39.	Turmeric/ <i>Curcuma</i>	Roots	Curcumin,	Reduce joint pain,	(Verma et al.,

	<i>Longa/Zingiberaceae</i>		Curcuminoid, Desmethoxycurcumin, Germacrone, Curcumene, Phellandrene, Zingiberene, Elemene, Curdione etc.	promotes skin health, Brain tonic, Cardiogenic is Anti-inflammatory, Improves gut microbial health, anti-cancer, Anti-aging, Immunomodulator & Anti-diabetic.	2018)
40.	<i>Isabgol/Plantago Ovate/Plantaginaceae</i>	Seeds	iridoid glycosides, phenolic acid derivatives, alkaloids, terpenoids, fatty acids, and polysaccharides	Toothache, Earache, Halitosis, Oral lesions, Mouth sores, Epistaxis, Hemoptysis, Gingivitis, and Tonsillitis are just a few of the symptoms.	(Franco et al., 2020)
41.	<i>Jatamansi/Nardostachys Jatamansi/Caprifoliaceae</i>	Root & Rhizomes	Sesquiterpenes, Coumarins, Angelicin, - eudesemo, - atchoulense, - sitosterol, Calarene, Elemol, Jatamansin, Jatamansinol, Jatamansone, n-hexacosanyl, n-hexacosane, Oroselol, etc. are	CNS stimulant, Antispasmodic, Tonic, Laxative, Anti-epileptic, Skin Care, Anti-Bacterial, Uterine tonic, Anti-hypertensive, & Sleep inducing.	(Dhiman & Bhattacharya, 2020), (Sahu et al., 2016)

			some examples.		
42.	Kalmegh/ <i>Andrographis Paniculata</i> /Acanthaceae	Whole plant	Andrographolide, Neoandrographolide, Andrograpanin, Labdane, Skullcapflavone i, Xiyanping etc.	Hepatoprotective, Anti-diabetic, Anti-malarial, Immunomodulator, Anti-pyretic, Analgesic, Anti-diabetic, Anti-depressant & Anti-HIV.	(Okhuarobo et al., 2014)
43.	Lemon Balm/ <i>Melissa Officinalis</i> /Lamiaceae	Leaves	Citral, Rosmarinic acid, Geraniol, Citronellal, Nerol, Methyl geranate, Copaene, Caffeic acid, Geranial etc.	Digestive, Carminative, Antispasmodic, Sedative, Antibacterial, Promote sweating, Analgesic, Tonic, Diuretic & Gastrointestinal disorders.	(Shakeri et al., 2016)
44.	Shatavari / <i>Asparagus Racemosus</i> /Asparagaceae	Roots, Leaves& Fruits	kaempferol, quercetin, rutin, folic acid, vitamins, Shatavarin IV, Sarsasapogenin, isoflavone, 8-methoxy-5,6,4'-trihydroxyisoflavone -7-O-β-D-glucopyranoside, 9,10-dihydrophenanthrene derivative, etc.	Anti-Cancer, Anti-diabetic, preventing osteoporosis, helping digestion, Cardioprotective, Anti-depressant, Anti tumor, Improving fertility, & Fetal development.	(Kumar, S., Mehla, R. K., Dang, 2008)

45.	Ginseng/ <i>Panax Spec./Araliaceae</i>	Leaves, Roots & Stem	Ginsenoside Rg1, (20S)-ginsenoside Rh2, Ginsenoside Rb1, Dammarane, Protopanaxatriol, Protopanaxadiol, Notoginsenoside R1, Compound K, Ginsenoside Rf etc.	Antioxidant, helps in weight loss, reduce menstrual discomfort, Anti tumor, improve male sexual desire, prevent male baldness, Provide energy & Anti-hypertensive.	(C. H. Lee & Kim, 2014),(Radad et al., 2006)
46.	Kutki/ <i>Picrohiza Kurroa/Plantaginaceae</i>	Roots & Rhizomes	Glycosides, Aromatic Ester, Bis-iridoid, Luteolin -7-O-β-D-glucoside, Gallic acid, Isoferulic acid, Vanillic acid, Hexacosanol, etc.	Anti-inflammatory, Hypolipidemic, Anti-diabetic, Hepatoprotective, Antioxidant, Anti-cancer, Anti-ulcer, Anti-arthritic, Anti asthmatic & Immunomodulatory.	(Debnath et al., 2020)
47.	Liquirice/ <i>Glycyrrhiza Glabra/Fabaceae</i>	Roots & Rhizomes	Glycyrrhizin, Glabridin, Liquiritin, Isoliquiritigenin, Liquiritigenin, Enoxolone, Licochalcone A, Isoliquiritin, liquiritin apioside etc.	Respiratory disorders, hyperdipsia, Epilepsy, Anti pyretic, Sexual debility, Paralysis, Stomach ulcers, Rheumatism, Skin diseases, Hemorrhagic diseases & Jaundice.	(Kaur et al., 2013),(Gupta et al., 2008)
48.	Long Pepper/ <i>Piper</i>	Roots,	Piperine,	Anti-diabetic, it	(Khushbu et al.,

