

## Traditional Unani Plant-Based Therapies for Menopausal Symptoms in Women

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### ABSTRACT

Menopause is a physiological phase experienced by all women as part of normal aging known as menopause. Per se, menopause is not a disease, but hormonal imbalance may lead to menopausal symptoms in some women. The unani physician described that in *Sinn-i-Inhiṭāṭ/ Sinn al-Yās, Burūdat* (coldness) increases lead to *Ihtibās al-Tamth* (amenorrhea) that can occur naturally. Besides, *Khilt Dam* (blood) production decreases from the liver, slight production occurs, tends towards *Burūdat*. Therefore, at this age, *Ihtibās al-Tamth* is associated with *Alāmāt Sinn al-Yās* (menopausal symptoms) including weight gain, loss of appetite, hirsutism, fatigue, headache, backache, arthralgia, neck pain, general myalgia, nervousness, anxiety, depression, and insomnia. The traditional Unani manuscripts are enriched with knowledge for the management of *Alāmāt Sinn al-Yās*. Consequently, an extensive exploration of classical texts concerning the management of *Alāmāt Sinn al-Yās* was undertaken. Moreover, PubMed, Scopus, Google Scholar, and other indexing databases were thoroughly explored for evidence-based approaches to managing menopausal symptoms. The principle management as per Unani texts is to treat the cause of *Alāmāt Sinn al-Yās*. Unani medicines with emmenagogue, anti-inflammatory, analgesic, cardioprotective, and neuroprotective properties are beneficial for the amelioration of *Alāmāt Sinn al-Yās*. Unani Herbs such as *Asgandh, Aslusūs, Khārkhāsak, Tagar, Shuneez, Ustukhuddus, Zafran, and Májūn Najāh* possess properties and are proven scientifically for their efficacy in *Alāmāt Sinn al-Yās*. Hence, the substantiation and preservation of traditional knowledge assume paramount importance in facilitating prospective research and proving invaluable in the modern era. Moreover, the conduct of randomized controlled trials, systematic reviews, and meta-analyses becomes imperative.

**Key words:** *Alāmāt Sinn al-Yās*; Anti-inflammatory; Anti-spasmodic; Menopausal symptoms; *Mizaj; Ihtibās al-Tamth; Sinn-i-Inhiṭāṭ*

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## INTRODUCTION

In recent years, menopause has turned out to be an important issue.<sup>1</sup> Menopause is a natural physiological phase encountered by women universally, constituting an intrinsic component of the ageing process, commonly referred to as menopause. Women's life expectancy has increased and they spend more than one-third of their life after menopause<sup>2</sup> due to an improvement in nutrition and living conditions.<sup>1</sup> Per se, menopause is not a disease but hormonal imbalance may lead to menopausal symptoms in some women.<sup>3,4</sup> It is defined as the permanent cessation of menstruation for one or more than a year because of the loss of ovarian follicular activity.<sup>4,5</sup> The average age of menopause is between 42 and 55 years with an average age of onset of 51 years.<sup>6,7</sup> According to reports, nearly 80% of women in Western countries and over 60% of Chinese women are reported to experience menopausal issues. Consequently, increased focus and attention should be directed towards addressing peri- and post-menopausal symptoms, as they can significantly impact an individual's well-being and performance both within their homes and in professional settings.<sup>2</sup>

Unani physicians mentioned the average for menopause is between 40 to 60 years.<sup>8</sup> *Şin al-Kahulah/Sinn-i-Inḥiṭāt* (late adulthood) is a period between 40 and 60 years of age when the *Mizāj* is *Bārid* (cold) and *Yābis* (dry) and dynamic changes are seen in reproductive and non-productive tissues. Hence, *Rutubat al-Gharīziyya* production decreases and is insufficient to maintain *Ḥarārat al-Gharīziyya* (innate heat), as a result, the *Quwa* (power) starts weakening.<sup>9</sup> Unani physician described that in *Sinn-i-Inḥiṭāt/Sinn al-Yās*, *Mizāj* changes towards *Burūdat* (coldness) that leads to *Ihtibās al-Tamth* (amenorrhea) that can

occur naturally. Additionally, *Khilt Dam* (blood) production decreases from the liver, whatsoever little is produced, tends towards coldness.<sup>10</sup> This leads to clinical manifestations associated with *Ihtibās al-Tamth* such as headache, general myalgia, anxiety, fatigue, depression, weight gain, hirsutism, backache, neck pain, loss of appetite, arthralgia, nervousness, and insomnia.<sup>11,12</sup> Unani scholars surmised that *Musharikat al-Raḥim* (involvement of the uterus) with other organs of the body causes these symptoms. *Bukhārat* from the *Urq al-Raḥim* passes via the blood to the other organs of the body including the head, brain, heart, stomach, musculoskeletal, etc causing symptoms.<sup>13</sup>

At the onset of menopause, women encounter a range of physical, emotional, and urogenital symptoms that exert a substantial influence on their daily routines, personal relationships, career pursuits, and social engagements.<sup>1</sup> Clinical manifestations of the menopausal syndrome include uterine bleeding, somatic symptoms, vasomotor episodes, urogenital problems, sleep disturbance and mood disorders, skin formication, and sexual dysfunction.<sup>14,15</sup> Many other symptoms and conditions including palpitations, forgetfulness, restless legs, muscle and joint pains, depressive mood, osteoporosis, and dyslipidemia are also associated with it.<sup>16</sup> Menopausal women are also at relatively high risk for memory loss, hypertension and diabetes.<sup>17</sup> Hence, the menopausal syndrome has an impact on women's quality of life.<sup>15,18</sup>

The cause of menopausal symptoms is an oestrogen deficiency.<sup>2</sup> The standard and effective treatment is long-term hormone replacement therapy (HRT).<sup>15,17</sup> Nevertheless, it is associated with an increased risk of carcinoma breast, ovarian cancer, endometrial

hyperplasia stroke,<sup>9,10</sup> gall stones and venous thromboembolism.<sup>17</sup> Heart and estrogen/progestin replacement study (HERS), also established an increased risk of cardiovascular disease (CVD) and breast malignancy amongst women randomized to hormone therapy.<sup>2</sup> Additionally, significant proportions of menopausal women are unwilling to use hormone therapy or have contraindications. As a result, there is a growing interest among patients and physicians alike in exploring novel options for managing menopausal symptoms.<sup>2</sup> This includes an inclination towards complementary therapies that incorporate the use of natural products, which offer favourable efficacy and minimal side effects.<sup>15</sup>

According to a survey, it was found that 22% of women sought alternative therapies for addressing menopausal symptoms and stress management. These alternative approaches encompassed non-prescription remedies, chiropractic and naturopathic care, massage therapy, dietary soy, herbal remedies, and acupuncture.<sup>19</sup> Certain naturally occurring plant-based compounds have shown to have some beneficial effects in relieving menopausal symptoms similar to HRT but without appreciable adverse effects.<sup>17</sup> Studies have observed the potential benefits of flavonoids/isoflavones, structurally similar to oestrogen as they exert oestrogenic activity in human tissue. Flavonoids/Isoflavones are assumed to protect against chronic diseases such as breast cancer, osteoporosis, and cardiovascular disease.<sup>20</sup>

The principle management as per Unani texts is to treat the cause of *Alāmāt Sinn al-Yās* such as abnormal temperament, menstrual irregularities/uterine diseases, and psychological and environmental factors. Unani Herbs such as *Asgandh*, *Aslusūs*,

*Khārkhāsak*, *Tagar*, *Shuneez*, *Ustukhuddus*, *Zafran*, and *Mājūn Najāh* proven scientifically for their efficacy in *Alāmāt Sinn al-Yās*. These plant products have emmenagogue, cardioprotective, anti-inflammatory, analgesic, and neuroprotective properties hence, beneficial for the amelioration of *Alāmāt Sinn al-Yās*. Hence, this literature review aimed to explore and scrutinize the theory and Management of *Alāmāt Sinn al-Yās* in Unani medicine.

