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Management of asthma (*ḌĪQ Al-Nafas*) in Unani system of medicine: A comprehensive review

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***Abstract*---**Numerous functions within the human body have been conducted throughout time without anyone being aware of them or interfering with their functioning. One of them is breathing. Thus, when a person develops trouble breathing and must exert considerable effort to inhale and exhale, it becomes an argument for a will condition. Asthma is a chronic inflammatory airway disorder that is often characterized by reversible airflow obstruction and chest tightness, wheezing, coughing, and dyspnea, all of which are signs of airway obstruction. They can occur spontaneously, most frequently at night or early in the morning, the following activity or responding to an allergy. This potentially severe chronic disease places a significant financial burden on individuals and their families. The development of bronchodilators and corticosteroids simplified the management of bronchial asthma in modern medicine. In modern medicine, bronchial asthma is treated through bronchodilators and corticosteroids. Apart from this invention, comprehensive treatment of asthma is still a long way off. The Unani medical system takes a holistic approach to

prevent and treating Asthma (*Ḍīq al-Nafas*). This article aims to describe Asthma (*Ḍīq al-Nafas*) and find a comprehensive and safe method of managing asthma through a holistic approach to the Unani system of medicine.

***Keywords*---**Asthma, *Ḍīq al-Nafas*, Dama, Herbal drugs, Unani.

Introduction

The primary functions of the lungs are oxygenation of the blood and the elimination of carbon dioxide. The lungs and heart may be seen as physiologically related dual organs whose combined function is to supply the tissues with oxygen and venous carbon dioxide. Asthma is a condition of airways characterized by heightened reactivity of the tracheobronchial tree to various stimuli resulting in extensive spasmodic constriction of the air route, which may be alleviated spontaneously or by therapy. Asthma is an episodic condition seemed to clinically by paroxysms of dyspnea, cough, and wheezing. However, a severe and constant type of sickness described as "status asthmaticus" may prove fatal (Mohan H, 2019). Asthma is a significant global health problem that affects people of all ages. It is becoming more prevalent in several countries, particularly among children. Asthma places an unacceptably high burden on the health care system and society (Anonymous, 2017). It is a common and potentially serious chronic condition that causes respiratory symptoms, activity restrictions, and flare-ups that occasionally require immediate medical attention and maybe fatal (Anonymous, 2021b).

Asthma is a chronic condition that affects both children and adults. Asthma impacted an estimated 262 million individuals in 2019 and resulted in around 461000 deaths. Nearly 80% of deaths from asthma occur in low- and lower-middle-income countries, where underdiagnosis and undertreatment are common. Inflammation and narrowing of the tiny airways in the lungs contribute to the development of asthmatic symptoms: cough, wheeze, chest tightness, and shortness of breath(Anonymous, 2021a). In India, the total prevalence of asthma is 2.38%, while it is 2.28% in Chandigarh, 1.69% in Delhi, 2.05% in Kanpur, and 3.47% in Bangalore(Aggarwal, 2006). Asthma is a serious disease of the airways and bronchial tree that has been known to humans since the time of Hippocrates but was defined by its unusual traits. Hippocrates was the first to coin the term 'panting,' which translates as "breathlessness." (Wise, 1985). Later on, numerous Unani scholars diligently examined and detailed asthma in their works. Asthma is derived from the Greek word "aazein," which means to exhale via an open mouth, pant, and take a quick breath. In ancient Rome, physicians described asthma as gasping and an inability to breathe without making a noise, which is now referred to as wheezing (Cannizzaro, 2017).

Unani Concept about Asthma (*Ḍīq al-Nafas*):

In the Unani system of medicine, asthma is referred to by a variety of terms, including *Dhīq al-Nafas, Dama, Rabw, Buhr,* and *Intisāb al-Nafas.* Although there is no distinction between these synonyms, they all refer to respiratory difficulties.

According to Majūsī, *Dhīq al-Nafas, Rabw*, *Buhr*, and *Intisāb al-Nafas* are all respiratory illnesses caused by constriction of the arteries and venulose of the lungs; hence, when the difficulty develops in the arteries of the lungs, *Rabw*and *Buhr* occur. It creates *Ḍīq al-Nafas* and *Intisāb al-Nafas* when it develops in the bronchi and bronchioles (Kabir, 2003).

The father of medicine, Hippocrates, was the first to link asthma symptoms and environmental triggers and specific trades and occupations(Sullivan, 2018). Ibn Sina, a great Unani scholar, characterized Asthma (*Ḍīq al-Nafas*) in his classic work "*Al-Qanun fi'l Tibb*" as a chronic respiratory ailment in which the patient continually breathes, and its episodes are incredibly rapid and intense (Ibn Sina, 2010). According to Zakariyya Razi, asthma (*Rabw*) is mainly caused by thick mucus clogging the trachea (*Qasaba al-Ri'a*), resulting in bronchospasm, wheezing, and shortness of breath (Razi, 2007). Asthma is a purely pulmonary condition in which the patient repeatedly breathes despite being comfortable. The time interval between two breaths is decreased while the expiratory phase is lengthened. This is because the need for cold air is greater, and it cannot reach the heart due to the pathways' narrowness and congestion. As a result, breathing becomes extremely rapid and frequent during this sickness (Kirmani, 2010). Hakim Ajmal Khan, a famous Unani scholar, stated that asthma is a severe disease that cannot be readily healed or treated. This condition is distinguished by episodic breathlessness and wheezing (Khan 1987).

