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Review Article

Herbal Drugs as Brain Tonics (Muqawwi-e-Dimag) Mentioned in Unani Medicine-A Review

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ABSTRACT

Major global public health challenges include neurological and mental health disorders, which weaken the brain, change a person's behaviour and impair its ability to accomplish everyday tasks. Modern medications provide costly symptomatic treatment for neurological illnesses but have negative effects. So, people are turning to herbal remedies in search of superior treatments that are less expensive and have fewer negative effects. Mental health has been a very important topic in past in Unani System of Medicine and also its importance may not be refused today. Majority of toxins and disease-causing biological agents harm our essential organs; impair immune systems, results in complications and death. There is a need for medications that protect internal organs, preserve physiological functions and provide time and energy to recover from negative consequences. One distinctive aspect of the Unani medical approach is the use of tonics. Numerous herbal medications have been recommended by Unani physicians as Muqawiyat (tonics) to sculpt the body's essential organs shielding them from toxins/illnesses and enhance bodily processes. Muqawiyat are non-toxic drugs having the power to sustain and improve human health when used consistently over an extended period of time. In the current review some single herbal drugs mentioned as Brain Tonics (Muqawwi-e-Dimag) in Unani literature have been discussed and their pharmacological properties like antioxidant, neuroprotective, anti-inflammatory, immunomodulatory, memory enhancing have been screened out which can provide a scientific reason and possible mechanism by which action of these Unani drugs as brain tonics can be interpreted with modern aspects.

Keywords: Mental Health, Unani Medicine, Brain Disorders, Antioxidant Activity, Neuroprotective Activity, Anti-inflammatory effect.

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INTRODUCTION

Central Nervous System (CNS) command centre is the brain. It is primarily separated into the brainstem, cerebellum, and cerebrum. It's a mass of tissue having jelly-like consistency, weighing approximately 1.4 kg, and consist of about 86 billion nerve cells and protected in the bony cage i.e. skull (Naz & Siddique, 2020). The central nervous system's intricate organ i.e., our brain not only involved in the interpretation of senses, maintenance of emotional, social, mental, cognitive behaviours and controlling movements but also regulates the function of other organs of our body which has an impact on every aspect of our day-to-day existence. Any neurological disorder that impacts the functioning or structure of the brain has a deleterious impact on the overall health of the human body (Liu *et al*., 2022).

The optimal brain health has been established by the American Heart Association/American Stroke Association (AHA/ASA) presidential advisory as "average performance levels among all people at that age that are free of known brain or other organ system diseases in terms of decline from function levels, or as adequacy to perform all activities that the individual wishes to undertake" (Gorelick *et al*., 2017).

With the aging population, there is a growing burden of neurological illnesses and an increasing struggle to maintain mental health. The primary objective in seeking health and longevity is to ensure the continual well-being of the brain throughout one's lifetime (Wang *et al*., 2020).

Numerous illnesses and conditions can impact our brain, impairing its capacity to receive and process information. It also impairs a person's ability to perform daily tasks by changing their behaviour and demeanour. There are some commonly occurring brain diseases like Autoimmune Brain disease, Epilepsy, Infection, Mental illnesses such as Anxiety, Post-Traumatic Stress Disorder (PTSD), depression, bipolar disorder, schizophrenia, etc. while some are neurodegenerative brain diseases like- Alzheimer's Disease, Parkinsons Disease and Amyotrophic lateral sclerosis.

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Apart from these there are many rare as well as neurodevelopmental diseases like-Dyslexia, Autism, Stroke, Traumatic Brain Injuries, Tumours etc., Over a billion people worldwide suffer from mental health issues and neurological illnesses, making them a major public health concern (Zahiruddin *et al*., 2020).

Allopathic medications offer costly, symptomatic care that is fraught with risks and negative effects. Traditional medicines and natural goods are quite important. Due to their distinct chemical variety and millions of years of evolution, natural products exhibit a wide range of biological activities and drug-like qualities. Nowadays, peoples are more inclining towards natural products as drugs because of their cost-effectiveness and least side effects (Yuan *et al*., 2016).