### Material and Methods

The scrupulous traditional Unani texts were explored to understand the concept of menopause and its management. The Unani texts referred were Ṭabarī, Abū al- Ḥasan Raban, *Firdaws al-Ḥikma fi'l Ṭibb* (Paradise of Wisdom), Rāzī, Abū Bakr Muḥammad ibn Zakariyyā's *Kitāb al-Hāwī fi'l Ṭibb* (Continens Liber), Ibn Sīnā, Ḥusayn ibn 'Abdullāh, 's *Al-Qānūn fi'l Ṭibb* (Canon of Medicine), *Kitāb al-Manṣūrī* (Liber al mansoris), Jurjānī, Sayyid Ismā'īl's *Dhakhīra Khwarizm Shāhī*, Majūsī, 'Alī ibn 'Abbās's *Kitāb Kāmil aṣ-Ṣinā'a aṭ-Ṭibbiyya* (Liber Regius/Complete Book of the Medical Art), *Tibb-i-Akbar*, *Kitāb al-Mukhtārāt fi'l Ṭibb*, *Rumūz-i-A'zam*, *Jamia al-Hikmat*, *Iksīr-i-A'zam* and Ibn Rushd's *Kitāb al-Kulliyāt*. Besides, scientific databases (Google Scholars, Science Direct, Scopus, Web of Science, etc), and grey literature including dissertations were retrieved to explore the role of Unani medicine in *Alāmāt Sinn al-Yās*. The keywords included "management of menopausal symptoms", "menopause", "menopause and risk factors", "CAMs and menopause", "overview on menopause", "complementary and alternative medicine in menopause", and Unani drugs useful in menopause, systematic review, and menopause. All published, and unpublished articles and textbooks were thoroughly

assessed without any language or time restrictions. Some of the renowned Unani texts such as The inclusion criteria were the above terms and full-length free accessible articles and abstracts were excluded.

### **Interference and Discussion**

**Perimenopause, menopausal transition, and menopause:** The correct terminology for older terms perimenopause or climacteric is menopausal transition. WHO includes only the portion of perimenopause before the final menstrual period in the menopausal transition. The WHO urges that the term “climacteric” not be used to avoid confusion. Perimenopause means “*about or around the menopause’ begins at the same time as the menopausal transition and ends one year after the FMP*”<sup>2</sup> or in other words it is that period immediately before menopause when endocrinological, biological and clinical features of approaching menopause commence.<sup>21</sup> Perimenopause causes symptoms of estrogen deficiency, oligomenorrhea or dysfunctional uterine bleeding, and elevated gonadotropins. The term menopause “*refers to a point in time that follows 1 year after the cessation of menstruation*”.<sup>22</sup> WHO defines menopause as the “final menstrual period” retrospectively defined as 1 year without flow.

**Historical background:** Most of the early medical writings focused on the onset and mean age of menopause perhaps due to the related sexual and sub-fertile inconvenience. During the period of Ancient history spanning from 3600 BCE to 500 CE, the onset of menopause in women may have been perceived as the beginning of female aging within ancient Egyptian society. This perception was predominantly rooted in the societal belief that the primary role of women during that time was childbearing, along with

engaging in various menial tasks. This understanding was further solidified during the Middle Ages. Notably, during the reign of Rameses II, it was widely recognized that postmenopausal women were no longer fertile. There is an indication in the medical papyrus called Ebers, which contains a passage referring to a woman who experienced amenorrhea for an extended period. Alongside the absence of menstruation, she also suffered from a burning sensation in her stomach, which could only be alleviated through vomiting. This particular case may have garnered medical attention initially due to the elderly woman being suspected of being pregnant and subsequently developing hyperemesis gravidarum. However, upon realizing the inexplicable absence of pregnancy, the diagnosis documented in the Ebers papyrus concluded that the woman had been bewitched. This account possibly represents one of the earliest literary references connecting witchcraft and menopause, a connection that was responded to in a rather unsympathetic manner, as evidenced by the remark that Hattusili III's sister, at the age of sixty, was considered beyond any hope.<sup>23</sup>

Menopause was well-known as early as the 4<sup>th</sup> century B.C. by the ancient Greeks. Aristotle (384–322 BC) specified that menopause's mean age was approximately 50 years. In his work, ‘*Historium Animalum*’, Aristotle writes about menopause, “*As for their end, the menstrual discharges cease in most women about their fortieth year; but with those in whom it goes on longer it lasts even to the fiftieth year, and women of that age have been known to bear children. But beyond that age there is no case on record*”. Aristotle also refers to symptoms of the climacteric, “*with this qualification that there is a lack of fertility at the commencement of these symptoms, and*

again towards their close when the emissions become scanty and weak".<sup>23</sup> Aetius of Amida (6<sup>th</sup> century) documented that menstruation ceases somewhere between 35 and 50 years.<sup>24</sup>

In Post classical era (500CE-1500CE), Pliny the Elder (23-79AD) of Rome and Soranus (1st/2nd century AD), the Greek gynaecologist from Ephesus confirms the age of menopause in women. The latter commented that "...it finally comes to an end, usually not earlier than forty, nor later than fifty years. Now again "usually" has been added, for in some women menstruation continues till sixty". There is a reference to menopause in the Bible.<sup>24</sup>

Ibn Sīnā (980-1030 AD) stated that menopause occurs sometimes early at the age of 35 and often between 40-50 years. He said that amenorrhea may lead to complications such as indigestion, fatigue, hysteria, loss of appetite, insomnia, frequency of micturition etc.<sup>8</sup> Al-Jurjānī and Al-Baghdādī (1117-1213AD) mentioned permanent *Ihtibās al-Tamth* occurs between 35-60 years of age.<sup>10,13</sup> Majūsī (930-994AD) also stated that permanent *Ihtibās al-Tamth* occurs between the age of 24-60 years.<sup>25</sup> Rāzī stated that permanent *Ihtibās al-Tamth* occurs at the age of 40-60 years.<sup>12</sup> *Jālīnūs* (131-201 AD) advised phlebotomy to allow any retained poisons to be released. In the sixteenth century treatment with purgatives and application of leeches were common.<sup>24</sup>

In the 6th A.D., the Greek Byzantine Physician, Paulus Aegineta stated "*The menses cease about the fiftieth year of age, a few have them until sixty, and with some begins to disappear about thirty-five, particularly with such as are fat*".<sup>23</sup>

In the Contemporary period (1914-present), menopausal symptoms have also been known for a long time, but it was not until

the 1930s that climacteric symptoms might be effectively treated with oestrogen isolated from the urine of pregnant women. However, treatment was not very widespread until after the publication of Robert A Wilson's best-selling book '*Feminine Forever*',<sup>24</sup> after which treatment became more popular among physicians and women. When investigating the fetal ovary Bloch (1953) discovered that the number of follicles decline from the 20<sup>th</sup> week of gestation onwards.

The possible danger of hormone replacement therapy was highlighted by Smith et al. (1975) who reported an association between the use of cyclic estrogen therapy and endometrial cancer.<sup>24</sup>

### Unani perspectives on menopausal symptoms

**Hayd (Menstruation):** Within the classical texts of Unani medicine, scholars have provided commentary on the concepts of *Tabī'ī* and *Ghayr Tabī'ī-Hayd*. *Tabī'ī-Hayd*, also known as *Mu'tadil Hayd*, refers to a regular menstrual cycle occurring once every month in women. On the other hand, *Ghayr Tabī'ī-Hayd* describes a menstrual pattern where menstruation is observed at intervals of 15-17 days or even longer, surpassing two months. Menstruation in normal *Miqdār* (amount) and *Kaifiyat* (quality) indicates the normal health of women. According to Sabit bin Qurrah, the ideal age for the onset of menstruation falls within the range of 10-14 years, and it typically ceases between the ages of 35 and 60 years of age.<sup>26</sup> It is considered normal for a woman to menstruate for 2-7 days, and any menstruation lasting less than two days or exceeding seven days is considered abnormal. Majūsī observed that a regular menstrual cycle usually takes place at intervals ranging from 20 days to two months. If the

menstrual cycle extends beyond this timeframe, it may indicate a disease or be suggestive of an underlying condition. Baghdādī stated that a normal menstrual cycle occurs every 23 days; however, in some women, it can occur every two months without any associated illness.<sup>13</sup>

**Age of *Sinn-i-Inḥiṭāṭ*/ *Sinn al-Yās* (Menopause):** According to Ibn Sīnā, the *Inḥiṭāṭ al-Tamth* (cessation of menstruation) may occasionally occur at an early age, around 35 or between the ages of 40 and 50. He also mentioned that after the *Inḥiṭāṭ al-Tamth*, women begin to resemble men, and there may be a discharge of milk from the breasts, indicating the onset of *Sinn-i-Inḥiṭāṭ*.<sup>8</sup> Unani physicians have observed that the *Inḥiṭāṭ al-Tamth* typically takes place between the ages of 35 and 60 years<sup>10</sup>. Additionally, Majūsī noted that this transition occurs between the ages of 24 and 60 years.<sup>25</sup> Rāzī stated that menstruation ceases between the ages of 40 and 60 years.<sup>12</sup>