	<i>Longum</i> /Piperaceae	Leaves & Fruits	Piperlonguminine, Piperlongumine, Piperolactam A, Guineesine, Pellitorine, Chavicine etc.	prevents liver ailment, helps in weight loss, Antibacterial, helps in oxygen supply, improve skeletal health & reduce menstrual problem.	2011)
49.	Flaxsee / <i>Linum Usitatissimum</i> /Linaceae	Roots	Alpha-Linolenic acid, linatine, Secoisolariciresinol diglucoside, Secoisolariciresinol, Cyanogenic glycoside, Linolenic acid, Oleic acid, Stearic acid, Xanthene, Isovanilin, etc.	effects that are anti-cancer, anti-oxidant, anti-microbial, anti-inflammatory, anti-obesity, anti-diabetic, anti-diarrheal, anti-malarial, hepatoprotective, renal protection, immunosuppressive, antiarrhythmic, and cognitive.	(Palla et al., 2015)
50.	Musali/ <i>Chlorophytum Borivillianum</i> /Asparagaceae	Roots	Saponins, Alkaloids, Vitamins, Steroids, Calcium, Magnesium, Phenol, Resins, Mucilage, Polysaccharides, Sucrose, Glucose, Fructose, Galactose, Mannose, etc.	Anti-diabetic, Antioxidant, Anti-stress, Anti-microbial, Anti-inflammatory, Hypolipidemic, Analgesic, Anti-diarrheal, Anti-tumor, Anti-aging & Immunomodulatory.	(Khanam et al., 2013), (Thakur et al., 2009)



## Herbal Formulation

Some herbal formulations of Ayurveda, Unani, and Siddha are listed below.

- **Ayurveda Formulation**

**Table 2: Some ayurvedic formulation with their chemical constituents and uses**

S. No.	Product name/Formulation type	Major Components	Uses	Reference
1.	Dashmularishta/Syrup	<i>Aegle marmelos</i> , <i>Premna serratifolia</i> , <i>Stereospermum suaveolens</i> , <i>Gmelina arborea</i> , <i>Serpentes</i> , <i>Tribulus terrestris</i> , <i>Solanum indicum</i> , <i>Solanum virginianum</i> , <i>Desmodium gangeticum</i> , <i>Hedysarum pictum</i> , <i>Symplocos zeylanica</i> , <i>Tinospora cordifolia</i> , <i>Emblica officinalis</i> , <i>Senegalia catechu</i> , <i>Limonia acidissima</i> L., <i>Harad</i> , <i>Terminalia bellirica</i> , <i>Boerhavia diffusa</i> , <i>Rubia cordifolia</i> , <i>Cedrus</i>	Analgesic, Anti-arthritic, Anti-inflammatory, Anthelmintic, Anti-bronchitis, Anti-leucoderma or Anti-vitiligo, Anti-anorexic & Anti-diarrhoea.	(Sastry, 2016), (Ibrahim et al., 2022)

		<i>deodara, Saussurea Lappa, Embelia ribes, Glycyrrhiza glabra, Nardostachys jatamansi etc.</i>		
2.	Kukkutandtwak Bhasma/Powder	<i>Kukkutandatvak, Oxalis corniculata.</i>	Improve density, Used in arthritis, osteoporosis, leucorrhoea, UTI, and Anti-diabetic treatment.	(Panda & Mohapatra, 2011)
3.	Gokshura/Tablet	<i>Tribulus Terrestris.</i>	To improve sexual desire, to treat asthma, Edema, Cough, Renal problems, Hair loss, Rheumatic pain, Headache, Stress, Menstruation, Weak nervous system, Obesity, Piles, & eye problems.	(Rathore et al., 2022)
4.	Arjunarishth/Syrup	<i>Terminalia arjuna, Vitis vinifera, Madhucaindica, Jaggery, Woodfordiafruticosa.</i>	Cures heart diseases & Controls blood pressure.	(H. Singh et al., 2010)
5.	Jatyadi Tel/Oil	<i>Myristica fragrans, Azadirachta indica, Trichosanthes Dioica, Curcuma longa, Berberis aristata, Glycyrrhiza glabra, Rubia cordifolia, Symplocos racemosa roxb, Nelumbo nucifera Gaertn., Saussurea lappa,</i>	Healing wounds and injuries, to treat eczema, Syphilis, Skin disease, External piles, Fissures, cracked heals, Sunburn & Skin burn.	(Tamoli et al., 2022)