Concept of Mental Health in Unani Medicine

Mental health has been a very important topic in past in Unani System of Medicine and its significance may also not be disputed in the modern day. Unani scholars have described about mental health whose seat is in brain, specifically, under the category of the "Psychic faculty," Quwwat-e-Nafsaniya. Hippocrates known as the “Father of Medicine” referred to the brain as Syed-ul-Aaza, or the supreme of all organs, because of its incredibly delicate, exquisite, and sensitive faculties (Hamdani, 1998; Nafeesi, 1934; Akram *et al*., 2020). Because of its cool and moist temperament, the brain is highly sensitive to external stimuli (Hamdani, 1998; Ibn-Rushd, 1987). In-depth discussions of several brain regions and associated illnesses, such as Qutrub, Mania, Ikhtalate zhn, Melancholia, Suda etc. have been documented in the classical literature of Unani medicine (Hamdani, 1998; Ibn-Rushd, 1987; Aazam Khan, 2011).

In the section of Fundamentals of Unani Medicine i.e., Kulliyat, detailed discussion of Quwa has been given. Quwa (Faculties) represent the biological powers that result in related biological processes like-nutrition, growth, sensation, movement etc. The primary Quwa (Faculties) are Quwwat-e-Tabiiyya (Natural Faculty) and its function is nutrition and growth; Quwwat-e-Haiwaniya (Vital Faculty) it performs physiological functions like respiration, circulation, and Intelligence; sensation, response these functions are in control of Quwwat-e-Nafsaniya (Psychic Faculty). Brain corresponds to the Quwwat-e-Nafsaniya (Psychic faculty) (Hamdani, 1998; Anonymous, 2013; Tabri, 2002).

The inclusion of mental health as one of the six necessary conditions (Asbab-e-Sitta-Zaruriya) of life for maintaining health is the most admirable aspect of the Unanipathy. Air (Hawa), Food and Beverages (Makul-wa-Mashroob), Physical Movement and Repose (Harakat-wa-Sukoon Badani), Mental Movement and Repose (Harakat-wa-Sukoon Nafsani), Sleep and Arousal (Naum-wa-Yakza), Retention and Excretion (Istefragh-wa-Ihtibas) are some of these. This illustrates the overall approach that Unani doctors generally take to treating patients, especially when it comes to illness management (Akram *et al*., 2020; Anonymous, 2016; Anonymous, 2013).

The Unani medical system acknowledges the importance of mental states in preventing illness and promoting wellness. The states of mind are essentially described by Unani medicine in terms of Pneuma Movement and Repose. Pneuma, which serves as the faculties i.e., Quwa vehicle and seat. Its excessive movement causes hot pathologies like epistaxis, mania etc. while its excessive repose causes cold pathologies like bradycardia, unconsciousness. Therefore, these illnesses can be treated by giving cold or hot medications as well as by changing the patients' mental states. This is the cornerstone of the distinctive and efficacious psycho-pharmacological treatment of mental and psychotic disorders in unanipathy. It is also important to understand that, because Unani medicine views heart function as essentially the preservation of life, it emphasizes a strong relationship between immune and mental states (Anonymous, 2013).

Currently, Unanipathy plays a significant role in the Indian medical system. Throughout history, Unani remedies have been utilized to cure a wide range of illnesses (Ahmad et.al., 2010). It is well recognized that the majority of toxins and biological agents that cause diseases harm our essential organs, impairing our immune systems and ultimately resulting in complications and death. And also, as the population ages the burden for neurodegenerative disorders like Alzheimer’s Disease, Parkinsons Diseases etc., also increases. Therefore, there is a need for medications that protect these organs, preserve physiological functions, and provide the body with the time and energy it needs to recover from these negative consequences (Nikhat & Fazil, 2023). The ability of the human body to guard itself against illness and infections has been attributed exclusively to Tabi-at, according to Unani literatures. Consequently, the body's defense and immunity are the Tabi-at's primary function. Unani physicians advocate enhancing the body's immunity and fortifying the Tabi 'at through the restoration of health and disease treatment (Nafeesi, 1934; Hamdani, 1998; Tabri, 2002; Majeedi *et al*., 2015).