Ibn Sīnā states that menstruation cessation in women occurs at age *Sinn-i-Inḥiṭāṭ*.<sup>8</sup> To comprehend the physiology of *Sinn-i-Inḥiṭāṭ* the USM (Unani System of Medicine) outlines various stages of life. These stages are categorized into four phases: growing age, adulthood, age of decline, and elderly age, referred to as *Asnān Arba'a/A'mār Arba'a*. The classification is based on the quantity of *Rutūbat Gharīziyya* or *Rutūbat Ustuqussiyya* present in the body.<sup>27</sup>

***Sinn-i-Numū/Sinn-i-Ḥadāthat* (Growing age):** During the growing age phase, the body experiences continuous growth. In this stage of life, the quantity of *Rutūbat Gharīziyya* exceeds the quantity sufficient for the preservation of *Harārat Gharīziyya* (normal body heat) the amount necessary to maintain normal body heat, or it surpasses the requirements for various metabolic activities

within the body. The growing age phase is further divided into five distinct stages.

The first stage is *Sinn-i-Tufūlat* (infancy), which spans from birth to four years of age. The second stage is *Sinn-i-Sabā*, covering the age range from four to nine years. The third stage is *Sinn-i-Tara'ru'*, which encompasses the age group from nine to fourteen years (pre-adolescent phase). The fourth stage is *Sin-al-Ruhāq* or *Sinn-i-Bulūgh*, which marks the time when a boy or girl reaches sexual maturity, typically occurring between the ages of 19 to 21 years. The fifth stage is *Sinn-i-Fatā*, which represents the age range from twenty-five to thirty years. During this period of growth, both *Rutūbat Gharīziyya* and *Harārat Gharīziyya* (normal body heat) play dominant roles, and the *Mizāj* (temperament) of the body is characterized as *Hārṛ Raṭb* (warm and moist).<sup>27</sup>

***Sinn-i-Shabāb* or *Sinn-i-Wuqūf* (Adulthood):** At 30-40 years of age, the body is fully matured and stable and has the most appropriate moderate hot and dry temperament. At this age, *Rutūbat Gharīziyya* quantity is equal to the sufficient quantity for the preservation of *Harārat Gharīziyya* and maintenance of normal metabolism. In this period, neither any growth nor any dissolution or degeneration occurs in the organs.<sup>27</sup>

***Sinn-i-Kuhūlat/Sinn-i-Inḥiṭāṭ* (Age of decline):** The age range from forty to sixty years marks a significant transition. During this period, the innate heat in the body begins to decline, leading to a shift towards adopting a *Bārid* (cold) and *Yābis* (dry) *Mizāj* (temperament). The body loses its stability and initiates a process of deterioration. The quantity of *Rutūbat Gharīziyya* becomes lesser than what is required for preserving *Harārat Gharīziyya* or sustaining bodily metabolism. However, there is no dominance of *Rutūbat*

*Gharīziyya* or the presence of abnormal metabolic compounds. During this stage, the powers and faculties of the body start to deteriorate, but there is no marked dissolution. The *Mizāj* associated with this period is characterized as *Bārid* and *Yābis*.<sup>27</sup>

**Sinn-i-Shaykhūkhāt (Elderly age or geriatric age):** During this stage of life, which typically occurs after the age of sixty, there is a deficiency in the quantity of *Rutūbat Gharīziyya*. It is insufficient to preserve *Harārat Gharīziyya* and sustain the body's regular metabolism. Additionally, there is an abundance of *Rutūbat Gharība Ballah* (abnormal metabolic products) that dominate the system. This age is characterized by a noticeable deterioration in the powers and faculties of the body. Both *Rutūbat Gharīziyya* and *Harārat Gharīziyya* experience a significant reduction. There is an excessive presence of abnormal moisture in the body. The *Mizāj* of the body during this stage is predominantly *Bārid* and *Yābis*.<sup>8,27</sup>

**Mizāj al-Kuhūl and Mizāj al-Mashā'ikh (Temperament at old age):** The elderly individuals, particularly those in the age of *Kuhūl* exhibit a predominantly *Bārid* and *Yābis* *Mizāj*. However, their *Bārid* and *Yābis* qualities are relatively less pronounced compared to other age groups. As age advances, there is a gradual reduction in *Rutūbat* and *Harārat* (Basal metabolic rate). Recent investigations have also confirmed this phenomenon. Therefore, the *Mizāj* of *Kuhūl* and *Mashā'ikh* (old age) is described as cold and dry. Ibn Nafis noted an excess of *Rutūbat Gharība Ballah* (abnormal metabolic compounds) along with a dominance of abnormal moistness in *Mashā'ikh*.<sup>27</sup>

In the case of women, their *Mizāj* is comparatively colder than that of men. Unani physicians attributed the presence of fat to

*Rutūbat* (fluid), and since women tend to have higher fat content, fat produces softness and smoothness to the body their *Mizāj* is declared as *Ratb*.<sup>33</sup> However, during the age of 40-60 years, the *Mizāj* is characterized as *Bārid wa Yābis*.<sup>33</sup>

**Aetiopathogenesis, Alāmāt Sinn al-Yās (menopausal symptoms) and its management:** In conventional medicine, the menopausal transition refers to the period before normal menopause, characterized by the decline in ovarian function. This decline can result in symptoms such as oligomenorrhea, secondary amenorrhea, dysfunctional uterine bleeding, symptoms of estrogen deficiency, and elevated levels of gonadotropins. Post-menopause is a retrograde cessation of menses for one year. The commonest initial marker in the menopausal transition is menstrual irregularities. Nonetheless, in traditional Unani literature, direct menopause is not described but its clinical manifestations are mentioned in the complication of amenorrhoea (*Alāmāt Ihtibās al-Tamths/Hayd*). Therefore, to understand menopausal symptoms, it is essential to understand *Ihtibās al-Tamths* and its complication in this context.

According to Baghdādī, there is the accumulation of *Akhlāt* and *Fuzla* in the body as *Tahlīl* of *Akhlāt* is less, as women do lesser physical activity as well as vessels are also narrower than men. To maintain homeostasis as the process of *Tabayī Istifrāgh*, the body eliminates this *Fuzla* through *Hayd* (menstruation). Later, when *Ihtibās al-Tamth* (amenorrhoea) occurs, it leads to various ailments. Although, its main function is to provide nutrition to the foetus but part of this *Fuzla* which is not *Saleh* gets expelled. Upon the cessation of *Fuzla*, it returns to the vessels and mixes with the *Khūn* (blood).<sup>13</sup> As

mentioned earlier, Unani scholars have observed that the permanent cessation of menstruation may occasionally occur early, around the age of 35 or between 40-50 years. During this period, the *Mizāj* of the woman undergoes a greater shift towards *Burūdat*. The production of blood in the liver decreases, and whatever blood is produced tends to lean more towards coldness.<sup>8</sup> Therefore, *Ihtibās al-Ṭamth* at this age may include causes such as *Burūdat al-Rahim*, or *Ghalaba Burūdat* (dominance of coldness in the uterus), *Sudda Urūq al-Rahim* (obstruction in the uterus or its vessels), or increased viscosity of blood.<sup>8,12</sup> In *Ghalaba-i-Burūdat*, *Ghaliz Akhlāt* mixes with blood and leads to symptoms including weakness of the body, increased frequency of micturition, indigestion, etc.<sup>28</sup> Also, *Sū'-i-Mizāj Bārid* symptoms are also present. Moreover, the cause of *Ihtibās al-Ṭamth* is also *Du'f Quwwa-i-Dafiya* or *Quwwa al-Mummayyeza* or *Amrad al-Rahim*.<sup>26</sup>

In conventional medicine, the symptoms of menopausal transition are changes in menstrual patterns, vasomotor symptoms (hot flushes and sweating), sleep disturbances, psychological and mental disturbances, depression, irritability, mood swings, loss of concentration, poor memory, headache, dizziness, palpitations, joint aches and back pain, urinary incontinence, dry, itchy skin, and weight gain.