In *Ḍīq al-Nafas*, a condition in which breathing becomes difficult due to a narrowing of the airways induced by the accumulation of *Balgham Lazij* (vitreous phlegm) in *Urūq Khashna* (bronchioles). Additionally, it is referred to as *Intisāb al-Nafas* (orthopnoea), a mix of the two terms '*Intisāb*' meaning 'to stand' and '*Nafas*' meaning 'breath.' At times, the patient may be unable to breathe or may feel uneasy in a sitting or lying position. As a result, he stands to take a breath and feel relaxed (Kabir, 1960). *Rabw* is a term that refers to a type of lung ailment in which the patient's breathing becomes irregular and also in breathing trouble in which the patient breathes like a very weary person (Kabir, 2003).

Etiopathogenesis of Asthma (*Ḍīq al-Nafas*):

Asthma is a disorder in which the body does not receive the needed amount of oxygen for *Tarvih al-Qalb* (sufficient supply of oxygen to the heart), resulting in patient discomfort due to breathlessness. Asthma is most frequently caused by an accumulation of thick mucus secreted within the bronchi and alveoli (Ibn Hubul, 2004).

The primary cause of *Dama* or *Ḍīq al-Nafas* is narrowing of *Urūq Khashna* (bronchioles)that may be due to various causes such as Accumulation of *Balgham Lazij* (vitreous phlegm) in the air passages, *Inṣibāb-i Mawād-i-Nazla* (exudation of catarrhal fluid) and *Warm* (inflammation) of the respiratory tract (*Ibn Sina*, 2010). Accumulation of *Ghalīz Rutūbat* (thick secretions) in the bronchi and alveoli, *Imtilā' sadr* (thoracic congestion) and surrounding organ pressure, gaseous collection in the chest, creating pressure and bronchial constriction and genetic (Ibn Hubul, 2004). Accumulation of pus and blood surrounding the lungs prevents them from expelling (Razi, 1998). The flow of catarrhal fluids from the

brain may cause Asthma (Tabari, 2010). Colds and coughs occasionally cause a buildup of *Balgham* (phlegm) in the lungs, making breathing difficult; rarely, it occurs as a result of pulmonary dryness and may end in breathing cessation; and rarely, it develops as a result of smallpox (Khan (1987).

Asthma is a reversible chronic airway disease usually brought on by an immunological reaction. Asthma is characterized by an overactive TH2 response to normally harmless antigens in the environment. Inflammatory signals, such as cytokines, are produced by TH2 cells, prompting B cells to generate IgE and other antibodies. IL-4, which enhances IgE production, and IL-13, which modulates mucus release from bronchial submucosal glands while simultaneously boosting IgE synthesis from B cells, are two cytokines (Kuamar et al. 2015). Asthma has traditionally been divided into extrinsic (allergic, atopic) and intrinsic (idiosyncratic, non-atopic). Extrinsic asthma is the most common type. It usually starts in infancy or early adulthood. Most people with this kind have a family history of allergies or asthma. Adults with no personal or familial history of asthma develop intrinsic asthma later (Mohan H, 2019). Bronchospasm episodes of any sort can be caused by several reasons, including respiratory infection, smoking, fumes, cold air, and exercise. Asthma is further categorized based on the agents that produce bronchoconstriction, such as seasonal, exercise-induced, drug-induced (aspirin-induced), and occupational asthma (Kumar et al. 2015).

Classification of Asthma (*Ḍīq al-Nafas*) in Unani Medicine:

Asthma is a chronic inflammatory illness that can quickly deteriorate into a life-threatening and severe condition. Hakim Ajmal Khan, a renowned Unani scholar, classified asthma according to its difficulties: *Ḍīq al-Nafas Yabis* and *Ḍīq al-Nafas Ratab*. In *Ḍīq al-Nafas Yabis*, spasmodic narrowing of the airway and respiratory muscle results in trouble breathing; in *Ḍīq al-Nafas Ratab*, does not only spasmodic narrowing of the airway result in breathlessness but also mucus accumulation (Khan (1987). Rabban Tabri stated various forms of *Ḍīq al-Nafas*, which are listed below.

1. *Ḍīq al-Nafas Qasir*(short respiration caused by weakness of the respiratory muscle)
2. *Ḍīq al-Nafas Mutatabae* (frequent respiration caused by inflammation of the diaphragm or excessive heat)
3. *Ḍīq al-Nafas Mustaqeem* (straight respiration caused by weakness of respiratory muscles)
4. *Ḍīq al-Nafas Qawi* (strong respiration caused by *Iltehāb-i Harārat*)
5. *Ḍīq al-Nafas Zaef* (weak respiration caused by coldness (*burūdat*)).
6. *Ḍīq al-Nafas Aseer* (dyspnea caused by the accumulation of viscid secretion in the bronchial tree or gaseous collection in the chest putting pressure on the bronchial tree externally (Tabari, 2010).