One distinctive aspect of the Unani system of medicine is its ability to strengthen the organs and immune system through the use of tonics that target specific organs and organ systems and is known for its beneficial effects. Unani physicians have described numerous drugs in the literatures of Unani medicine that can be used for strengthening and toning up the vital organs of the body so that these organs can be protected and saved from the toxins and biological disease-causing agents. For such reason Unani scholars have categorized several medications as Muqawiyat (tonics) such as Muqawwi-e-Aza Raeesa (Tonic for vital organs), Muqawwi-e-Dimag (Brain tonic), Muqawwi-e-Aasab (Nervine Tonic), Muqawwi-e-Qalb (Cardiac Tonic), Muqawwi-e-Aam (General Tonic), Muqawwi-e-Meda (Stomachic), Muqawwi-e-Kabid (Liver Tonic) etc. In Unani Classical literature, the use of Muqawiyat (tonics) is highly advised for both treating illnesses

and preventing diseases. Muqawiyat, also known as tonics, are safe compounds that can enhance and sustain the well-being of the human body when consumed consistently over an extended duration. They enhance the condition of the internal organs and optimize bodily processes. These drugs have very important role in epidemic conditions also. Such medications play a vital part in epidemic situations as well (Siddiqui *et al*., 2020; Anonymous, 2013; Hamdani, 1998; Lone *et al*., 2012; Majeedi *et al*., 2015; Samarqandi, 2009).

In this present article, attempt has been made to review some single Unani herbal medicines that are mentioned as Brain Tonics (Muqawiyat-e-Dimag) in classical literatures of Unani Medicine and can be potentially used as Brain Tonics.

MATERIALS AND METHODS

Data for this present article were gathered from the authoritative and pertinent books of Unani Medicine. Besides this, information that is pertinent for this present review were also acquired from journal publications containing scientific research through PubMed, Science Direct, Google Scholar and Google search engine. Some keywords like Mental Health, Brain Disorders, Unani Medicine, Tonics, Antioxidant Activity, Anti-inflammatory Activity, Neuroprotective Activity etc. were used to gather the information.

Badranjboya (*Melissa officinalis* L.)

The perennial herbaceous plant *Melissa officinalis* L. is a member of the Labiatae family. It is native to Europe, Northern Africa, and West Asia, and is mostly grown in the Mediterranean region (Basar *et al*., 2013; Saffiuddin, 1979).

Part used: Whole Plant, Leaf and Seed (Anonymous, 2006; Khan, 2012).

Temperament: Hot (2-degree) and Dry (2-degree) (Kabiruddin, 2000; Saffiuddin, 1979).

In Unani literature, **Badranjboya** is characterized as Muqawwi-e-Dimag (Tonic for Brain), Mufarreh (Exhilarant), Muqawwi-e-Qalb (Cardiac tonic), Muhalil (Anti-inflammatory), Musakkin (Sedative), Musaffi-e-Khoon (Blood Purifier), Munzij-e-Sauda (Concoctive of black bile) (Basar *et al*., 2013; Khan, 2012, Kabiruddin, 2000).

Therapeutic Uses: It is effective in Weakness of Brain, Anxiety, Paralysis, Facial Paralysis, Epilepsy, Insomnia, Hypertension, Dementia, Vertigo, Palpitations (Waseem *et al*., 2020; Khan, 2012; Kabiruddin, 2000).

Dose: 5-7 g (Kabiruddin, 2000; Anonymous, 2006; Anonymous, 2007).

Pharmacological studies: Antioxidant Effect (Miraj *et al*., 2017); Immunomodulatory Effect (Pelvan *et al*., 2022); Neuroprotective Effect (Bayat *et al*., 2012); Anti-Inflammatory Effect (Draginic *et al*., 2022); Memory Enhancing Activity (Soodi *et al*., 2014).

Brahmi (*Centella asiatica* L.)

A perennial herb of the Apiaceae family, *Centella asiatica* L. with many creeping branches. India, Sri Lanka, China, South Africa, South East United States, Mexico, Venezuela, Columbia, Madagascar, and Eastern South America are among its native regions. It is found almost everywhere in India (Shakir *et al*., 2007).