According to Unani scholars, *Ihtibās al-Ṭamth* can lead to various complications, referred to as *Awarizat*. These complications include distorted body figure, *Ikhtināq al-Rahim* (hysteria),<sup>13,29</sup> *Vehshat* (depression), irritability, anorexia,<sup>13,29</sup> increased thirst, *Duwār* (vertigo), *Sadr* (dizziness), weakening of the heart leading to *Khafaqān* (palpitation), *Suda* (headache), *Sar ka Bharipan* (heaviness of the head), increased pain, *Du'f-i-Mi'da*

(stomach weakness) resulting in indigestion,<sup>13,29</sup> anxiety, fatigue, heaviness of the body, dysuria (painful urination), increased frequency of micturition, and more. Occasionally, in cases of *Ihtibās al-Ṭamth*, women may experience facial and upper lip hair growth, which serves as an indication of reaching menopause.<sup>8,13</sup>

The other details of each symptom with its management are as follows.

***Kathrat al-'Araq (Excessive sweating):*** The cause of sweating is *Ṭabī'at Mudabbira*, which expels melted *Balgham* (phlegm) and *Ṣafrā* (yellow bile) towards the skin, resulting in the expulsion of *Bukhārat* in the form of sweat. When there is a weakness in the body's innate heat, known as *Du'f-i-Ḥarārat Gharīziyya*, it leads to the occurrence of *Al-'Araq al-Bārid* (cold sweating) as the body is unable to maintain its warmth. Another possible cause is when the *Mādda* is excessively cold, causing *Ḥarārat Gharīziyya* to be unable to generate sufficient warmth. In both of these conditions, *Al-'Araq al-Bārid* can occur.<sup>30</sup>

***Junūn / Waswās, Wahem, Mālankhūliyā (psychological symptoms):*** The patient experiences difficulty in maintaining concentration. This can be attributed to various factors, including *Mizāj-i-Sawdāwī*, feelings of sorrow, the onset of menopause (*Ihtibās al-Ṭamth*), excessive physical exertion, frequent or intense sexual activity, and consumption of salty and spicy foods. Clinical manifestations of this condition include a pale or darkened complexion, a dull appearance in the eyes, persistent worrying, and insomnia. The treatment is the application of *Roghan Kadu* and *Roghan Kahu* in equal quantity along with *Roghan Laboob Saba* on the head. *Dawa-Shifa* is a *Mujarrabat* of Hakim Ajmal Khan in this disease. *Fas'd Basiliq* is opened in *Mālankhūliyā Damawī* in *Qawi* patients with



age between 14-50 years. After *Fas'd* this *Nuskha* is advised for 3 days, *Khamira Gauzuban* 10 g with *Warq-i-Nuqra* followed by *Unnab* (5 in number), *Arq-i-Gauzuban* 120g and *Sharbat-i-Banafsha* 20g.<sup>29</sup>

**Nisyān (Forgetfulness or dementia):** *Nisyān* is a morbid state caused by derangement of the temperament of the brain or lack of focus due to a preoccupied mind. Impaired *Quwwa-i-Hāfīza*, *Quwwa-i-Fikr* and *Quwwa -i-Khyal* leads to *Nisyān*. Impairment in all three *Quwā* means the loss in their function. The causes are *Burūdat Sāda* or *Mufrad* or *Murakkab* or *Burūdat wa Ruṭūbat Sāda* or *Burūdat* or *Yubūsat -i- Sāda* or *Ḥarārat wa Yubūsat t-i-Sāda* or *Māddī Ṣafrāwī*, or *Ḥarārat wa Yubūsat*. *Nisyān Bārid Yābis* includes a morbid state characterized by the remembrance of past events and inability to remember current events, decreased sleep and dryness of mouth, nose and eyes. According to Rāzī excessive coitus, sleeping in the daytime, excessive awakening, and always in addiction are the causes of dementia. According to *Aflatoon*, *Kishneez Sabz* causes forgetfulness. Likewise, *Baranjasif*, *Badranjboya*, *Lobhia*, *Baqila*, and *onion* if eaten in excess also cause dementia. The treatment is similar for impairment in all *Quwā*. The preventive aspect is to avoid vomiting, coitus, anger and sorrow, cold water, garlic, onion, *Masoor*; milk, *Maghz-i-Narjeel*, *Maghz-i- Akhroot*, *Anjeer*, the meat of *Murgh* and *Teetar* increases the *Johar Dimāgh* and helps in forgetfulness. Eggs are extremely helpful in curing dementia, especially fish eggs. If *Mādda* is present, *Tanqiya'-i-Dimāgh* followed by *Muqawwī-i Dimāgh* is required. After *Tanqiya'-i-Dimāgh*, *Ma'jūn s* like *Majun Zabeeb*, *Ma'jūn Antaqi*, *Ma'jūn Safarjal*, *Ma'jūn Falasfa*, *Ma'jūn Vaj*, *Ma'jūn Jadwar Alvi Khan*, *Ma'jūn Hafizul Aqal*, *Mufarreh Abresham Alvi Khan*, *Itrefal Ustekhuddus*,

*Jawarish Shuneez*, *Safūf Hifz*, and *Sharbat Abresham* are beneficial.<sup>31</sup>

**Khafaqān (Palpitation):** *Khafaqān* refers to the sensation of a pounding or racing heart, felt in the chest, throat, or neck. The underlying causes of *Khafaqān* may originate from the heart itself, the pericardium, or the involvement of other organs such as the heart, stomach, liver, intestines, uterus, or flatulence. In some cases, *Du'f-al-Qalb* (heart weakness) can also contribute to *Khafaqān*. Additionally, the accumulation of *Khilṭ Ruṭūbat Balghamī* or *Mayi* around the heart (pericardium) can be a source of *Khafaqān*. Furthermore, *Sawdawi Bukharat* is also recognized as one of the causes of *Khafaqān*. The principle of treatment in *Khafaqān* is the removal of the cause. In *Sū'-i-Mizāj Sāda*, only *Tadeel* is sufficient for example in *Khafaqān Ḥārr Sāda* like *Mubarridāt* is beneficial. In *Khafaqān-i-Barid*, *Musakkin* are beneficial. In *Sū'-i-Mizāj Māddī*, *Tanqiya-i-Mādda* is required. To prevent *Khafaqān* and promote heart health, certain measures such as *Ghidhā'* (dietary considerations) and *Tadbīr* (lifestyle management) are necessary. It is recommended to consume easily digestible foods in smaller quantities and to avoid alcohol intake. Ibn Sīnā advised the use of *Gauzuban* 4.5 g at night for a few days. Geelani mentioned the use of *Mufarriḥ Yaqooti*, which is especially useful in *Khafaqān*.<sup>31</sup> *Fas'd* of the basilic vein is advocated when palpitation is associated with increased pulse followed by this *Nuskha*. *Tabasheer*, *Tukhm Khyar Shambar*, *Tukhm Khurfa*, *Tukhm Kasni*, *Kahus*, *Gul-i-Surkh* and *Sandal Safaid* (all the ingredients are taken in equal quantity). In 450 g of powder, 25g of *Kafoor* is added to make tablets. Daily 4-5 g is advised which is useful in *Khafaqān*.<sup>32</sup>

**Sahar (Insomnia):** *Sahar* is a morbid condition characterized by severe

sleeplessness, resulting in dryness of the body. *Sahar Yābis* refers to sleeplessness caused by the predominance of *Yubūsat*, either in terms of matter such as *Sawdā'* and *Şafrā'*, or in a simple form marked by dryness of the nose, heaviness of the head, mouth, and tongue, among other symptoms. The causes of *Sahar* can be attributed to various factors, including an excess of *Sāda* or *Sawdāwi* material, an imbalance of heat and simple matter in the body, the accumulation of excessive fluids in the brain, the presence of *Ḥummā Ḥādda*, the accumulation of abnormal humours in the body, feelings of sorrow, pain, depression, or anxiety, the presence of *Sawdāwi Waram* near the brain, a diet which gives that *Tehriq* to *Akhlāt*, and in the case of *Sinn-i-Inḥiṭāt* the *Bārid wa Yābis Mizāj* leading to an imbalance in *Yubūsat-i-Dimāgh* and causing *Sahar*. In old age, insomnia can be caused by *Boriqiya of Akhlāt* (brain dryness), sorrow, excessive exposure to sunlight during walks, excessive mental exertion, or walking in the sun during summers.