According to Kabir al-din, there are three forms of *Rabw*:
The first form, *Haqiqi Rabw* (true asthma), is characterized by the closure of the bronchial branches by a sort of thick cold mucus. In *Haqiqi Rabw*, *Intisāb al-Nafas* (orthopnea) is occasionally discovered or not. The second type is when the lining of the lungs narrows owing to inflammation, but no pus is observed, and it is caused by hot black bile (*Khilt Sawda Harr*). The distinction between the two

types is that the first does not have thirst but occasionally coughs, discharges, and wheezing. The second form is characterized by fever, thirst, and agitation. The third form is caused by flaccidity or atonicity of the bronchial muscles; in this type, *Intisāb al-Nafas*(orthopnea) is primarily present, and breathing is occasionally stopped (Kabir, 2003).

Signs and symptoms of Asthma (*Ḍīq al-Nafas*):

The symptoms of *Ḍīq al-Nafas*can differ from person to person. Patients may present with wheezing, shortness of breath, and coughing, most common at night and early morning. Wheezing and nocturnal dyspnea is strongly linked to asthma diagnosis (Buist, 2003). The signs and symptoms of Ḍīq al-Nafas are primarily present in episodic and non-episodic phases, with pre-episodic constipation and bloating. A mild cough is followed by breathing difficulties. A sudden episode occurs, and the patient feels suffocated, restless, and weak; the face turns red, then a tiny bit of mucus comes out, and the entire body sweats away. During the resting period, the patient appears to be in good health without discomfort (Khan (1987). The pulse becomes *Azīm* (magnus), *Sari* (rapid), and *Mutwātir* (frequent) (Tabari, 2010; Kabir, 2003). When asthmatic patients have asthma symptoms, they may feel as if they are inhaling through a straw and hear a whistling or squeaking noise. During an asthma episode, the patient's breathing is exceptionally rapid. Coughing, wheezing, and pressure in the chest can make you feel anxious or scared (Sockrider, 2020).

Principle of treatment and preventive measures(*Usool-e Ilajwa Tadābīr*):

According to Unani philosophy, *Mizāj*(temperament) plays a significant factor in asthma management. The patient's temperament and the disease are the essential criteria per *'Ilaj bi'l Didd* (heteropathy).

Preventive measures (*Taḥaffuẓī Tadābīr*):

The patients should be kept in a tidy and clean environment free of contamination and pollution. The modification of the temperament (*Taʿdīl-e Mizāj*) should be done. Dust and allergens should be avoided. The patient should be advised to do regular physical exercise. Cold waves and cold conditions should be avoided (Razi, 1957; Arzani, 1988). Excessive sleep should be avoided(Khan (1987).

Recommended diet:

The hot and dry food(*Harr Yābis Aghdhiya*) such as meat of Titer (grey francolin), chukar partridge as well as the meat of dear, and rabbit, as well as *Mā'al-lahm* (meat soup) are recommended(Ibn Hubul, 2004). Chicken and mutton soup, pumpkin, beetroot, sponge gourd, and pigeon pea are suggested (Khan, 1987). *Mā' al-Shaʿīr* (barley water) is recommended (Ibn Sina, 2010). Half-boiled eggs yellow portion may also be given (Kabir, 2003).

The phytochemicals, including phenolics, flavonoids, and carotenoids from fruits and vegetables, may play a key role in reducing chronic disease risk, e.g., apples and bananas decrease wheezing due to their antioxidant property and presence of

potassium contents, which could improve the lung function (Mc Dermott, 2019). The pomegranates have antioxidant actions that reduce lung inflammation (Madeline, 2021).

Restricted diet:
Avoid citrus fruits, oily foods, red chilies, and excessive use of cold water and pickles (Khan, 1987). The cold and liquid food items (*Bārid wo RatabAghdhiya*) should be avoided (Kabir, 2003).

***'Ilaj bi'l Tadbir* (regimenal therapy)**:

Faṣd-i- Bāsalīq (venesection of the basilic vein) is recommended (Kirmani, 2010; Tabari, 2010). *Ḍhūnī* (fumigation)by the following drugs is recommended,e.g., Qust (*Saussurea costus* (Falc.) Lipsch.), Zerneekh Surkh (Arsenic disulphide), Samagh Arabi (*Acacia nilotica* (L.) Delile), Mastagi (*Pistacia lentiscus* L.), every drug taken in the dose of 32gm (Razi, 1998).

The *Ḍimād* (paste) made up of the following drugs is effective, e.g., Anjeer (*Ficus carica* L.), Aarad Jao (flour of *Hordeum vulgare* L.), Aarad Kalonji (flour of *Nigella sativa* L.), Shahad (honey), Roghan Soya (oil of *Anethum sowa* Roxb. ex Fleming), Roghan Kalonji (oil of *Nigella sativa* L.), and Roghan Suddab (oil of *Ruta graveolens* L.) fine powder of these drugs mixed with honey and oils and applied on the chest as a paste (*Ḍimād*) (Al-Qamari, 2008). *Qay'* (vomiting) is beneficial in *Balghami Dama* (phlegmatic asthma) (Kirmani, 2010).