		<i>Terminalia chebula</i> , <i>Nymphaea alba</i> , <i>Copper sulfate</i> , <i>Hemidesmus indicus</i> , <i>Caesalpinia crista</i> Linn. etc.		
6.	Ayur Slim/Capsules	<i>Trigonella foenum-graecum</i> , <i>Gymnema sylvestre</i> , <i>Terminalia chebula</i> , and <i>Garcinia cambogia</i> .	Treatment of obesity, Hypolipidemic, Control appetite, increase metabolism rate & inhibits fatty acid synthesis and fat accumulation in tissues.	(Semwal et al., 2015)
7.	Triphala Extract/Capsule	<i>Emblica officinalis</i> , <i>Terminalia chebula</i> , <i>Terminalia bellerica</i> .	Promotes easy bowel movements, Anti-cancer, Anti-inflammatory, and Antioxidant; Stimulates gastric enzymes detoxifies the blood, antioxidant, and prevents age-related vision problems.	(R. Parveen et al., 2018)
8.	Meshashringi/Tablet	<i>Gymnema Sylvestre</i> .	Promote secretion of insulin & regenerating pancreatic cells.	(Poshan Kumar Sahu et al., 2016)
9.	Punarnava/Tablet	<i>Boerhavia diffusa</i> .	Anti-aging, Diuretics, Treatment of arthritis, Prevent heart failure, Hepatoprotective, Anti-obesity & Treatment of UTI.	(Rajpoot & Mishra, 2011)
10.	Liv-52/Tablet	<i>Capparis spinosa</i> , <i>Cichorium intybus</i> ,	Promote liver health, Increase appetite,	(Fallah Huseini et al.,

		<i>Solanum nigrum, Terminalia arjuna, Cassia occidentalis, Achillea millefolium, and Tamarix gallica are examples of plants in this group.</i>	Antioxidant & Anti-viral.	2005)
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- **Unani Formulation**

**Table 3:** Some Unani formulation with their chemical constituents and uses

S. No.	Product name/Formulation type	Compositions	Use	Reference
1.	Majoon-E-Ushba/Paste	<i>Phyllanthus emblica Linn, Cuscuta reflexa Roxb., Smilax aristolochic folia Mill.</i>	Blood purifier, Treatment of psoriasis, Anti arthritis & Treatment of skin diseases.	(Lone et al., 2011)
2.	Iksir Shifa/Tablet	<i>Rauvolfia serpentine, Triticum sativum Lam.</i>	Sleep inducer, Anti-hypertensive, Treatment of Insomnia, Headache & Anti-epileptic.	(Kumari et al., 2013)
3.	Majun Suranjan/Paste	<i>Lawsonia inermis, Foeniculum vulgare, Asarum europaeum L., Capparis spinosa L., Terminalia</i>	To treat Rheumatism, Gout, Sciatica &	(Afsahul KM & Anjum F. Suranjan,

		<i>chebula, Operculina turpethum Linn., Apium graveolens L., Plumbago zeylanica, Zingiber officinale, Convolvulus scammonia L., Sepia Officinalis, Colchicum luteum Baker., Cassia Senna, Thymus linearis Benth., Piper nigrum Linn., Coriander sativum Linn., Rosa damascena Mill, Verbascum thapsus, Ricinus communis, Saccharum officinarum.</i>	All types of aches.	2020)
4.	Asgand/Powder	<i>Withania somnifera.</i>	Rheumatoid arthritis, polyarthritis, lumbago, painful swellings, spermatorrhoea, asthma, leucoderma, general and sexual decline, amnesia, anxiety neurosis, scabies, ulcers, marasmus, and leucorrhoea are some of the symptoms.	(Kulkarni & Dhir, 2008)
5.	Itrifal Ustukhudus/Paste	<i>Terminalia Chebula, Terminalia Bellirica, Emblica Officinalis,</i>	Brain tonic, Improves the function of the	(Rab et al., 2021)