Part Used: Whole plant (Shakir *et al*., 2007; Saffiuddin, 1979).

Temperament: Hot and Dry (Saffiuddin, 1979; Anonymous, 2007).

In Unani literature, **Brahmi** is characterized as Muqawwi-e-Dimag (Tonic for Brain), Muqawwi Hafiza (Memory Enhancer), Muqawwi-e-Aasab (Nervine Tonic), Musakkin (Sedative), Mussafi Khoon (Blood Purifier) (Khan,1847; Khan, 2012; Ghani, 2011).

Therapeutic Uses: It is effective in Weakness of Brain, Weakness of memory, Headache, Hysteria, Eyesight weakness (Abdul Hakeem, 2002; Khan, 2012; Ghani, 2011).

Doses: 5 g (Anonymous, 2007; Saffiuddin, 1979).

Pharmacological studies: Antioxidant Effect (Pittella *et al*., 2009); Immunomodulatory Effect (Punturee *et al*., 2005); Neuroprotective Effect (Lokanathan *et al*., 2016); Anti-Inflammatory Effect (Xu *et al*., 2008); Memory Enhancing Activity (Pisar *et al*., 2023).

Amla (*Phyllanthus emblica* L.)

The fruit of the large *Phyllanthus emblica* L. tree, which is a member of the Euphorbiaceae family, is amla. It is typically found in South-East Asia, China, Malaysia, Pakistan, Uzbekistan, Sri Lanka, and other tropical and subtropical countries and is native to India (Nafees & Anjum, 2020; Anonymous, 2006).

Part used: Fruit, Root, Leaves, Bark (Chopra *et al*., 1980; Anonymous, 2006).

Temperament: Cold and Dry (Saffiuddin, 1979; Kabiruddin, 2000).

In Unani literature, **Amla** is characterized as Muqawwi-e-Dimag (Tonic for Brain), Muqawwi -e-Hafiza (Memory Booster), Muqawwi-e-Aza Raeesa (Vital organs Tonic), Muqawwi-e-Qalb (Cardiac Tonic), Muqawwi-e-Kabid (Liver Tonic), Black Bile concoctive (Munzij-e-Sauda), Astringent (Kabiz), Anti-inflammatory (Muhalil) (Khan, 2012; Abdul Hakeem, 2002; Ghani N, 2011).

Therapeutic Uses: It is effective in Weakness of Brain, Weakness of the vital organs, Eyesight weakness, Paralysis, Facial Paralysis,

Palpitations, Diarrhoea, Bleeding Piles, Epistaxis, Scurvy, Haemoptysis, Hematemesis, Conjunctivitis, Hair fall (Khan, 2012; Abdul Hakeem, 2002; Ghani N, 2011).

Dose: 5-10 g (Anonymous, 2006).

Pharmacological studies: Antioxidant Effect (Liu *et al*., 2008); Immunomodulatory Effect (Singh *et al*., 2013); Neuroprotective Effect (Hussain *et al*., 2019); Anti-Inflammatory Effect (Phochantachinda *et al*., 2021).

Ustukhudoos (*Lavandula stoechas* Mill.)

These are the flowering tops of herbaceous plant *Lavandula stoechas* Mill. which is a member of Lamiaceae/Labiatae family. It is frequently located nearby Canaries, Portugal and East ward throughout the Mediterranean region to Istanbul and Asia minor (Siddiqui *et al*., 2018; Anonymous, 1992).

Part Used: Flowering Top (Anonymous, 1992).

Temperament: Hot (1-degree) and Dry (2-degree) (Saffiuddin, 1979; Kabiruddin, 2000).

In Unani Literature, **Ustukhudoos** is characterised as Muqawwi-e-Dimag (Tonic for Brain), Munaqi-e-Dimag (Brain purifier), Muqawwi-e-Aasab (Nervine tonic), Muqawwi-e-Qalb (Cardiac tonic), Muhallil (Anti-inflammatory), Mufarreh (Exhilarant), Muqawwi-e-Meda (Stomachic), Muqawwi-e-Jigar (Liver Tonic) Mushil-e-Balgham safra wa sauda (Purgative of phlegm, yellow and black bile), Munavim (Sedative), Mufatteh Sudad (Deobstruent) (Anonymous, 1992; Ghani, 2010; Khan, 2012; Abdul *et al*., 2020).