***'Ilaj bi'l-Dawa'* (Pharmacotherapy/Drug Therapy):**

According to the Unani concept, the human body has a residual power, called *Ṭabī'at* or *Quwwat Mudabbira-i Badan* (medicatrix nature), that adjusts its normal operations. It regulates and restores the body's physiological functioning and improves its immunity and resilience to disease (Lone et al., 2012). *Asbab Sitta Dharūriyya* (six essentials of health) and *Ghair Dharūriyya* (non-essential) factors also change normal Mizāj and disease occurrence. Unani physicians have mentioned several single drugs and compound formulations for the management of the *Ḍīq al-Nafas* in the literature.

The drugs containing the following pharmacological actions are recommended for management as required and type of asthma. The *Munḍij* (concoctive) and *Mushil* (purgative) are used according to *Akhlāṭ* (humors) (Kabir, 2003). *Muḥallil-i-Auram* (anti-inflammatory), *Munaffith-i-Balgham* (expectorant), *Mukhrij-i-Balgham* (expectorant), *Dāfi 'i-Hassāsiyat* (antiallergic), *Dāfi 'i-Jarasim* (antimicrobial), *Ḍhūnī* (fumigation) (Kabir, 2003, and Razi, 1998) and *Ḍimād* (paste) (Al Qamari, 2008) are used as per need. Human beings have been using plants for treating various ailments since the time of immemorial. Management of *Ḍīq al-Nafas* (asthma) is divided into the episodic phase and the resting or non-episodic phase (Khan,1987).

Management of asthma (*Ḍīq al-Nafas*) during the episode

The *Joshānda* (decoction), *La'ūq* (linctus), and *Kushta* (calyx) are used internally while *Ḍhūnī* (fumigation) externally. The half-crushing Tukhm-e Katan (*Linum usitatissimum* L.) decoction of half-crushed with honey (shahad) gives instant relief. The decoction (*Joshānda*) is made up of the following drugs, i.e., Aslussoos (*Glycyrrhiza glabra* L.), Behidana (*Cydonia oblonga* Mill.), Gaozaban (*Borago officinalis* L.), and Zufa Khushk (*Hyssopus officinalis* L.), is effective in case of chest pain (Kabir, 2003). The other formulation is decoction (*Joshānda*), made up of Behidana (*Cydonia oblonga* Mill.), Unnab (*Ziziphus vulgaris* Lam.), and Sapistan (*Cordia dichotoma* G. Forst.), which is also effective (Kabir, 2003). Multi-ingredient oral formulations such as *Khameera Khashkhash* and *Barshasha* are also beneficial in the episodic phase of asthma (Kirmani, 2010). *La'ūq Khiyar Shambar* (compound formulation) 9 gm, and *Kushta Qaran-ul-Eyyal* (calx of the horn of swamp deer) 60 mg may also be given (Kabir, 2003). The *Ḍhūnī* (fumigation) by the fine powder of equal amount of the following drugs, i.e., Taj Qalmi (*Cinnamomum cassia* (L.) J.Presl.), Zafran (*Crocus sativus* L.), Mur-Makki (*Commiphora myrrha* (Nees) Engl.), and Qust Sheerin (*Saussurea costus* (Falc.) Lipsch.) is instrumental (Kabir, 2003). The *Ḍimād* (paste) made up of Arad Kalonji (flour of *Nigella sativa* L.) mixed with Rogan Soya (oil of *Anethum sowa* Roxb. ex Fleming) may be applied on the chest at the time of asthmatic episode (Kirmani, 2010).

Management of *Ḍīq al-Nafas* (asthma) in the resting phase

The eminent Unani physician Hakim Ajmal Khan advocated treating the leading cause of the disease in the resting phase of Asthma (Khan (1987). The treatment depends upon the involvement of humors, e.g., in case of involvement of the *Khilt-i-Balgham* (phlegm), *Mundij* (concoctive), and *Mushil-i-Balgham* (phlegmagogue) drugs are recommended. The drugs such as Gul-e-Banafsha (*Viola odorata* L.), Aslussoos (*Glycyrrhiza glabra* L.), Gaozaban (*Borago officinalis* L.), and Zufa Khushk (*Hyssopus officinalis* L.), Badiyan (*Foeniculum vulgare* Mill.), Mako (*Solanum nigrum* L.), Sapistan (*Cordia dichotoma* G. Forst.), Maweez Munaqqa (*Vitis vinifera* L.), Anjeer (*Ficus carica* L.), Gul-e surkh (*Rosa damascene* Mill.), Bikh-e Sosan (*Iris ensata* Thunb.), Khatmi (*Althaea officinalis* L), Khubbazi (*Malva sylvestris* L.) are used in the form decoction as *Mundij*. After that, *Mushil* drugs are given to remove the deranged phlegm (*Balgham*), such as Sana-e-Makki (leaves of *Cassia angustifolia* Vahl.), Maghz-e-Khiyarshambar (dried pulp of *Cassia fistula* L.), Turanjbeen (exudate of *Alhagi pseudalhagi* (M. Bieb.) Fisch), Gulqand (formulation of Rose in sugar), and Roghan Badam (almond oil) (Kabir, 2003).