		<i>Lavandula Stoechas, Rosa damascena flower, Polypodium vulgare, Cuscuta reflexa.</i>	intestine, Hyperacidity, Cold & Fever.	
6.	Hubb-E-Musaffi Khoon/Paste	<i>Melia azedarach Linn., Azadirachta indica, Lawsonia inermis, Pterocarpus santalinus, Tricholepis glaberrima, Terminalia chebula, Cassia absus, Berberis aristata, Cuminum cyminum L., Tephrosia purpurea, Fumaria officinalis, Piper nigrum L., Coriander sativum Linn., Bauhinia variegata, Rosa damascena Mill, Ajuga bracteosa.</i>	Blood purifier, Treatment of scabies & Anti-acne.	(Sultana et al., 2014), (Islas et al., 2020)
7.	Jawarish Kamooni/Paste	<i>Piper nigrum, Ruta Graveolens, Carum carvi.</i>	Stomachache, Flatulence, digestive system Weakness, Hiccups, Acidity, & Constipation.	(N. Ahmad et al., 2012)
8.	Halwa Supari Pak/Paste	<i>Hyoscyamus Niger, Elettaria cardamomum, Santalum album, Bambusa arundinacea, Ricinus communis, Ficus religiosa, Mentha spicata, Cinnamomum Zeylanicum, Myristica fragrans, Myristica fragrans, Cuminum cyminum L., Asparagus racemosus, Cyperus scariosus, Piper nigrum L., Myrtus Caryophyllus Spreng.</i>	Improves kidney function and digestion, treatment of premature ejaculation & treatment of leucorrhoea.	(Begum et al., 2010)
9.	Jawarish Jalinus/Paste	<i>Pistacia lentiscus Linn.,</i>	bloating, acid	(Husain et al.,

		<i>Nardostachys jatamansi, Alpinia cardamomum, Cinnamomum Cassia Blume, Cinnamomum verum, Alpinia galanga, Myrtus Caryophyllus Spreng., Cyperus Rotundus, Zingiber officinale, Piper longum L., Piper nigrum L., Saussurea lappa, Asarum europaeum L., Myrtus communis, Swertia chirayita, Crocus sativus, Crocus sativus.</i>	reflux, and feeling heavy after eating bloating, a heartburn-like feeling, Additionally, flatulence.	2017)
10.	Jawarish Shahi/Paste	<i>Terminalia chebula, Emblica officinalis, Coriandrum sativum, Elettaria cardamomum, Crocus sativus.</i>	Cardiac & Brain tonic.	(Mobeen & Moazzam, 2022)

- **Siddha Formulation**

**Table 4: Some Siddha formulations with their Chemical Constituents and Uses**

S. No.	Product name/Formulation type	Compositions	Use	Reference
1.	Aptowin/Syrup	<i>Piper longum, Cuminum cyminum, Zingiber officinale, Piper nigrum, Taxus baccata, Myristica fragrans, Quercus infectoria, Alpinia speciosa, Alpinia galangal, and Trachysperum ammi are</i>	Treatment of anorexia, improve appetite and digestion, Treat enlarged liver, and Improve spleen function.	(Zaveri et al., 2010)

		<i>some of the herbs that are used in herbal medicine.</i>		
2.	Alerwin/Tablet	Smilax china, Saccharum officinarum.	Improvement of skin condition, Anti-inflammatory, Antibacterial, Antifungal, Treat vaginal infection, Leucchorea & sexually transmitted disease.	(I. Khan et al., 2009)
3.	Jeevamirtham/Syrup	<i>Emblica Officinalis, Citrus limon, Hemidesmus indicus, Glycyrrhiza glabra, Syzygium aromaticum, Elettaria cardamomum, Albizia lebbeck, Ficus carica, Plumbago zeylanica, Abies spectabilis, Myristica fragrans.</i>	Immunomodulator, Antioxidant & Wound healing.	(Krishnamoorthy et al., 2019)
4.	Gelcocid/Suspension	<i>Emblica Officinalis, Hemidesmus indicus, Terminalia chebula, Mentha Viridis, Cuminum Cyminum.</i>	Treatment of heartburn, Hyperacidity, and Indigestion.	(Nandy et al., 2020)
5.	Anna Pavala/Tablet	<i>Lawsonia alba, Cynodon dactylon, Vinca rosea, Lippia nodiflora, Hibiscus</i>	Anti atherosclerosis, Immunomodulator, Menorrhagia, Bleeding hemorrhoids, Nasal	(Shanmugasundaram et al., 1991)