For *Sahar Yābis*, *Shīra Tukhm Khashkhash*, *Shīra Tukhm Kahu* with *Qand Safaid* is beneficial. *Sharbat Banafsha* or *Sharbat Khashkhash*, 30 g is advisable daily in the morning with lukewarm water. According to *Antaqi*, *Maul Shaer* with buffalo milk is also useful in *Sahar Yābis*. *Qurs Musallas* with *Aa'b Khishneez* in a paste, form can be applied over the head. All *Murattab* foods, the meat of *Burra* and *Buzgala* are useful in *Sahar*. *Kaddu*, *Shīra Khashkhash*, *Shīra Kahu* is also beneficial in relieving *Sahar Yābis*. Consuming goat milk and a dish made from boiled lentils like *Mash Feerni* can also provide relief. Additionally, after food digestion, taking a lukewarm water bath (*Hammam*) is effective for managing *Sahar Yābis*. If the underlying cause of *Yubūsat* is related to *Sawdā'* or *Şafrā'*, then the treatment

will depend on *Amrāḍ Dimāgh-i-Şafrāwī* or *Sawdāwi*. First *Tanqiya-i-Dimāgh* is done followed by *Tabrīd -i-Dimāgh*. Usually in old age, *Sahar* is because of *Boriqi Ruṭūbāt* then *Nudj* of *Mādda* with a decoction of *Badiyan*, *Beekh Badiyan*, *Aslusūs*, *Gauzuban*, *Tukhm Khatmi*, *Banafsha*, *Kasni* with *Gulkand* is useful. This is followed by *Tanqiya* with *Mushīl-i-Balgham* such as *Habb Ayarij wa Habb Shabyar*. In diet, the meat of *Chuza Murgh wa Bazgala*, *Kadu*, and bath with salty water is beneficial. Avoid spicy and salty food. If *Ḥarārat* is prominent in *Mizāj*, *Mushil-i-Şafrā'* and *Shrab Saliheen* is useful and if *Ḥarārat* is not prominent then Decoction of *Babunaa* is useful.<sup>31</sup>

**Du'f al-Bāh (Sexual dysfunction):** *Du'f al-Bāh* can be caused by various factors such as a deficiency of *Manī* or *Ḥidda al-Manī* due to overall bodily weakness or inadequate nutrition. It can also result from *Du'f A'dā' Ra'īsa wa Sharifa* weakness or dysfunction in the vital organs, including the heart, brain, liver, stomach, and kidneys. Other contributing factors may include prolonged abstinence from sexual activity, excessive accumulation of *Burūdat*, *Hararat* or *Yubūsat* and lack of mental preparedness before engaging in sexual intercourse.<sup>31</sup> Ibn Sīnā (1025 AD) in his treatise, *Al-Qānūn fi'l Ṭibb*, in the twentieth chapter discussed *Du'f-e-Bāh* and described libido, its disorders and treatments under the rubric of *Bāh*.<sup>8</sup>

Unani medicine believes in a holistic approach by following the principles which emphasize the elimination of cause through a nutritious diet, and drugs (internal & external), So the drugs with *Muwallid-i-Manī*, *Mughallizī-i-Manī*, *Mubhiū Mudirr-i-Bawl*, *Mudirr-i-Ḥayḍ*, *Muqawwī-i-Bāh*, *Muqawwī-i-Qalb*, *Muqawwī-i-Aş'āb*, *Musammin-i-Badan* properties are beneficial in the treatment of

sexual dysfunction.<sup>31</sup> Some herbs, such as *Rosa damascena*, *Crocus sativus*, *Trifolium pratense*, *Trigonella foenum-graecum*, *Elaeagnus angustifolia*, and *Ammi visnaga*, have been scientifically validated and clinically proven to be effective in treating female sexual dysfunction.<sup>33</sup>

**Waja 'al-Mafāṣil (Musculoskeletal discomfort, joint pain, etc):** According to Ibn Sīnā, the causes of *Waja 'al-Mafāṣil* include excessive coitus, a sedentary lifestyle with less physical activity and excessive relaxation, as well as involvement in addictive substances like alcohol. Normal *Istifrāgh* from the body also helps prevent *Waja 'al-Mafāṣil*, but if a person is accustomed to certain eliminations, such as *Inqīṭā 'al-Tamth*, it can lead to *Waja 'al-Mafāṣil*.<sup>31</sup> Additionally, *Ihtibās al-Ṭamth* (menopause) can also contribute to *Waja 'al-Mafāṣil*, as *Bukharat* from *Urūq al-Rahim* passes through the bloodstream and affects the musculoskeletal organs.<sup>13</sup>

### Management

Menopause as per requires no medical treatment. However, management mostly focus on reducing signs and symptoms and preventing or managing chronic disorders that may be seen with ageing. Treatments include lifestyle modification and dietary/ home remedies, conventional and alternative treatments. The lifestyle modification includes water-based vaginal lubricant or a silicone-based lubricant or moisturizer to decrease vaginal discomfort, adequate sleep, avoid caffeine/tea, avoid excessive alcohol and smoking, stress, hot weather, hot beverages, spicy foods, and even a warm room to avoid hot flashes. Massage, deep breathing, paced breathing, guided imagery, and progressive muscle relaxation may help women with menopausal symptoms. Diet includes fruits,

whole grain, and vegetables, limit oils, saturated fats, and sugars. Calcium or vitamin D supplements are essential to meet daily requirements. Regular physical activity or exercise protects against osteoporosis, heart disease, diabetes, and other conditions related to ageing.<sup>34</sup>

### Alternative Medicine

Recent verdicts showed that hormone therapy is linked to an increased risk of endometrial and breast cancers, have their side effects. So, both researchers and the public are frequently fascinated to herbal/plant based therapies as a safe alternative.<sup>4, 35</sup> Many methods have been endorsed as reliefs in managing the symptoms of menopause, but few of them have scientific evidence to back up the claims.

Some complementary and alternative treatments that have been or are being studied include acupuncture, exercises and yoga, hypnosis.<sup>34</sup>

### Plant-based therapies and phytoestrogens

The plant-based therapies embrace the oral use of phytoestrogens (dietary soy isoflavones and soy extracts), herbal remedies (sage, red clover, lavender, winter cherry, valerian, etc.) Unani, Chinese and other medicinal herbs.<sup>36,37</sup> Oscar et al (2016) conducted a systematic review and meta-analysis of intervention studies on plant-based therapies with menopausal symptoms.<sup>36</sup>

Certain foods and plant components contains phytoestrogens as a naturally occurring oestrogen, similar to oestrogen in function and structure. Phytoestrogens are classified into three types: isoflavones, lignans, and coumestan. Isoflavones have some estrogen-like properties. By attaching to oestrogen receptors, phytoestrogens influence biological responses in plants and mimic the effects of endogenous oestrogens.<sup>6, 34</sup> They

have oestrogenic as well as antiestrogenic characteristics. Phytoestrogens have steroid strengths ranging from 1/50 to 1/2000 of steroids, yet they have no endometrial-related side effects. Numerous studies have found that frequent consumption of phytoestrogens in Asian women's diets results in a reduction in menopausal symptoms, endometrial cancer, breast cancer, and an increase in bone mass when compared to other regions. By attaching to oestrogen receptors, phytoestrogens stimulate biological reactions in plants and imitate the effects of endogenous oestrogens.<sup>6</sup> A meta-analysis of 174 RCTs involving 9626 people found that phytoestrogens had a low risk of negative effects. Long-term (>5 years) use of soy phytoestrogens was connected to an increased risk of endometrial hyperplasia. A new meta-analysis, however, found a slight inverse link between endometrial cancer risk and higher consumption of legumes and isoflavone-derived dietary soy products.<sup>4</sup>

Botanical supplements can function through a variety of mechanisms, including oestrogenic, progestogenic, and/or serotonergic pathways. Botanicals with oestrogenic activity are thought to mimic the activities of oestrogens. Endogenous oestrogen (estradiol, E2) plays a dynamic role in uterine and mammary development, pregnancy maintenance, bone density maintenance, cardiovascular disease prevention, and menopausal symptom relief. Oestrogens primarily exert their biological effects by binding to oestrogen receptors (ERs) (ER and ER, followed by dimerization of ERs) and collaborating with oestrogen-responsive elements (EREs) at the promoters of oestrogen-responsive genes, thereby triggering transcription and generating oestrogenic responses, both of which are required for normal physiological functions. ERs can also

attach to other transcription factors like as Fos and Jun, which are directly bound to DNA via responsive elements such as activator protein-1 (AP1) binding sites to regulate transcription of associated genes. Oestrogen stimulates rapid signalling pathways as well, such as mitogen-activated protein kinases (MAPK).<sup>37</sup>

