

**Review Article**

## **Aromatherapy and Yagya Therapy for Mental Health**

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**Abstract.** Aromatherapy is a well-known complementary and alternative therapy around the world. It has always existed in different cultures with its own unique imprint. Aromatherapy, as the name itself suggests depends on the fragrance or aroma of essential oils extracted from the leaves or root of medicinal herbs. This was incorporated in humans for health benefits in various forms such as pulmonary inhalation, massage, at times, in powder or tablet form. Studies have shown the therapeutics potential of aromatherapy widely observed on human (clinical trials), and also on animal models to treat various physiological as well as psychological problems including mental health suggesting its potential. One of ancient vedic method, Yagya involved inhalation of herbal vapors similar to more recent aromatherapy. In India, the process of Yagya is an ancient technique used for personal and spiritual development. In Yagya various medicinal herbs are used in mixtures that have therapeutic potential to treat psychological problems. In this review we have covered all the therapeutic benefits of medicinal herbs used in Aromatherapy and in Yagya along with herbal components used in Yagya to shed light on the Yagya in fortifying mental health.

**Keywords.** Aromatherapy, Yagya, Mental Health, Medicinal herbs

## Introduction

Herbs have played an essential role in human lives since centuries. Through various routes herbs have been utilized for physical and mental health. Pulmonary inhalation is one of the powerful routes for herbal utilization since ancient times for health benefits. Traditionally herbal fumes were utilized globally in around 50 countries. Essential oils have been used since centuries for relieving stress and mental benefits. In the recent times use of essential oils present in aromatic herbs has been gaining the popularity as aromatherapy. Aromatherapy, as the name itself suggests depends on the fragrance or aroma of essential oils extracted from the leaves or root of medicinal herbs. Studies have shown the therapeutics potential of aromatherapy widely observed on human (clinical trials), and also on animal models for psychological problems.

Besides in India, the aromatic herbs have been traditionally used in Yagya (fire oblation ceremony) for various purposes including peace and psychological benefits. In India, the process of Yagya is an ancient technique used for personal and spiritual development. In Yagya various medicinal herbs are used in mixtures that have therapeutic potential to treat psychological problems. The present review provide details on medicinal herbs used in Aromatherapy and in Yagya along with herbal components used in Yagya to shed light on the Yagya in fortifying mental health.

## Aroma Therapy

The word aromatherapy comes from the French word 'aromatherapie' when the French chemist and perfumer Rene Gattefosse coined the term aromatherapy and published the book of that name in 1937 (1). It is a combination of the

word 'aroma', from the Greek word meaning 'sweet odor or sweet herb', and the word 'therapy', from the Greek word 'therapeia' meaning 'healing'. Aromatherapy is useful as therapeutic purpose in a form of oil from herbs, flower and other plants for the improvement of physical, emotional and spiritual well-being (2). Proponents of aromatherapy report that aromatic or essential oils have been used for thousands of years in ancient civilizations, including the Chinese, Indians, Egyptians, Greeks and Romans as infused oils an unguent in the Bible and ancient Egypt, remedies used throughout the Middle Ages and the Renaissance, and the burning of aromatic plants in various religious rites as well as used as stimulants or sedatives of the nervous system and as treatments for a wide range of disorders (1,3-4).

The effect of aromatherapy is widely studied by Gattefosse and his colleagues in France, Italy, and Germany; later it fell out of the interest of the scientific community. In 1982, another Frenchman, a physician, Jean Valnet, published his book *The Practise of Aromatherapy*. This book generated positive interest and as a result, Aromatherapy became well-known in Britain and United States (5). In 1980s and 1990s, as patients became more interested in Complementary and Alternative Medicine (CAM) treatments, aromatherapy grew more in stature as CAM due to its continued practice by healthcare professionals and cosmetic companies in their products (6). Despite its well-deserved popularity little research is available, as in 1990s it was most conducted by nurses. Later multiple researches on effects of odor on the brain and other systems in animals and healthy humans have been published in the *International Journal of Essential Oils Therapeutics* (6).