In the case of the involvement of *Khilt-i-Safra* (bile), *Mundij* (concoctive), and *Mushil-i-Safrā'* (cholagogue), drugs are used. The drugs such as Aslussoos (*Glycyrrhiza glabra* L.), Unnab (*Ziziphus jujuba* Mill.), Afsanteen Rumi (*Artemisia absinthium* L.), Gaozaban (*Borago officinalis* L.), and Parsioshan (*Adiantum capillus-veneris* L.) are used with Gulqand (formulation of Rose in sugar). After that, *Mushil-i-Safrā'* drugs are used,i.e., Sana-e-Makki (*Cassia angustifolia* Vahl), Turbud (*Operculina turpethum* (L.) Silva Manso), Zanjabeel (*Zingiber officinale* Roscoe.), Maghz-e-Khiyarshambar (dried pulp of *Cassia fistula* L.), and Roghan-e

Badam (almond oil) are given. After the evacuation of morbid matters, the compound formulations are used for the temperamental equilibrium(*Ta'dīl-o-Tabdīl-i-Mizāj*); these are *Laūq Katan*, *Laūq Badam*, *Sharbat Zufa*, *Habb-e Beesh* and *Habb-e Azaraqi* with *Ma' al-Lahm*(meat soup) (Kabir, 2003). The Unani physicians have described several single drugs which may be used in the management of *Ḍīq al-Nafas* (asthma).

Table.1. Single drugs used in asthma and their Unani pharmacological actions

Unani Name	Botanical / scientific name	Unani pharmacological actions
Adusa	*Justicia adhatoda* L.	*Munaffith-i Balgham*(expectorant), *Dāfi'-i-Su'āl* (antitussive) (Ghani, 2011)
Aftimoon	*Cuscuta reflexa* Roxb.	*Mukhrij-i Balgham* (expectorant), *Muhallil* (resolvent) (Khan, 2012)
Anjeer Zard	*Ficus carica* L.	*Mukhrij-i Balgham* (expectorant), *Muhallil* (resolvent) (Khan, 2012); Kabir, 2000).
Aslussoos	*Glycyrrhiza glabra* L.	*Mukhrij-i Balgham* (expectorant) (Khare, 2007)
Anisoon	*Pimpinella anisum* L.	*Mukhrij-i Balgham* (expectorant) (Khare, 2007).
Behidana	*Cydonia oblonga* Mill.	*Munaffith-i Balgham* (expectorant), *Mugharrī wa Muzliq* (mucilaginous). (Khare, 2007; Kabir, 2000).
Banafsha	*Viola odorata* L.	*Munaffith-i Balgham* (expectorant) (Khan, 2012).
Badiyan (seeds)	*Foeniculum vulgare* Mill.	*Munḍij-i Balgham* (concoctive), *Mukhrij-i Balgham* (expectorant). (Khan, 2012)
Chob Zard	*Curcuma longa* L.	*Muhallil* (resolvent), *Mukhrij-i Balgham* (expectorant) (Khare, 2007).
Dhatura	*Datura metel* L.	*Muhallil* (resolvent)(Khare, 2007)
Darchini	*Cinnamomum verum* J. Persl.	*Munaffith-i Balgham* (expectorant), *Muhallil* (resolvent) (Khan, 2012)
Gaozaban	*Borago officinalis* L.	*Munaffith-i Balgham* (expectorant) (Khare, 2007)
Ghafis	*Agrimonia eupatoria* L.	*Muhallil* (resolvent) (Khare, 2007)
Hulba	*Trigonella foenum-graecum* L.	*Munaffith-i Balgham* (expectorant), *Mundij-i-Balgham* (concoctive to phlegm) (Ghani, 2011)
Hilteet	*Ferula foetida* (Bunge) Regel.	*Mukhrij-i Balgham* (expectorant), *Muhallil* (resolvent) (Khan, 2012)
Irsa	*Iris ensata*Thunb.	*Munaffith-i Balgham* (expectorant), *Muhallil* (resolvent), *Mundij-i-Balgham* (concoctive to phlegm) (Kabir, 2000).
Khubbazi	*Malva sylvestris* L.	*Munaffith-i Balgham* (expectorant), *Dāfi-Su'āl*(antitussive) (Ghani, 2011)
Khatmi	*Althaea officinalis* L.	*Munaffith-i Balgham* (expectorant),*Dāfi- Su'āl* (antitussive) (Khan, 2012)
Kalonji	*Nigella sativa* L.	*Munaffith-i Balgham* (expectorant), *Muhallil* (resolvent)(Khan, 2012)
Kakra Singhi	*Pistacia chinesis* Bunge.	*Mukhrij-i Balgham* (expectorant) (Kabir, 2000)