#### Evidence-based Studies

**Asgandh/ Winter Cherry (*Withania somnifera* Dunal):** In USM of *Withania somnifera* Dunal. is commonly known as *Asgandh* and stated in “Kitab-ul-Hashaish written by Dīsqūrīdūs (78 AD)”. The temperament of *Asgandh* is warm (*Harr*) and dry (*Yabis*).<sup>38</sup> It is a renowned Indian medicinal plant broadly having therapeutic use in various ailments in India.<sup>39</sup> *W. somnifera*'s a medicinal plant of the family *Solanaceae*.<sup>40</sup> Roots are collected from January to March, dried under shade for numerous days, cleaned, washed, and cut into short pieces.<sup>39</sup> The plant is traditionally in use to treat numerous diseases including cancer, arthritis, eyesores, fever, ulcer, asthma, hepatitis, diabetes, heart problems, and haemorrhoids. The plant is well-known for pain management, and muscle strengthening, attributed to the withanolide alkaloids. *W. somnifera* also contains bioactive molecules such as steroids, flavonoids, alkaloids, tannin, saponins, phenolics, steroidal lactones,  $\beta$ -sitosterol, somniferinine, withananine, withanolides, sitoindosides, and glycosides. Various pharmacological activities have been attributed to the bioactive molecules present in the plant, as evidenced by preclinical trials. These activities include antioxidant, neuroprotective, anti-depressant, analgesic, adaptogenic, cardioprotective, antifungal, anticancer, antibacterial, hepatoprotective, anti-inflammatory, and hypoglycemic effects. The presence of these bioactive molecules has been confirmed using chromatographic and

spectroscopic methods, which have identified the compounds  $\beta$ -sitosterol and d-glycoside.<sup>40</sup>

Clinical trials have proven that *W. somnifera* was effective in ameliorating menopausal symptoms. The Unani ethnomedicinal properties are *Muhallil*, *Muqawwi al-Rahim*, *Munawwim wa Musakkin A'sab*; *Moallide Mani*, and *Muqawwi al-Badan*. A single-blind RCT on 45 patients (2:1) where a six-gram powder of *Asgandh* twice daily was given in the intervention group. Wheat flour was administered in the placebo group for 12 weeks. A significant change in Hamilton's anxiety score, PSQIDURAT for insomnia, hot flashes and night sweats were noted between the group.<sup>41</sup>

**Shuneez/Black seeds/*Nigella sativa* Linn:** *N. sativa* Linn. (Family: Ranunculaceae) or *Kalonji* is cited in diverse ancient medical, historical, and religious literature. In the middle east, the common name is '*Habbat us Sauda*'. Black cumin is the popular name of this plant in English.<sup>42</sup> It is an elegant small, herb about 45 cm in height. Seeds flattened, oblong, angular, funnel-shaped, small, 0.2 cm long and 0.1 cm wide, black.<sup>43</sup> The temperament is Warm<sup>2</sup> & Dry<sup>2</sup>. The ethnomedicinal properties of *N. sativa* are *Mudirr-i-Bawl wa Hayd*, *Mukhrif -i-Janin*, *Muhallil al- Riyah*; *Muqawwi-i-Mida*; *Mulayyin*; *Mudirr-i-Labn Muqawwi-i- A'sab*; *Muhallil-i-Warm*; *Daf-i-Hummā*, and *Qatil-i-Jarasim*.<sup>38</sup> The seed of this plant is used in traditional medicine for back pain, paralysis, chest congestion, fever, inflammation, cough, dizziness, chronic headache, infertility, and other gastrointestinal disorders like dyspepsia, flatulence, diarrhoea, and dysentery.<sup>39</sup> In a recent experimental study conducted by Parhizkar et al, using an ovariectomized rat model, it was suggested that *N. sativa* exhibits estrogenic functions.

This finding indicates that *N. sativa* may offer potential benefits in managing menopausal symptoms.<sup>44</sup>

A single-blind RCT in 37 hyperlipidemic postmenopausal women reported that the *N. sativa* group significantly improved lipid profiles ( $p=0.05$ ) of menopausal women and there was a significant decrease in TC, LDL and TG, and a slight increase in HDL among menopausal women.<sup>45</sup>

**Tagar/ Valerian/*Valeriana officinalis* Linn:**

The word "valere," means nice and healthy, hence, "valerian" comes from. It is a root that has been used as an herb in Unani, and traditional health systems to treat a variety of illnesses, including anxiety, neural unilateral pain, migraines, and vertigo.<sup>46</sup> *V. officinalis* L belongs to the family Caprifoliaceae. It is a herbaceous perennial extensively scattered in temperate regions. The dried rhizome has numerous rootlets and one or more stolons.<sup>47,48</sup> Buqrat (Hippocrates) describes its therapeutic properties, and in the 2<sup>nd</sup> Century Jalinus (Galen) later prescribed it as a remedy for insomnia. The temperament is Warm<sup>2</sup> & Dry<sup>2</sup>. The ethnomedicinal properties of *V. officinalis* are *Mufatteh*, *Mudirr-i-Bawl-wa Hayd*, *Murakkeh-i-Bah*; *Muqawwi-i-Dimagh wa Mida wa Jigar*, and *Muhallil-i-warm*. It is beneficial for *Dimaghi Amraz* such as Nisyan.<sup>38</sup> Valerian possesses hypnotic, sedative, antispasmodic, anticonvulsant, antidepressant, antihypertensive, anti-dysmenorrhea, and anxiolytic activities. It contains bioactive molecules including flavonoids, valerenic acid, alkaloids, valepotriates, lignans, etc.<sup>47</sup> Valerian is recommended for alleviating menopausal symptoms, insomnia, and mental difficulties due to its phytoestrogen components. The available evidence strongly supports the beneficial effects of valerian in reducing hot flashes and other symptoms associated with

menopause.<sup>46</sup> Valerian extract 1,060 mg/day given for 8 weeks was able to improve sleep disorders in postmenopausal women.<sup>49</sup> They have both estrogenic and antiestrogenic properties. This phytoestrogen herb has volatile oils such as monoterpenes, sesquiterpenes, and valepotriates along with the by-products of their breakdown.<sup>46</sup>

In a triple-blind, RCT, the administration of valerian at a dose of 530 mg twice daily for 2 months resulted in a significant reduction in the severity and frequency of hot flashes in 60 postmenopausal Iranian women with no observed side effects, compared to placebo.<sup>50</sup> Another study, a randomized double-blind placebo control trial in 68 menopausal women with the chief complaint of hot flashes, advised 255 mg valerian capsules three times a day for 8 weeks in the valerian group (n=35), while the placebo group (n=33) was advised to take a placebo. The severity of hot flashes showed a statistically significant difference between pre- and post-treatment in the valerian group (p<0.001), while this difference was not significant in the placebo group.<sup>46</sup> Valerian is also recommended for menopausal symptoms, insomnia, and mental difficulties due to its phytoestrogen components, and the available evidence strongly supports its effects on hot flashes and other menopausal symptoms.