Use of aromatherapy as complementary and alternative therapies with mainstream medicine has gained momentum nowadays. A study reviewed extensively the information available in the various literatures regarding aromatherapy use as therapeutics, its classification in different forms like medical, cosmetic, psychological, olfactory, and massage aromatherapy along with details of different plants used and its safety issues (7). Malcolm Coo did bibliometric research published 549 articles on aromatherapy between 1994 to 2014. The aim was to provide a systematic overview of productivity and visibility of research work in Aromatherapy, so that that the findings could be used for organizing and prioritizing future research efforts on Aromatherapy and relevant disciplines (4).

Recently published review article in IntechOpen bring aromatherapy in limelight as complimentary medicine and delineate different classes of volatile oils and their biological activities as well as therapeutic properties of some essential oils (8). There are two independent systemic review published on Aromatherapy, which provide insight into Aromatherapy as therapeutic for different mental and physical illness (2,9). One recently published review provide comprehensive details of aromatherapy from history of different religious culture to its theoretic frameworks, essential plant sources as well as clinical trial and its management, safety case reports and pathologic response (10).

#### *Prevalence of Aromatherapy in different cultures*

In the Egyptian culture, resins, balms, and fragrant oils are used since centuries. Papyrus Ebers wrote a famous manuscript about aromatic medicine. Cedar-wood, clove, cinnamon,

nutmeg and myrrh essential oils were used by the Egyptians to preserve the dead person. This is believed to be around 2800 BC. In the culture of Iraq, a skeleton was found 30,000 years ago with concentration of extracted plant essential oils.

In the Indian context, the Ayurveda natural system of medicine was based on disease due to an imbalance of stress in a person's consciousness. Need to regain balance by internal purifications followed by special diet, herbal remedies, massage therapy, yoga, and meditation.

In the Chinese culture, Shen Nung's manuscript listed 350 plants in 2800 BC. Ayurvedic physicians are called holy men. Indian shamans are known as perfumers, from scents of plants. Chinese culture still embraces herbal medicine. In the Traditional Chinese medicine, based on harmony energy of yin-yang opposites balance is key to health. Imbalance means person has illness. Acupuncture, cupping, herbal teas, powders from plants, meditation, and herbal burning near skin are the way are being used to treat such illness.

In the Greek culture, Theophrastus inherited the botanic garden from Aristotle. He wrote a book about specific uses and formulas for aromatics. Kyphi formula contained 16 plants and was used for sleep and anxiety, to soothe skin, and as an antidote for snake bite. He became the father of botany. Hippocrates wrote about aromatic baths and antibacterial properties and urged people to carry aromatic plants for protection. Pedanius Dioscorides wrote De Materia Medica covering 700 plants, including aromatics. Pre-Christian era emerged with the belief that essential oils were pagan. In response, Pope Gregory the



Great passed a law banning all aromatics. Works of Galen and Hippocrates were smuggled to Syria for safekeeping.

In the Arabian culture, Ibn Sina, an Arabic physician, used aromatics, such as senna, camphor, and cloves, for medical treatment. Inhaled henbane was used as anesthetic. Topical sugar was used to stop bleeding. Rose or orange blossom was used as flavor medicines. This led to the manufacturing of medicine. Medical aromatherapy emerged in the third century. The first private apothecary shop opened in Baghdad with dispensing medicines such as tinctures, suppositories, inhalants, and pills.

In German culture, Hieronymus Braunschweig a surgeon and botanist wrote a book on distillation of oils from plants that included 25 oils. In France, in 1919, Gattefosse, a famous chemist, was burned in an explosion in his laboratory and the wounds became infected. He rinsed his Wound with essential oils that eradicated the infection and he coined the term, aromatherapy, and was known for the medical use of essential oils with their antibacterial and healing properties of essential oils. The first aromatherapy book was written by Dr. Jean Valnet, an army physician. Shirley Price authored aromatherapy for Healthcare Professionals and known for clinical use of essential oils. In 1961, Marguerite Maury, a nurse, published Le Capital 'Jeunesse'. This book classified clinical departments' use of essential oils, such as surgery and spa treatment. Maury won 2 international awards for her research. (Adapted and edited from reference 10-15).