Therapeutic Uses: It is effective in Hemiplegia, Facial paralysis, Tremor, Epilepsy, Neurasthenia, Headache, Giddiness, Dementia, Schizophrenia, Numbness, Depression, Insomnia, Neuralgic Pains, Melancholia, Sinusitis, Chronic Catarrh, Rheumatic pains, Chest Infections, Liver disorders, Urinary disorders, Haemorrhoids, Ascites, Hepatomegaly (Anonymous, 1992, Ghani, 2010; Khan, 2012; Abdul *et al*., 2020).

Dose: 3 g.

7-10 g, more effective when used with Sikanjabeen (As mentioned by Rhazes) (Siddiqui *et al*., 2018).

Pharmacological studies: Antioxidant Effect (Ghanimi *et al*., 2021); Memory Enhancing Activity (Mushtaq *et al*., 2018); Neuroprotective Effect (Erdogan *et al*., 2022); Anti-Inflammatory Effect (Bavarsad *et al*., 2023).

Balela (*Terminalia belerica* Roxb.)

Balela is a fruit of a large deciduous, perennial tree, *Terminalia belerica* Roxb. with a height of about 10-12 m or more belonging to the family Combretaceae. This tree is native of many countries like India, Pakistan, Nepal, Bangladesh, Sri Lanka, China, Bhutan, Vietnam, Thailand, Malaysia and Cambodia. It is frequently found in Punjab, Maharashtra, Uttar Pradesh, and Madhya Pradesh in India and commonly occurs in plains and forests up to the elevation of 900 m (Kumari *et al*, 2017; Anonymous 2007).

Part Used: Fruit (Anonymous, 2007; Saffiuddin, 1979).

Temperament: Cold (1-degree) and Dry (2-degree) (Abdul Hakeem, 2002; Khan, 2012).

In Unani Literature, **Balela** is characterised as Muqawwi-e-Dimag (Tonic for Brain), Muqawwi-e-Hafiza (Memory Enhancer), Muqawwi-e-Basar (Eye Tonic), Muqawwi-e-Aasab (Nervine Tonic), Muqawwi-e-Meda (Stomachic), Mushil (Purgative), Qabiz (Astringent), Muhalil (Anti-inflammatory) (Kabiruddin, 2000; Khan, 2012; Saffiuddin Ali, 1979).

Therapeutic Uses: It is effective in Weakness of Brain, Headache, Migraine, Paralysis, Facial Paralysis, Diarrhoea, Dysentery, Asthma, Cough, Conjunctivitis, Eyesight Weakness, Bleeding Piles, Haemoptysis (Abdul Hakeem, 2002; Saffiuddin, 1979; Khan, 2012).

Dose: 5 to 7 g (Anonymous, 2007).

Pharmacological studies: Antioxidant Effect (Hazra *et al*., 2010); Immunomodulatory Effect (Manjunatha *et al*., 2011); Neuroprotective Effect (Reddy *et al*., 2020).

Keora (*Pandanus odoratissimus* L.)

The male flowers of a dioecious plant with many branches are mature, ripe, and dry spadices. of *Pandanus odoratissimus* L. belonging to the family Pandanaceae found along the coasts of Indian and Andamans (Anonymous, 2007; Anonymous, 2006; Anonymous, 1966).

Part Used: Spadix (flower) (Anonymous, 2007; Anonymous, 2006).

Temperament: Hot and Dry (2-degree), Cold and Dry, Cold and Wet (Ghani, 2011; Nabi, 2007; Anonymous, 2007).