Katan	*Linum usitatissimum* L.	*Mulaṭṭif* (demulcent), *Dāfi- Su'āl*(antitussive) (Khare, 2007)
Mastagi	*Pistacia lentiscus* L.	*Munaffith-i Balgham* (expectorant) (Kabir, 2000)
Maweez Munaqqa	*Vitis vinifera* L.	*Munaqqi-i sadar* (eliminate morbid material from the chest), *Mundij-i-Balgham* (concoctive to phlegm) (Kabir, 2000)
Parsioshan	*Adiantum capillus-veneris* L.	*Munaffith-i Balgham* (expectorant), *Mulaṭṭif* (demulcent), *Muhallil* (resolvent) (Khan, 2012)
Qust	*Saussurea costus* (Falc) Lipsch.	*Munaffith-i Balgham* (expectorant) (Khare, 2007)
Sapistan	*Cordia dichotoma* G. Forst.	*Munaffith-i Balgham* (expectorant), *Mulaṭṭif* (demulcent) (Kabir, 2000)
Saboos-e Gandum	*Triticum aestivum* L.	*Munaffith-i-Balgham* (expectorant), *Muhallil* (resolvent)(Kabir, 2000)
Sahejna	*Moringa oleifera* Lam.	*Muhallil* (resolvent), *Munaffith-i-Balgham* (expectorant) (Khare, 2007)
Taj Qalmi	*Cinnamomum cassia* (L.) J.Presl.	*Munaffith-i Balgham* (expectorant) (Kabir, 2000)
Tulsi	*Ocimum sanctum* L.	*Munaffith-i Balgham* (expectorant) (Khare, 2007)
Ustukhuddus	*Lavandula stoechas* L.	*Muhallil* (resolvent), *Mushil-i-Balgham* (phlegmagogue), *Mushil-i-Sawda'*(melanogogue) (Kabir, 2000)
Unnab	*Ziziphus jujuba* Mill.	*Munaffith-i Balgham* (expectorant), *Dāfi-Su'āl*(antitussive) (Khare, 2007; Ghani, 20110)
Unsul	*Urginea indica* (Roxb.) Jessop.	*Muhallil* (resolvent), *Munaffith-i Balgham* (expectorant) (Khan, 2012)
Zufa Khushk	*Hyssopus officinalis* L.	*Muhallil* (resolvent), *Munaffith-i Balgham* (expectorant) (Ghani, 20110)
Zanjabeel	*Zingiber officinale* Roscoe.	*Munaffith-i Balgham* (expectorant) (Khare,2007)
Zarambaad	*Zingiber zerumbet* (L.)	*Munaffith-i Balgham* (expectorant) (Khare, 2007)

The drugs mentioned in table-1 have actions like *Munḍij-i Balgham* (concoctive), *Mulaṭṭif* (demulcent), *Munaffith-i Balgham* (expectorant), *Muhallil* (resolvent), and *Dāfi- Su'āl* (antitussive). The *Munḍij-i Balgham* (concoctive) and *Mulaṭṭif* (demulcent) drugs alter the morbid stuff to be quickly evacuated from the body. The *Munaffith-i Balgham* (expectorant) drugs expel the excretable morbid matters from the body while *Dāfi- Su'āl* (antitussive) relieves excessive cough. The *Muhallil* (resolvent) drugs resolve inflammation caused by the morbid matters in the body (Kabir, 2003).

Compound formulations used in asthma (*Ḍīq al-Nafas*)

Different compound formulations have also been described in Unani literature that can be used as readymade medicine to manage asthma. These formulations

have specific indications for respiratory symptoms and may be used as per the sign and symptoms of the disease condition (Table-2).

Table-2. Compound formulations used in asthma (*Ḍīq al-Nafas*)