#### *Studies on aromatherapy for mental health: Clinical trials, in-vitro and animal studies*

Aromatherapy is widely used for many conditions: sedation and arousal, startle reflex and reaction time, psychiatric disorders, neurologic impairment, chronic renal failure, agitation in patients with dementia, motion sickness, postoperative nausea, nausea and emesis in combination with fatigue, and anxiety in patients with labor, pain alone or in combination with other symptoms, smoking withdrawal symptoms, psychological states such as mood, anxiety, stress, depression and general sense of well-being mainly in hospital settings such as cancer patients, hospices, and other areas where patients are critically ill and require palliative care for pain, nausea, lymphedema (6). Aromatherapy is also used for patients with mental health related problems, and most of resulting articles successfully showed incorporation of aromatherapy into the treatment of these patients (16). It is well-known that if person is mentally strong then physical health in terms of vata, pitta and kapha is in balance as per Ayurveda and one live longer than average or people die 10 to 20 year earlier due to mental disorders as per WHO.

The present review described effect of aromatherapy on mental health in different settings. Depression and anxiety disorders are most common among mental health. The total number of people living with depression and anxiety disorders is 322 and 264 million case respectively reported worldwide in year 2015; nearly half of these people live in South-East Asia and South-Pacific Region reflecting the relatively large populations of those two Regions (which include India and China, for example) (17). Effective treatments for mental disorders are available, even though between 76% and 85% of people in low- and middle-

income countries receive no treatment for their disorder due to scarcity of resources and shortage of trained healthcare workers (18).

Dalinda Isabel Sánchez-Vidaña et al., 2017 did a systematic review with an aim to provide an analysis of the clinical evidence on the efficacy of aromatherapy for depressive symptoms on any type of patients. Review include predefine search terms and randomized clinical trials with any kind of study design (double blind, single blind, and crossover study), and conclude that massage aromatherapy is more efficacious than inhalation aromatherapy to alleviate depressive symptoms (19).

Aromatherapy is relatively inexpensive and easy to administer and, its apparent lack of side effects makes it an appealing complementary therapy for many cancer patients, especially those in hospice. Efficacy of lavender oil aromatherapy was measured on 17 cancer hospice patients which results in positive, yet small, change in blood pressure and pulse, pain, anxiety, depression, and sense of well-being after three different days pre and post 60 minutes of treatment compare to control (no treatment) (20). Similarly, lavender aromatherapy beneficial effect found on peripheral venous cannulation pain, anxiety, and satisfaction level of patients undergoing surgery and reduced preoperative anxiety in ambulatory surgery patients (21,22). Use of aromatherapy in clinical trials as supportive care agent in Cancer and Palliative care for anxiety and depression, health related quality of life symptoms, procedure related symptoms was comprehensively summarized by PDQ Integrative, Alternative, and Complementary Therapies Editorial Board (6). A randomized double-blind clinical trial on Nurses anxiety results in reduce level of anxiety with the

treatment of music alone or music and aromatherapy of chamomile-lavender oil. Hence, they recommend it further to reduce anxiety levels of nurses in clinical settings (23).

Similar study investigating effect of lavender-chamomile effect on burned patient anxiety level and sleep quality found that it was effective to reduce anxiety level and improve sleep quality (24). A randomized trial on 93 women (age 18 years to older) undergoing breast surgery revealed that both lavender fleur oil and unscented oil aromatherapy reduce preoperative anxiety level in breast surgery patients (25). Aromatherapy of three (lavender, chamomile and neroli) blended essential oil (ratio of 6:2:0.5) found to be effective in reduction of anxiety level and improvement of sleep quality in percutaneous coronary intervention patients (26).

Neuropharmacological and mechanistic studies of the effects of essential oils in relevant in vitro and in vivo psychiatric disorders model also has been performed by many group that is covered in a review article published by Nicolette Perry and Elaine Perry. They conclude that aromatherapy provides a potentially effective treatment for a range of psychiatric disorders (27). Lorena R. Lizarraga-Valderrama published a review that specifically focus on mental health specifically effects of various essential oils on central nervous system that will enable the development of essential-oil based drugs for the treatment for mental illness such as depression, anxiety and dementia (28).