In Unani Literature, **Keora** is characterised as Muqawwi-e-Dimag (Tonic for Brain), Exhilarant (Mufarreh), Muqawwi-e-Qalb (Cardiac tonic), Muqawwi-e-Aam (General Tonic), Muqawwi-e-Aza-e-Raeesa (Vital organs Tonic), Muhalil (Anti-inflammatory), Musakkin-e-Alam (Analgesic), Muqawwi Basar (Eye Tonic), Mussafi-e-Dam (Blood Purifier) (Ghani, 2011; Nabi, 2007; Anonymous, 2006).

Therapeutic Uses: It is effective in Weakness of Brain, Weakness of Heart, Giddiness, Palpitations, Wound healing, Relieves pain of various parts of body like Arthralgia, Earache, Back ache, Leprosy, Small pox, Measles. Eyesight weakness (Ghani, 2011; Nabi, 2007; Anonymous, 2006).

Dose: Arq- 4-6 Tola (48-72 mL).

Sharbat - 2-4 Tola (24-48 mL) (Anonymous, 2006; Abdul Hakeem, 2002).

Pharmacological studies: Antioxidant Effect (Hossain *et al*., 2020); Neuroprotective Effect (Sitepu *et al*., 2015); Anti-Inflammatory Effect (Adkar & Bhakar, 2014**).**

Samandar Sokh (*Argyreia nervosa* (Burm.f.) Bojer)

These are the seeds of a climbing shrub, *Argyreia nervosa* (Burm.f.) Bojer member of the Convolvulaceae family having woody and tomentose stem. Native to the Indian subcontinent and often cultivated all over India up to about 900ft height but often not cultivated in dry and western parts of India and occurs worldwide, including Hawaii, Africa, Deccan and the Caribbean (Padhi *et al*., 2013; Ashutosh *et al*., 2011; Kabiruddin, 2000).

Part used: Seeds, Leaves, Roots (Abdul Hakeem, 2002; Ghani, 2011).

Temperament: Hot and Dry, Cold(1-degree) and Wet (1-degree) (Ghani, 2011; Kabiruddin, 2000).

In Unani Literature, **Samandar Sokh** is characterised as Muqawwi-e-Dimag (Tonic for Brain), (Muqawwi-e-Aasab) Nervine Tonic, Muqawwi-e-Baah (Aphrodisiac), Moalid-e-Mani (Semen Procreative), Qabiz (Astringent), Muhalil (Anti-inflammatory), Munzij (Concoctive) (Khan, 2014; Nabi, 2007).

Therapeutic Uses: It is effective in Weakness of brain, Burning micturition, Gonorrhoea, Wounds, Boils (externally), Fluidity of semen, Spermatorrhoea, Premature Ejaculation, Sexual Debility, Scarcity of semen, Arthritis (Khan, 2014; Nabi, 2007).

Doses: 3-5 g (Anonymous, 2013; Lubhaya, 1977).

Pharmacological studies: Antioxidant Effect (Habbu *et al*., 2008); Immunomodulatory Effect (Gokhale *et al*., 2003); Anti-Inflammatory Effect (Jeet & Thakur, 2012).

Badam Sheerin (*Prunus amygdalus* Batsch. Var. dulces)

Prunus amygdalus Batsch. Var. dulces seeds are endemic to the Middle East and South Asia. The tree is a member of the Rosaceae family. After millennia of cultivation in Greece and China, it is now primarily grown in California and the Mediterranean region. Almonds are mostly grown in Kashmir, in India, and are thought to be one of the principal crops in this area (Shamsi *et al*., 2019).

Part used: Seeds and Seed oil (Anonymous, 1987; Ghani, 2011).

Temperament: Hot (1-degree) and Moist (1-degree) (Anonymous, 1987; Anonymous, 2007).

In Unani Literature, **Badam Sheerin** is characterised as Muqawwi-e-Dimag (Tonic for Brain), (Muqawwi-e-Hafiza) Memory Enhancer, Murattib-e- Dimag (Humidative), Muqawwi-e-Aza-e-Raeesa (Vital organs Tonic), Muqawwi-e-Basar (Eye Tonic), Muqawwi-e-Baah (Aphrodisiac), Mulayyan (Laxative), Musammin-e-Badan (Adipogenous), Jali (Detergent) (Ghani N, 2011; Saffiuddin, 1979).