S. No	Formulations	Pharmacological actions	Therapeutic uses
1	Barshasha (Semisolid formulation)	*Munawwim* (hypnotic), *Musakkin-i-Alam* (analgesic)	*Suāl-i Muzmin* (chronic cough), *Nazla-o-Zukam* (coryza and catarrh). (Anonymous, 2006)
2	Habb-e Hindi Zeeqi (pills)	*Munaffith-i Balgham* (expectorant), *Dafi'a Tashannuj* (antispasmodic)	*Ḍīq al-Nafas* (asthma) (Anonymous, 2006)
3	Habb-e Ḍīq al-Nafas (pills)	*Munaffith-i Balgham* (expectorant)	*Ḍīq al-Nafas* (asthma) (Anonymous, 2008)
4	Lauq-e Katan (Semisolid formulation)	*Munaffith-i Balgham* (expectorant)	*Ḍīq al-Nafas* (asthma) (Anonymous, 2008)
5	Lauq-e Motadil (Semisolid formulation)	*Mundij, Munaffith-i Balgham* (expectorant), *Musakkin-i Suāl* (relive cough)	*Ḍīq al-Nafas* (asthma), *Suāl* (cough), *Nazla* (coryza) (Anonymous, 2001)
6	Lauq-e Nazli (Semisolid formulation)	*Munaffith-i Balgham* (expectorant)	*Nazla-o-Zukam* (coryza and catarrh) and *Suāl*(cough) (Anonymous, 2008)
7	Lauq-e Ḍīq al-Nafas (Semisolid formulation)	*Munaffith-i Balgham* (expectorant)	*Ḍīq al-Nafas* (asthma) (Anonymous, 2008)
8	Lauq-e Ḍīq al-Nafas Balghami (Semisolid formulation)	*Munaffith-i Balgham* (expectorant), *Musakkin-i Suāl* (relive cough)	*Ḍīq al-Nafas* (asthma), *Suāl-i Muzmin* (chronic cough) (Anonymous, 2001)
9	Kushta AbrakSafaid (Calyx)	*Munaffith-i Balgham* (expectorant), *Dafi-e Suāl* (relive cough)	*Ḍīq al-Nafas* (asthma), *Suāl* (cough), (Anonymous, 2006)
10	Kushta-e Qaran-ul Eyyal (Calyx)	*Munaffith-i Balgham* (expectorant), *Muhallil Waram* (resolvent of inflammation)	*Dhāt al-Janb* (pleurisy), *Dhāt al-Ri'a* (pneumonia) (Anonymous, 2006)
11	Sharbat-e Sadar (Syrup)	*Munaffith-i Balgham* (expectorant), *Mundij (*concoctive)	*Suāl* (cough), *Ḍīq al-Nafas* (asthma), *Nazla Muzmin* (chronic coryza), *Sill* (phthisis) (Anonymous, 2006)
12	Sharbat-e Banafsha (Syrup)	*Mundij* (concoctive), *Mulayyin-i-Am'a'* (laxative)	*Nazla* (coryza), *Suāl* (cough), Humma, Qabz (Anonymous, 2006)
13	Sharbat-e Ejaz (Syrup)	*Munaffith-i Balgham* (expectorant), *Musakkin-i Suāl* (relive cough)	*Suāl* (cough), *Nazla-o-Zukam* (coryza and catarrh) (Anonymous, 2006)
14	Sharbat-e Unnab	*Munaffith-i Balgham*	*Suāl* (cough) (Anonymous,

	(Syrup)	(expectorant), *Musakkin-i Suāl* (relive cough)	2006)
15	Safoof-e Dama (Powder)	*Munaffith-i Balgham* (expectorant)	*Ḍīq al-Nafas* (asthma), *Suāl-i Muzmin* (chronic cough), *Suāl-i Balghami* (phlegmatic cough) (Anonymous, 2006)

Medicinal plants are an essential source of pharmaceuticals, and developing new therapeutic agents for illness cures has recently received a lot of attention. Medicinal plants to treat sickness is relatively safe and have few adverse effects. As a result, many individuals currently opt to employ medicinal herbs instead of synthetic pharmaceutical medications. The herbal drugs mentioned in Table-3 may be helpful in the management of asthma as per their pharmacological actions.

Table.3. Single drugs used in asthma and their pharmacological actions

Name of drugs	Botanical name	Part used	Pharmacological activity
Adusa	*Justicia adhatoda* L.	Leaf/root	Anti-allergic (Paliwa, 2000), antihistaminic (Athiya, 2019), antioxidant (Saran,2019)
Anjeer Zard	*Ficus carica* L.	Leaves/ Fruit	Anti-inflammatory, Antioxidant (Ali, 2012), Antioxidative (Yang, 2009)
Aftimoon	*Cuscuta reflexa* Roxb.	Seed	Anti-inflammatory (Geetha, 2001), Antioxidant (Khan, 2015b)
Aslussoos	*Glycyrrhiza glabra* L.	Root	Anti-histaminic, antiallergic (Singh, 2014; Ewans, 2003)
Anisoon	*Pimpinella anisum* L.	Seed	Bronchodilator(Boskabady, 2001)
Behidana	*Cydonia oblonga* Mill.	Seed	Antiallergic effect (Huber, 2012), Bronchodilator (Janbaz, 2013)
Banafsha	*Viola odorata* L.	Leaves/flowers	Anti-bronchitis and cough (Karnick, 2001); Anti-inflammatory and asthmatic (Lee, 1996)
Badiyan	*Foeniculum vulgare* Mill.	Root	Bronchodilator (Boskabady, 2001), Antioxidant (Miraj, 2016)
Chob Zard	*Curcuma longa* L.	Rhizomes	Antiallergic (Ma, C. 2013), Anti-inflammatory (Karaman, 2012)
Datura	*Datura metel* L.	Leaves	Bronchodilator, anti-tussive (Nuhu, 2002)
Daar Chini	*Cinnamomum verum* J. Persl.	Bark	Anti-inflammatory (Khan, 2014), Antiallergy (Pel, 2015)
Gaozaban	*Borago officinalis* L.	Flowers/Leaves	Bronchodilator (Asadi-Saman, 2014), Anti-inflammatory and antioxidant (Coforti, 2008)