One research group illustrate that *Origanum majorana* essential oil (OmEO) elevate antioxidant activity and brain derived neurotrophic factor expression with improved



memory performance and cognitive function in the Alzheimer's amyloid beta1-42 rat model (A $\beta$ 1-42 AD model) in Y-maze and radial-arm maze tests (29). Similar kind of study using same A $\beta$ 1-42 model demonstrated that *Tetraclinis articulata* essential oil (TLO) reversed the A $\beta$ 1-42 induced decreasing of the spontaneous alteration in the Y-maze test and the increasing of working and reference memory errors in the radial-arm maze test. Hence, they conclude that TLO improved the memory deficits induced by A $\beta$ 1-42 treatment through modulation of acetylcholinesterase activity, and by decreasing of oxidative stress in the rat hippocampus (30). Another essential oil from *Pinus halepensis* demonstrate improved memory impairment determined by A $\beta$ 1-42 treatment by modulating acetylcholinesterase action, and by decreasing oxidative damage in rat hippocampus (31). Methanolic extract of *Piper nigrum* fruits also improves memory impairment by decreasing brain oxidative stress in A $\beta$ 1-42 rat model of Alzheimer's disease (32).

A study showed that 10 days of supplementation of fish oil (FO) to Postpartum depression (PPD)-like rats confers antidepressant-like effects on them through the modulation of serotonin neurotransmitters in the hippocampus of PPD-like rats, which are comparable to that of Fluoxetine, as confirmed by the decreased immobility and increased swimming times in forced swimming test. Therefore, they conclude the involvement of the serotonergic system in the FO antidepressant-like effects on the PPD-like rats (33). Similarly, *Xylopiya aethiopyca* fruit extracts exhibits antidepressant like effect via interaction with serotonergic neurotransmission in Swiss Webster mice (34). One study reveals for the first time that lavender exerts receptorbinding affinities with a relevant activity on the N-methyl-D-aspartate receptor (NMDA)

as well as act as anti-agitation and antidepressant like activities on NMDA receptor modulation as well as an inhibition of the serotonin transporter. Lavender essential oil also protected SH-SY5Y cells from hydrogen peroxide induced neurotoxicity (35). Nevertheless, more research findings are required on larger group study to make an aromatherapy in routine use as complimentary or alternative aromatherapy.

### Yagya Therapy

Traditional domestic solemnity describes Yagya with great detail in Indian scriptures including Vedas, Upanishads, Mahabharata, Ramayana, Puranas, etc as a holy and divine act and also as our foremost moral duty. Yagya is performed with an aim at ablution of the body and surroundings by reinforcing the harmony in various components of the body and ambient environment. In the Yagya, traditional medicinal herbs are fortified in the sacred fire using clarified butter (ghee). These herbs include specific woods and herbs (36-38). Pure fumes (aroma) coming out of herbs along with chanting of mantra in the Yagya can provide the holistic benefit including physiological, psychological, and spiritual benefits (39-43).

Similar to the advantage of the pulmonary inhalation of essential oil in the aromatherapy for mental health, an ancient vedic method of Yagya can also provide the similar advantage for mental health as the herbal components used in Yagya have been known for psychological benefits. Yagya uses various woods and herbal mixtures (Hawan Samagri) which are described further.

### *Principal types of wood commonly used in Yagya*

The commonly used woods (samidha) in Yagya are as described in the Table 1.

Vernacular (Common) name	Scientific (Botanical) Name
Chandan (Sandal-Wood)	Santalum Album
Agar wood	Aquilaria Agrollocha
Tagar wood	Valeriana Wallchii
Deodar	Cedrus Deodara
Mango	Mangifera Indica
Dhak or palash	Butea Frondosa
Bilva	Aegle Marmelos
Pipal	Ficus Religiosa
Bargad	Ficus Bengalensis
Shmai	Proposis Spicigera
Gular	Ficus Glomerata
Ber	Zizphus jujube

### *Principal types of herbal mixtures (hawan samagri) in Yagya*

Hawan Samagri used in Yagya can be divided into four groups, 1) Odoriferous substances, 2) Substances with healthy constituents, 3) Sweet substances, and 4) Medicinal Herbs (44) (See Table 2).