Therapeutic Uses: It is effective in Weakness of Brain, Amnesia, Dryness of Brain, Eyesight weakness, Fluidity of semen, Body Weakness, Wet cough, Dyspnoea, Hoarseness of voice, constipation (Abdul Hakeem, 2002; Ghani, 2011).

Doses: 7-11 Kernels (Anonymous, 2007; Kabiruddin, 2000).

Pharmacological studies: Antioxidant Effect (Safarian *et al*., 2016); Memory Enhancing activity (Kulkarni *et al*., 2010); Immunomodulatory Effect (Arena *et al*., 2010); Neuroprotective Effect (Bhatia *et al*., 2017); Anti-Inflammatory Effect (Bhatia *et al*., 2022).

Sumbul-Ut-Teeb (*Nardostachys jatamansi* DC)

Sumbul-Ut-teeb (*N. Jatamansi* DC) is perennial herb, whose rhizome and roots are mainly used as drug. The perennial plant sumbul-ut-teeb (*N. Jatamansi* DC) is mostly utilized as a medicine for its rhizome and roots. It is indigenous to Nepal's upper Himalayan peaks, although it is also found in Bhutan, Sikkim and Punjab. This herb is mostly found growing between altitudes of 3000-6000 m (Bhat & Malik, 2017; Anonymous, 2012).

Part used: Rhizome (Anonymous, 2012; Ghani, 2011).

Temperament: Hot (1or 2-degree) and Dry (2-degree) (Abdul Hakeem, 2002; Kabiruddin, 2000).

In Unani Literature, **Sumbul-Ut-Teeb** is characterised as Muqawwi-e-Dimag (Tonic for Brain), Muqawwi-e-Qalb (Cardiac tonic), Jali (Detergent), Muhalil (Anti-inflammatory), Musakkin (Sedative), Mudir-e-Baul (Diuretic), Kasir Rhia (Carminative) (Anonymous, 2007; Khan, 2014; Lubhaya, 1977).

Therapeutic Uses: It is effective in Weakness of Brain, Headache, Epilepsy, Hysteria, Palpitation, weakness of Heart, Tremors, Retention of urine, Amenorrhoea, Metritis, Cystitis (Anonymous, 2007; Khan, 2014; Lubhaya, 1977).

Dose: 3-5 g (Kabiruddin, 2000; Saffiuddin, 1979).

Pharmacological studies: Antioxidant Effect (Lyle *et al*., 2009); Neuroprotective Effect (Khan *et al*., 2012); Anti-Inflammatory Effect (Kim *et al*., 2021); Memory enhancing activity (Joshi & Parle *et al*., 2006).

Baladur (*Semecarpus anacardium* Linn.)

It is the mature fruit of *Semecarpus anacardium* Linn., a moderate sized deciduous tree belonging to the family Anacardiaceae found up to a height of about 12-15 m in the outer Himalayas from Sutlej to Sikkim and commonly occurs throughout the hotter parts of India and in moist deciduous forests all over the country (Anonymous, 2011; Anonymous, 1972).

Part used: Fruit, Fruit Juice, Root (Anonymous, 1997; Kabiruddin, 2000).

Temperament: Hot and Dry (Saffiuddin, 1979; Kabiruddin, 2000).

In Unani Literature, **Baladur** is described as Muqawwi-e-Dimag (Tonic for Brain), Muqawwi-e-Baah (Aphrodisiac), Muqawwi-e-Aasab (Nervine Tonic), Muqawwi-e-Zahn wa Hafiza (Memory Enhancer), Muqawwi-e-Qalb (Cardiac Tonic), Daf-e-Amraz-e-Balghami (Phlegmatic), Muhalil (Anti-inflammatory) (Anonymous, 2007; Anonymous, 1997; Hakeem, 2002; Saffiuddin, 1979).

Therapeutic Uses: It is effective in Weakness of brain, Weakness of nerves, Amnesia, Paralysis, Bell's Palsy, weakness of Heart, Palpitation, Arthritis, Cold and Cough, Sexual Debility (Anonymous, 2007; Anonymous, 1997; Hakeem, 2002; Saffiuddin, 1979).