Valerian is a herb that contains volatile oils, including monoterpenes, sesquiterpenes, and valepotriates. It is classified as a phytoestrogenic herb, meaning it contains compounds that have estrogenic and antiestrogenic properties similar to natural estrogens found in the body. One of the mechanisms through which valerian exerts its effects is by increasing the levels of gamma-aminobutyric acid (GABA) in the synaptic cleft, which can lead to improved sleeping patterns. The calming effects of valerian are

likely attributed to its ability to increase GABA levels, which suppress reuptake, enhance neurotransmitter release, and influence glutamine levels in the plant extract.<sup>51</sup>

**Khar-e-Khask /Puncture vine/Tribulus terrestris** Linn: *Tribulus terrestris* (Zygophyllaceae family) is a plant with a long history of usage in traditional Unani medicine for a variety of illnesses, including menstrual irregularities, somatic, psychological, and urogenital symptoms. The Latin name. *Tribulus* originally meant the caltrop (a spiky weapon). *T. terrestris* is an annual shrub. It is well-known as *Gokharu* or *Gokshur* in southern India. *T. terrestris* grows up to 90 cm in length. The leaves are compound and opposite. The flowers are perfect and have five-fold symmetry. Some species are cultivated as ornamental plants in warm regions.<sup>52</sup> Each *T. terrestris* crocus contains several seeds with transverse barriers separating them. The temperament is Warm<sup>1</sup> and Dry<sup>1</sup>. The ethnomedicinal properties in USM are *Mudirr-i-Bawl-wa Hayd*, *Muqawwi-i-Bah*; *Muhallil-i-warm*; *Kasir-i-Riyah*; *Jali*, *Mundij*, and *Mulayyin*.<sup>53</sup> *Tribulus terrestris* contains various chemical components, including alkaloids, steroidal saponins, flavonoids, and flavonol glycosides, which possess medicinal value. This plant has been shown to exhibit a wide range of beneficial properties, such as immuno-modulatory, aphrodisiac, analgesic, diuretic, anti-inflammatory, antispasmodic, cardiotoxic, hypolipidemic, hepatoprotective, anti-cancer, and anti-bacterial effects.<sup>52</sup> One of the reasons *Tribulus* extract is believed to be useful in menopause treatment is its content of saponins (specifically diosgenin) and sterols (including beta-sitosterol and stigma sterol), which are considered phytoestrogens. These phytoestrogens metabolize in the body and

exert an estrogenic effect on the central nervous system, leading to the stimulation of estrus, as well as cell division and growth of the female genital tract in animals. It is hypothesized that the steroidal saponins present in Tribulus extract facilitate the conversion of androstenedione to oestrogen.<sup>54</sup>

A single-blind, RCT was conducted involving 60 perimenopausal women, with 30 participants assigned to each group. The intervention group received 3 grams of Tribulus powder, while the placebo group received a placebo, both administered twice daily for 8 weeks. Notably, a significant decrease in MRS (Menopause Rating Scale) total and composite subscale scores ( $P < 0.001$ ) was observed, indicating a reduction in menopausal transition symptoms. Importantly, no significant side effects were reported during the study. The data analysis revealed that Tribulus was more effective than the placebo in alleviating menopausal symptoms, as evidenced by a higher mean reduction in MRS scores in the Tribulus group compared to the placebo group (19.80 vs. 11.97). Specifically, the Tribulus group showed a greater reduction in somatic symptoms (8.23 vs. 4.72), psychological symptoms (6.63 vs. 4.47), and urogenital symptoms (4.93 vs. 2.73) after the intervention. Based on these findings, it can be concluded that Tribulus may offer a safe alternative to hormone replacement therapy for managing menopausal symptoms.<sup>54</sup>

**Aṣl al-Sūs /Liquorice/*Glycyrrhiza glabra***

**Linn:** *Glycyrrhiza* is a derivative of the ancient Greek term *glykos*, which means “sweet”, and *rhiza*, means “root”. *G. glabra* (family Leguminosae) is recognized as *Mulaithi* in north India and is known as liquorice and sweet wood. It is native to the Mediterranean and certain areas of Asia.<sup>55</sup> It is an herbaceous perennial shrub, that grows to 1 m

in height, leaves pinnate (7–15 cm long) and leaflets are 9–17 cm long. The main taproot is fibrous, soft, has a bright yellow interior and is harvested for medicinal use.<sup>56</sup> In Unani medicine, the temperament of the drug is Warm<sup>2</sup> and Dry<sup>1</sup>. The ethno medicinal properties are *Daf-i-Hummā*; *Muḥallil-i-Warm*, *Mulaṭṭif*, *Kasīr-i-Riyāḥ*, *Munaffith-i-Balgham*, *Jālī*, *Muqawwi-i-A’sab*, *Muddirr-i-ḥayḍ*, *Daf-i-Tawaḥhush*, *Mulayyin* and *Mudirr-i-Bawl*. It is useful in *Amrāḍ-i-Balghamiyā* (phlegmatic) and *Sawḍāwiā* (melancholic) such as *Tawaḥhush*, *Mālikholia*, *Fālij*, *Boḥat al Sawt Hād*, *Sar’*, *Khushunat-i Halaq*, *Qabūs*, *Laqwa*, *Warm-i Luhāt*, *Warm-i Sho’ba al-Riyā*, *Ḍīq al-Nafas*, *Sū’al-i Yābis*, etc.<sup>55</sup> *G. glabra* extracts are known for their diverse range of properties, including antimicrobial, antitussive, anti-inflammatory, antioxidant, antiulcer, anticancer, and more. These beneficial effects can be attributed to the presence of various bioactive components, such as glycyrrhetic acid, glabridin, glycyrrhizin, saponins, alkaloids, triterpenes, flavonoids, liquiritin, and others.<sup>56</sup> Of particular interest, glabridin and glabrene, found in *G. glabra*, possess estrogen-like activity. These compounds exhibit similar actions to estrogen.<sup>56</sup> Although *Aṣl al-Sūs* is a herb used to treat menopausal symptoms, nothing is known about its long-term consequences. Many studies found that *Glycyrrhiza* extracts, especially extracts rich in liquiritigenin, reduced hot flashes symptoms due to their estrogenic actions.<sup>57</sup>

A study observed oestrogenic activity for some fractions of an ethyl acetate extract of *G. glabra* in the yeast-based oestrogenic assays and demonstrated the ER-mediated oestrogenic effects. They also reported that glabrate-rich fractions of *G. glabra* extract were more oestrogenic with higher potency for ER $\alpha$  while glabridin had antiestrogenic

properties. They also reported the oestrogenic activity of glabrene and glabridin in vascular tissues and glabrene showed selective estrogen receptor modulating (SERM)-like potential.<sup>37</sup>

A double-blind placebo RCT was conducted involving two groups: the experimental group receiving 3 capsules daily containing 330 mg of liquorice extract, and the placebo group receiving 3 capsules daily containing 330 mg of starch. The trial spanned 8 weeks of intervention followed by a 4-week follow-up period. A total of ninety menopausal women experiencing hot flashes were selected and randomly assigned, with 45 patients in each group. The results showed a significant decrease in hot flashes in the experimental group compared to the placebo group. This reduction in hot flashes persisted for 2 weeks following the administration of the capsules.<sup>57</sup>

A four-arm RCT was conducted involving 120 menopausal women, with 30 participants in each group. Group 1 received 380 mg *Glycyrrhiza glabra* extract tablets three times daily for 4 weeks. Group 2 followed a regular exercise program. Group 3 received *G. glabra* tablets in addition to the exercise program, while Group 4 received a placebo. The study indicated the efficacy of *G. glabra* and exercise programs in controlling menopausal symptoms. Flavonoids present in *G. glabra* were suggested to play a role in blocking prostaglandin-induced vasodilation, thus potentially alleviating hot flashes (citation required).<sup>55, 58</sup>

#### ***Ustukhudoos/Lavander/Lavandula***

***officinalis* Linn:** *Lavandula officinalis* Linn. flower, (family: Lamiaceae) commonly known as lavender or common lavender is an evergreen perennial plant. This plant is known for its medicinal properties since ancient times. Dīsqūrīdūs and acclaims its medicinal properties. Essential oil from the flower is

extracted and used in complementary medicine, perfumery, cosmetics products, and food industries. The temperament is Warm<sup>1</sup> & dry<sup>2</sup>.