Substances	Traditional names
Odoriferous	Agar, Tagar, Nutmeg, Camphor, Saffron, Chandan, Cardamom, Clove, etc
Substances with Healthy Constituents	Cow Ghee, Milk, Fruits, Cereals like barley, rice, wheat, sesame, etc.; Fox-nuts, Coconut, Dry fruits such as Cashew, Almond, etc.
Sweet	Sugar, Dried Grapes, Honey
Selective Medicinal Herbs	Brahmi, Shankpushpi, Mulhati, Red-Sandalwood, Baheda, Somalata or Giloya, Harad, Ginger, Ashwagandha, etc. (to be prescribed as per specific requirement)

### *Mental Health activity of herbs used in Yagya commonly*

Each herb has its own medicinal uses. An extensively written review describes mechanistic review on specific herbs used in the Yagya for the therapeutic potential of Yagya on anxiety (45). The focus of the present study was to shed light on the activity of herbs specifically benefiting in mental health problems such as anxiety, depression and insomnia and so on. Table 3 covered the therapeutic potential of medicinal plants of common Hawan Samagri on mental health related problems mainly anxiety and depression. The aroma coming from burning medicinal wood and herbs give mental health advantage to the performer by inhalation of essential component of particular herbs. Previously, Yagya with medicinal herbs was shown for relieving stress, reducing inferiority and insecurity feeling, aiding in PCOD and OCD patients and benefiting in epileptic patients.

### **Conclusion**

Yagya is a very ancient treatment. It was performed to harness the power of positivity through the science of sound in mantric syllables uttered, combined with therapeutic powers of aromatic herbs offered to Agni – the Fire Deity. The contemporary world too can take a leaf out of the past and address the various physical and emotional ailments, reflected as distrust, depression, indecisiveness with the process of Yagya. Hence, it can be concluded that Yagya can be used widely as aromatherapy in form of complimentary or alternative therapy to treat mental or physical illness.

Sr. No.	Common name	Scientific name	Mental Health Studies (shown using Humans or animals studies)	References
1	Tagar wood	<i>Valerianawallchii</i>	Improved sleep quality in Insomnia; Anti-depressant activity	46-48
2	Chandan	<i>Santalum album</i>	Beneficial in mental & physical disorders; Helpful in alleviating anxiety; Helpful in insomnia; Promoted mental alertness	49-53
3	Jaiphal	<i>Myristica fragranus</i>	Potent brain booster (improved memory); Enhanced concentration; Relieved stress	54-57
4	Ashwagandha	<i>Withaniasomnifera</i>	Reduced anxiety and stress; Helped in depression; Boosted brain function	58-61
5	Giloy	<i>Tinospora cordifolia</i>	Reduced stress and anxiety; Enhanced memory power & cognitive function	62-75
6	Kesar	<i>Crocus sativus</i>	Anti-seizure effect; Boosted mood; Improved memory; Helpful in mild to moderate-depression; Improved cognition in patients with Alzheimer's disease	76-77
7	Shankhpushpi	<i>Convolvuluspluricaulis</i>	Reduced depression, anxiety, stress and mental fatigue; Improved cognitive functioning	78-85
8	Mulethi	<i>Glycyrrhiza glabra</i>	Reduced stress and depression	86-88
9	Baheda	<i>Terminalia bellirica</i>	Helped in managing depression and anxiety	89-93
10	Jatamansi	<i>Nardostachys jatamansi</i>	Antioxidant, Anxiolytic, Anti-stress and neuro-protective activities; Improved learning and memory	46, 94-104
11	Clove	<i>Eugenia caryophyllus</i>	Anti-anxiety potential	105-106
12	Ber	<i>Zizphus jujube</i>	Anxiolytic activity	107-108
13	Mango	<i>Mangifera indica</i>	Improve cognitive function; Anti-depressant & anti-anxiety effect	109-112
14	Almond	<i>Prunus amygdalus</i>	Anti-depression and anti-anxiety activity; Improve memory	113-114
15	Phoolmakhane	<i>Nelumbonucifera</i>	Anxiolytic and anti-depression activity	115-118

**Table 3.** Therapeutic potential of common and medicinal herbs used in Yagya.

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