Dose: 125 mg (Anonymous, 2007).

Pharmacological studies: Antioxidant Effect (Ali *et al*., 2015); Neuroprotective Effect (Al Mughairbi *et al*., 2021); Immunomodulatory Effect (Singh *et al*., 2006); Memory enhancing activity (Watgure *et al*., 2020); Anti-inflammatory activity (Bhitre *et al*., 2008).

DISCUSSION

Now-a-days people are more and more inclining towards herbal drugs as they are cost effective and with least side effects (Zahiruddin *et al*., 2020). The long-term therapy of Morden drugs and then their sudden discontinuation may lead to serious withdrawal symptoms and problems. Therefore, now people in modern culture are therefore increasingly becoming aware of traditional herbal remedies, especially those that have been shown in controlled trials to be beneficial and, in certain situations, to have even superior pharmacological qualities than other medications (Weiss and Fintelmann, 2000).

Unani herbal medicines have been thoroughly researched for a variety of illnesses, including psychiatric and neurological conditions, with encouraging outcomes and no negative side effects. In Unani system of medicine, the concept of tonics (Muqawiyat) is unique feature. Such drugs are used to tone up the important organs and fortify them to protect against potentially hazardous agents. A large number of herbal drugs are described as Muqawwi-e-Dimag (Brain Tonic) in Unani system of medicine (Siddiqui *et al*., 2020). Brain is the vital organ of human body and is often adversely affected by a variety of toxins and disease-causing agents which damage the brain and its processes and also weakens our immune system which led to complications (Nikhat & Fazil., 2023).

In this article attempt has been made to review some of the herbal drugs that can be used as Brain Tonic (Muqawwi-e-Dimag) mentioned in the literatures of Unani system of medicine that can have an adjuvant role in the maintenance of Brain health. Unani herbal drugs as brain tonics can be understood in light of current discoveries as having Antioxidant, Neuroprotective, Anti-inflammatory, Immunomodulatory, Memory enhancing properties. When screened according to the modern parameters, number of Unani herbs which are reviewed in this paper showed significant neuroprotective, antioxidant, immunomodulatory, anti-inflammatory, memory enhancing activities, which can provide a scientific reason and possible mechanisms by which action of these Unani herbal drugs as brain tonics can be interpreted with modern aspects. Since anomalies in mitochondrial homeostasis, disruptions in metabolic and inflammatory process and oxidative stress are thought to play a significant role in the pathophysiology of many diseases and thus in turn affects and weakens the vital organs of our body. These Unani herbal drugs as brain tonic can have a beneficial role in strengthening and toning up the Brain through a variety of actions including protection against oxidative stress, mitochondrial malfunction, inflammation, and immunological dysregulation, as well as immunomodulatory, anti-inflammatory, and cognitive and memory-enhancing properties (Shamsi *et al*., 2019; Fahamiya *et al*., 2018).

As the population ages, the burden of neurological and neurodegenerative disorders the prevalence of neurological and neurodegenerative illnesses rises with age in the population. like Alzheimer's Diseases, Parkinsons diseases etc. and also the challenges for the preservation of brain health increases. Maintaining brain health is becoming more difficult. These herbal drugs as Brain Tonics can be used which can improve and maintain the mental health and prevent from these diseases when used regularly over a long period of time. When utilized consistently for an extended duration (Wang *et al*., 2020).

CONCLUSION

Because the ultimate goal in seeking health and longevity is to keep a healthy brain throughout one's life. There are special study prospects in the realm of medicinal plants that are CNS active which have been proven with the best results in many neurological and related disorders. To evaluate brain health, comprehend the mechanisms behind brain function and dysfunction, and investigate practical strategies for promoting brain health, further research is necessary. There is a need to explore and carry out more research in this field, their usage in products such as supplements, pharmaceuticals and nutraceuticals after their successful recovery and purification. Furthermore, an endeavour should be made to combine contemporary conventional techniques with the traditional understanding of traditional medicinal systems like Unani.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATIONS

CNS: Central Nervous System; **PTSD:** Post Traumatic Stress Disorder.

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