The ethnomedicinal properties are *Muhallil, Mulattif, Mundij Muqawwi, Munaqqi-i-Dimagh, Muqawwi-i-A'sab, Munawwim, Mufattih-i-Sudad, Mushil-i-Balgham, Mushil-i-Sawda, Muharrik-i-A'sab, Dafi-i-Tashannuj, Dafi-i-Ta'affun Muqawwi-i-Ruh, Musakkin-i-A'sab, Muqawwi-i-Mi'da, Muqawwi-i-Badan, Muqawwi-i-Qalb, Kasir-i-Riyah, Mufarrih Qalb, and Muqawwi-i-Alat-i-Bawl.*<sup>38</sup> Lavender oil contains linalool, linalyl acetate, lavender, geraniol tannin, flavonoids, and cineol, and has antibacterial, antifungal, antibiotic, and antidepressant properties. Lavender flower is thought to offer antispasmodic, diuretic, and pain-relieving effects, among other qualities. In the domains of psychosomatic obstetrics and gynaecology, lavender is frequently used to treat dysmenorrhea, ease labour and post-caesarean pain, reduce postpartum depression and anxiety, and lessen symptoms including arthralgia, hot flushes, melancholia, and myalgia. Linalyl acetate and geranyl acetate are two pharmacologically active molecules found in lavender oil that are of significant importance. Linalyl acetate, in particular, has been recognized for its pain-relieving properties. Menopause is often accompanied by various discomforts, and one common symptom is flushing. Aromatherapy utilizing lavender oil has shown a reduction in the frequency of flushing episodes experienced by women during menopause.<sup>59</sup> A double-blinded crossover clinical trial was conducted involving 100 menopausal women who experienced flushing as a complaint. The intervention group was exposed to the aroma of lavender for 20 minutes, twice a day, over 12 weeks. Results showed a significant



decrease in the number of flushing episodes in the intervention group compared to the control group ( $p < 0.001$ ). Lavender aromatherapy proved effective in reducing menopausal flushing. This reduction can be attributed to the increased release of beta-endorphins and decreased levels of the stress hormone cortisol, considering the impact of stress on flushing and the negative effects of menopausal symptoms on quality of life.<sup>60</sup> According to a hypothesized scientific notion, aromatherapy may have positive psychological and physiological effects. It is thought that aromas activate olfactory nerve cells, stimulating the limbic system and causing odours. Nerve cells emit a variety of neurotransmitters, such as enkephalin, noradrenalin, and serotonin, depending on the type of aroma. On the other hand, considering the connection between the olfactory sense and the human soul and feelings, smells can have an impact on people's bodies as well as souls. Odours have the power to alter people's emotional states.<sup>61</sup>

**Zafran/Saffron/*Crocus sativus* Linn:** *Zafran* is the stigma of the *Crocus sativus* plant and belongs to the family, Iridaceae.<sup>62</sup> It has been known for more than 4000 years as a tonic agent and antidepressant drug. Its medicinal properties were stated by Homer (800 BC), Hippocrates (460 BC), Ovid (43 BC) Pliny (23 AD), and in the Old Testament's "Song of Solomon".<sup>63</sup> The Ebers papyrus (ca 1550 B.C.) mentions saffron as an ingredient in a cure for kidney problems.<sup>64</sup> It has been used in the treatment of about 90 different medical disorders.<sup>65</sup> Recently, the use of spices and functional foods has increased in the everyday diet for the prevention of chronic diseases or cancer.<sup>66</sup> The temperament is Warm and dry. The ethnomedicinal properties are *Muhallil*, *Jali*, *Muqawwi-i-Qalb wa Dimagh wa Jigar wa Bah* and *Mudirr-i-Bawl wa Hayd*.<sup>38</sup>

*Zafran* has a long history of use for labour pains, eye, skin, respiratory, gastrointestinal, and genitourinary disorders, as well as for its mood-lifting properties. Additionally, there is mounting evidence that shows it to be effective in treating adults with depression and anxiety. Saffron was well tolerated in these trials, with few self-reported side effects. There is preliminary evidence of efficacy as a treatment for reducing menopausal symptoms during the menopausal transition. It was linked to decreases in hot flushes and depression symptoms in a 6-week study of post-menopausal women with hot flushes. Saffron, when included in a multi-herbal formula, has also been linked to reductions in perimenopausal women's urogenital, psychological, and physical symptoms, as well as improvements in post-menopausal women's physical and mental symptoms. Saffron has been shown to have an impact on neurotransmitter function, inflammation, the hypothalamic-pituitary-adrenal (HPA) axis, oxidative stress, mitochondrial activity, and neuroplasticity, for instance. Depression and anxiety frequently exhibit disturbances in these processes.<sup>67</sup> In a randomized, double-blind, parallel-group clinical trial, 60 women experiencing post-menopausal hot flashes were assigned to receive either saffron (30 mg/day, 15 mg twice per day) or a placebo for 6 weeks. Using a general linear model repeated measures analysis, a significant interaction between time and treatment was observed for the HFRDIS (Hot Flash Related Daily Interference Scale) score [ $F(3, 162) = 10.41, p = 0.0001$ ] and the HDRS (Hamilton Depression Rating Scale) score [ $F(3, 162) = 5.48, p = 0.001$ ]. This indicates that saffron treatment had a notable effect on reducing the severity of hot flashes and improving depressive symptoms compared to the placebo

group.<sup>68,69</sup> Saffron has been identified as a safe and effective treatment for improving hot flashes and depressive symptoms in post-menopausal women. It contains various phytoconstituents such as safranal, crocin, crocetin, flavonoids, tannins, anthocyanins, alkaloids, and saponins.<sup>69</sup> These bioactive compounds contribute to the therapeutic properties of saffron.

**Shambalu/Chaste Berry/ Vitex Agnus-Castus Linn:** *Vitex agnus-castus*'s common name is Chaste tree. It is a well-known botanical supplement for women's health.<sup>37</sup> It is a tall shrub, that grows to a height of 3-6m of the Lamiaceae family.<sup>70</sup> The fruit is 3-4 mm in diameter, round, and dark brown or black, with a blue bloom and shiny drupe. It is entirely covered with a woolly calyx. The fruits of this plant are extensively used in traditional medicine in various countries for improving women's psycho-emotional state, mitigating PMS symptoms, and normalizing the menstrual cycle.<sup>70</sup> Its biochemical compounds include iroid glycosides, flavonoids, essential oils, and fatty acids.

A randomized clinical trial established that chaste berry was effective in the treatment of hot flashes. The mechanism of action was it stimulates the expression of genes related to progesterone receptors.<sup>71</sup> Die et al also reported the chaste berry effect in menopause.<sup>70</sup> Apigenin could also induce progestogenic activity. In summary, *Vitex* species have oestrogenic properties and apigenin and penduletin compounds are their ER $\beta$ - selective compounds, whereas rotundifuran and agnuside have been reported to activate ER $\alpha$ -dependent responses.<sup>37</sup>

**Majoon Najah:** A single-blind RCT reported that *Majoon Najah* was effective in reducing menopausal syndrome. *Majoon Najah*, 7g was administrated twice daily with milk in the

intervention group. The comparator group received menopause plus 1 capsule for three months. A significant reduction in menopausal symptoms including hot flashes, headache, insomnia, and irritability was reported. A significant change was noted in BDI and self-rating scale for irritability, insomnia, and headache before and after the treatment. The authors concluded that the polyherbal preparation *Majoon Najah* was efficacious in ameliorating menopausal symptoms. *Majoon Najah* contains *Post Haleela Kabli* (*Terminalia chebula*), *Post Balela* (*Terminalia bellerica*), *Amla Khusk* (*Emblica officinalis*), *Halila Siyah* (*Terminalia chebula*, black), *Turbud Safaid* (*Ipomoea turpethum*), *Bisfajj Fistiqe* (*Polypodium vulgare*), *Aftimun* (*Cuscuta reflexa*), *Ustukhuddus* (*Levandula stoechas*), *Ghee* and *Qiwam Shaker* (White sugar).<sup>72</sup>

## Conclusion

Menopause is a natural phase that all women experience as part of the normal ageing process. Traditional knowledge found in classical manuscripts provides valuable insights into the management of *Alāmāt Sinn al-Yās* (menopausal syndrome). According to Unani texts, the primary approach to managing *Alāmāt Sinn al-Yās* is to address the underlying causes, which may include abnormal temperament, menstrual irregularities, uterine diseases, as well as psychological and environmental factors. Unani herbs such as *Asgandh*, *Aslusūs*, *Khārkhask*, *Ṭaḡar*, *Shuneez*, *Ustukhuddus*, *Zafran*, and *Mājūn Najāh* have been scientifically proven to be effective in managing *Alāmāt Sinn al-Yās*. These herbs possess various properties such as emmenagogue, anti-inflammatory, analgesic, cardioprotective, and neuroprotective, which contribute to their beneficial effects in alleviating *Alāmāt Sinn al-Yās* symptoms.

Therefore, it is crucial to substantiate and preserve traditional knowledge for future research and its application in the contemporary era. Further studies, including randomized controlled trials, systematic reviews, and meta-analyses, are needed to provide additional evidence and better understand the efficacy of these interventions in managing *Alāmāt Sinn al-Yās*.

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