Ghafis	*Agrimonia eupatoria* L.	Flowers	Anti-inflammatory(Green, 1971), Antioxidant (Rao, 2007)
Hulba	*Trigonella foenum-graecum* L.	seed	Antiinflammatory, antioxidant(Liu, 2012)
Hilteet/Hing	*Ferula foetida* (Bunge) Regel.	Extracted	Relaxant effect (Gholamnejad, 2012), Antioxidant (Mallikarjuna, 2003)
Irsa	*Iris ensata*Thunb.	Root	Bronchodilator, antihistamine, antiinflammatory (Linden,1993; Lee, 1996)
Khubbazi	*Malva sylvestris* L.	Seed	Anti-inflammatory, antioxidant (Benso, 2016), antiallergic (Afshar, 2014)
Khatmi	*Althaea officinalis* L.	Seed	Anti-inflammatory, antitussive, and soothing effect (Shah, 2011; Nosal'ova, 1992)
Kalonji	*Nigella sativa* L.	Seed	Antiallergic (Neveu, 2010), anti-inflammatory, antioxidant (Saleh, 2012)
Kakra Singhi	*Pistacia chinesis*Bunge.	Leaves	Anti-inflammatory inhibits smooth muscle spasms (Wu, 2005)
Katan	*Linumusitatissimum* L.	Seed	Anti-inflammatory (Kaithwas, 2011), Antioxidant (Zanwar, 2010)
Kutki	*Picrorhiza kurroa* Royle ex Benth.	Root	Antihistaminic (Doshi, 1983), Antioxidant (Amiri, 2012)
Maweez Munaqqa	*Vitis vinifera* L.	Fruit	Inhibition of histamine, reduction of cytokines (Arora, 2016)
Parsioshan	*Adiantum capillus-venerisL.*	Whole herb	Inhibiting inflammatory cytokines and antioxidants (Ni Z, 1999; Choi MS,2001)
Qust	*Saussurea costus* (Falc) Lipsch.	Root	Anti-inflammatory (Sunkara, 2010) Antiallergic (Lee, 2018)
Sapistan	*Cordia dichotoma*G. Forst.	Fruit	Broncho-relaxant (Al Bayaty, 2008) Antiinflammatory (Hussain, 2020)
Saboos-e Gandum	*Triticum aestivum* L.	Seed/ Saboos	Bronchodilator, anti-interleukins (Ramya, 2019; Rajanandh, 2013)
Sahajana	*Moringa oleifera* Lam.	Seed	Antihistaminic (Agrawal, 2008)
Taj Qalmi	*Cinnamomum cassia* (L.) J.Presl.	Bark	Anti-inflammatory (Hong, 2012), Antiallergic effect (Makino, 2014)
Tulsi	*Ocimum sanctum* L.	Leaves	Bronchodilator (Vinaya, 2017), anti-asthmatic and anti-inflammatory (Singh, 1991)
Ustukhuddus	*Lavandula stoechas* L.	Leaves/ flowers	Relaxant of smooth muscle (trachea), anti-inflammatory (Arantes, 2016)
Unnab	*Ziziphus jujuba*	Leaves/seed	Antiallergic (Naik, 2013),

	Mill.		Antiasthmatic (Neveu, 2019)
Unsul	*Urginea indica* (Roxb.) Jessop.	Root / rhizome	Bronchodilator (Bashir, 2013) Antioxidants (Mahato, 2018)
Zufa Khushk	*Hyssopus officinalis* L.	Flower	Inhibits action of cytokines and interferon, Anti-inflammatory (Ma, X, 2014)
Zanjabeel	*Zingiber officinale*Roscoe.	Rhizome	Bronchodilator inhibits Acetylcholine (Ghayur, 2008; Ghayur, 2007)
Zarambaad	*Zingiber zerumbet* L.	Rhizome	Antiallergic (Tewtrakul, 2007), Antioxidant (Rout, 2011)

Conclusion

Asthma is a prevalent respiratory illness that causes a lot of morbidity and mortality. This complicated condition causes airway narrowing and is linked to changes in eosinophil, mast cell, and cytokine levels. Plants have long been a valuable source of medications and have played a role in disease management.

Herbal medicines have few or no adverse effects. The management of any sickness in the Unani system of medicine is based on *Mizāj* (temperament) of the disease and drugs based on heteropathy. In the case of asthma, herbal medications have shown to be effective in a variety of Unani pharmacological actions, including *Munḍij-i Balgham* (concoctive), *Munaffith-i Balgham* (expectorant), *Muhallil* (resolvent), *Dāfi- Su'āl* (antitussive), etc. Anti-asthmatic medicines of several types, such as β2 agonists, corticosteroids, mast cell stabilizers, methylxanthine, and leukotriene antagonists, are extensively used for symptomatic treatment of asthma in the modern medical system. Palpitation, muscular tremor, nausea, vomiting, headache, hoarseness, oral candidiasis, bruises, osteoporosis, hypertension, stomach ulcer, and depression are all side effects of these modern drugs. Unani medicine can provide a safe and effective alternative because it has vast literature and detailed descriptions of *Ḍīq al-Nafas* or *Dama*. The symptomatic management and the management of the actual cause of the disease are discussed in the Unani literature.

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