		<i>rosasinensis, and Acalypha indica.</i>	bleeding, Cough, Cold & Respiratory disease.	
6.	Winlax/Syrup	<i>Terminalia chebula, Operculina terpehthum, Picrorrhiza curroa, Syzygium aromaticum, Clestrus paniculatus, Nigella sativa, Piper nigrum, Coriandrum sativum, Cassia angustifolia.</i>	Treatment of chronic constipation, Abdominal discomfort, Indigestion, Control bleeding in piles & Reduced burning sensation in the body.	(Kohli et al., 2010)
7.	Synwin/Capsule	<i>Smilax China, Hydnocarpus Kuri, Semicarpus anacardium, Nigella sativa, Cumminum cyminum, Calamus rotang, Withania somnifera, Enicostema littorale, Calotropis gigantean, Ficus racemosa, Corallocarpus epigaeus, Indigofera asphlathoides, Acorus calamus, Azima tetracantha, b. o. er. haavia, Wrightia tinctoria, Aadirachta indica, and Toddalia</i>	Antifungal, treatment of eczema and muscle spasm, improves nerve functioning, Immunomodulator, Heals crack feet and antioxidant.	(Semalty et al., 2010)

		<i>asiatica.</i>		
8.	Leucowin/Tablet	<i>Tinospora cordifolia,</i> <i>Ficus infectoria,</i> <i>Emblica officinalis,</i> <i>Terminalia bellerica,</i> <i>Curcuma longa,</i> <i>Terminalia chebula,</i> <i>Azadirachta indica.</i>	Menorrhagia, Anti-microbial, Vaginal infection, excessive bleeding, Anti-allergic, Anti-inflammatory & wound healing.	(M. M. Khan et al., 2017)
9.	Tumowin/Tablet	<i>Plumbago indica,</i> <i>Carum copticum.</i>	Anti-tumor, Anti-mutagenic, Reduced gastric acid hypersecretion, ulcer healing properties & Abdominal discomfort.	(Priyanjani et al., 2021)
10.	Bala tailam/Capsule	<i>Sida cordifolia,</i> <i>Tinospora cordifolia,</i> <i>Pluchea lanceolata,</i> <i>Saccharum officinarum,</i> <i>Saccharum officinarum,</i> <i>Sesamum indicum.</i>	Treatment of cough, Cold, Fever, Vomiting, Blotting, Wound healing, Spleen disease, Anti-epileptic & Asthma.	(A. Jain et al., 2011)

## VII. CONCLUSION

Traditional medicine has been essential to human healing for millennia. TCM, Indian Ayurveda Siddha, and Unani are still practised and revered, but Greek and Egyptian medicines are mostly historical. Ayurveda, based on Hindu philosophy and ancient literature, emphasises five-element balance for health. Siddha, India's oldest medical system treats chronic diseases using medicinal herbs. Unani, inspired by Greek and Arab traditions, treats using herbs and temperament. Traditional medicine relies on medicinal plants to treat ailments. These plants' medicinal potential is attracting worldwide attention. Many plant-derived medications, including cancer therapies, have been shown effective by modern research, emphasising the need of merging traditional knowledge with modern medicine. Ayurveda, Siddha, and Unani use plant-based treatments for natural, safe, and side-effect-free therapy. Traditional approaches tackle diseases at their source for long-term health. Traditional medicine and medicinal plants may improve global health as the globe investigates alternative and complementary healthcare. Combining these ancient practises with modern medicine may solve many of humanity's health issues. Traditional medicine may improve global wellbeing by being integrated into current healthcare systems.

## VIII. FUTURE SCOPE

The future of healthcare lies on traditional medicine and medicinal plants. As the world values traditional knowledge and seeks more holistic and sustainable healthcare solutions, there are various areas of future scope; Ayurveda, Siddha, and Unani are being integrated with contemporary allopathic medicine. Combining the qualities of both systems may improve patient care. Research and Validation; Traditional medicine medicinal plants must be researched and validated. More clinical trials and scientific investigations can prove the usefulness and safety of plant-based therapies. Standardised Formulations; Traditional medicine formulations can assure quality, safety, and consistency. This will make them more accessible and integrate them into conventional healthcare systems. Ethnopharmacological Studies; Indigenous societies' knowledge of medicinal plants and their applications may lead to the discovery of novel and powerful natural treatments. Ethnopharmacological research can conserve and use this knowledge to healthcare. Cultivation and Conservation; Ensuring a steady supply of medicinal plants requires sustainable cultivation and conservation. Sustainable practises avoid overharvesting and conserve biodiversity. Education and Awareness: Healthcare professionals, legislators, and the public must be educated on the advantages and safety of traditional medicine and medicinal plants. Education may improve healthcare choices and acceptance of these systems. Global cooperation; Traditional medicine practitioners, researchers, and policymakers may share information and best practises via global cooperation. This partnership may provide multi-cultural healthcare solutions.

### Consent for Publication

None

### Conflict of Interest

None

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