Management of Jaundice (*Yarqān*) in Unani Medicine

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ABSTRACT

Jaundice is characterized by yellowish discoloration of the skin, sclera, and mucous membranes due to hyperbilirubinemia, usually detectable clinically when the plasma bilirubin exceeds 50 µmol/l (3 mg/dl). It is biochemically assessed by the liver function test (LFT), which includes measurements of serum bilirubin, alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), gamma-glutamyl transferase, and albumin. Since ancient times, Greek-o-Arab physicians like Buqrat, Jaleenoos, Razi, Ibn-e-Sina, Tabri, and Masihi have introduced jaundice as Yarqān, with its variety, etiopathology, clinical aspects, and effectively treated through different modes of treatment; dietotherapy (*Ilaj bi'l Ghidha'*), regimenal therapy (*Ilaj bi'l Tadbir*), and pharmacotherapy (*Ilaj bi'l Dawa'*) consisting herboanimomineral source of Unani medicine; can be attributed to the presence of anti-inflammatory (*Muhallil-i-Aurām*), attenuant (*Mulaṭṭif*), deobstruent (*Mufattiḥ-i-Sudad*), diuretic (*Mudirr-i-Bawl*), bile-calming (*Musakkin-i-Ṣafrā'*), laxative (*Mulayyin*), bile purgative (*Mus'hil-i-Ṣafrā'*), bile alterative (*Mu'addil-i-Ṣafrā'*), hepatotonic (*Muqawwī-i-Kabid*), and hepatoprotective (*Muḥāfiẓ-i-Jigar*) activities. An attempt has been made to focus on the Unani concept and management of jaundice (*Yarqān*) in this chapter.

Keywords: Unani Medicine, jaundice, Yarqān, bile, liver functions

I. INTRODUCTION

The term jaundice is derived from the French word "jaune" which means yellow [1]. It is characterized by yellowish discoloration of the skin, sclera, and mucous membranes due to elevated levels of the chemical bilirubin in the blood (hyperbilirubinemia). It is usually detectable clinically when the plasma bilirubin exceeds 50 µmol/L (~3 mg/dl). According to allopathic medicine, jaundice is not a disease but rather a symptom of a number of potential underlying ailments, rather than being regarded as a disease in Unani medicine [2,3]. Since ancient times Greek-o-Arab physicians have introduced jaundice as Yarqān with its variety, etiopathology, clinical aspects, and effective treatment [4]. *Buqrat* [Hippocrates (460 BC)] describes in his book "Oanooncha Buqratiya" that Yarqān (jaundice) is defined as discoloration of the conjunctiva and skin with or without accompanying fever and is caused by continuous use of an impure diet. [4] Additionally, he also describes in his book "Jawamey-ul-ilaj wal-A'araz", as quoted by Razi in his book "Kitab-al-Havi Fi-al-Tib", that Yarqān can occasionally be developed by altered hot temperament (*Su-e-Mizaj Har*) of blood vessels, causing conversion of blood into yellow bile (*Khilṭ Ṣafrā'*) [5,6]. As quoted by Razi in "Kitab-al-Havi Fi-al-Tib", Jalinoos [Galenus (130–200 AD)] mentions that Yarqān occurs during crisis of disease known as Buḥrān. Yarqān is frequently caused by toxicity in the blood from insect bites and consumption of certain poisonous food articles, an imbalance of yellow bile (*Khilṭ Ṣafrā'*), obstruction in the liver (*Sudda-i-Kabid*), acute inflammation of the liver (*Waram-i-Kabid Hār*), and an inability of the gall bladder (*Mirārah*) to absorb yellow bile (*Khilṭ Ṣafrā'*) [5,6]. According to Ibn-e-Maswiyah, Yarqān is caused by contaminated food, poisons, crisis of disease (*Buḥrān*), and illness of the gall bladder, liver, bile ducts and blood vessels. The functions of the liver may be altered or failed by severe inflammation and obstruction. [5] According to Abu Sahal Masihi, the overheating of the liver and gall (*Harārat-i-Mirārah wa Kabid*) leads to Yarqān, which manifests as a number of signs and symptoms, including yellowish coloration of the skin, white coating of the tongue, constipation, weight loss, and epigastric and intestinal discomfort [5,6]. In his renowned book "Firdaus-al-Hikmat," Ali bin Rabban Tabari (810-895 A.D.) stated that Yarqān is evolved due to four factors: the gall bladder's weakness; the toxicity of insect bites; the obstruction in the gall bladder (*Sudda-i-Mirrah*) that prevents the normal

flow of bile from the liver to the gall bladder; and the diversion of excessive bile towards the skin by the body's constitutional force (*Tabiyat-i-Mudabbirah-i-Badan*) [5,6]. Abu Bakar Mohammad bin Zakariaya-aI-Razi [Rhazes (850–925 AD)] described that normal excretion of yellow bile (*Khilṭ Ṣafrā'*) is performed by physis of the body (*Tabiy'at-i-Badan*), but if it fails due to inflammation and obstruction of the liver, then yellow bile putrefies, resulting in fever and jaundice [5,6]. lbn-i-Sina (Avicenna) (980–1037 AD) in his famous book of medical encyclopedias "AI Qanoon Fit-Tib", mentioned that Yarqān is visible yellowish or blackish discoloration of the body due to diffusion of yellow or black bile from blood to skin with or without putrification. In cases of putrification, tertian or bilous fever (*Ḥummā-i-Ghibb*) and quartan fever (*Ḥummā-i-Rubu*) develop in Yarqān-i-Aṣfar (jaundice) and Yarqān-i-Aswad (black jaundice), respectively. The lesion of Yarqān-i-Aṣfar typically affects the liver or gall bladder, but Yarqān-i-Aswad also affects the spleen and occasionally the liver. Yarqān-i-Aṣfar and Yarqān-i-Aswad rarely appear together [5,6].

A. **Classification**

Patho-physiologically, it is categorized into three major types including pre hepatic (hemolytic), hepatic (hepato-cellular / Intra-hepatic), and post hepatic (obstructive / cholestatic). Pre hepatic and hepatic jaundice are known as medical jaundice while post hepatic jaundice is considered as surgical jaundice. Yarqān (Jaundice) is classified into two types; Yarqān Aṣfar (yellow jaundice) and Yarqān Aswad (black jaundice). Yarqān Aṣfar (yellow jaundice) etiologically further divided into two categories; Suddi (obstructive) and Gair Suddi (non obstructive) [7,8].

B. **Etiopathologylogy**

Pre hepatic jaundice characterized by an isolated raised serum bilirubin caused either by hemolysis or by congenital (Gilbert's syndrome). In this type of jaundice, unconjugated bilirubin raised in the blood predominantly due to excessive production of bilirubin overtaking the ability of liver to conjugate the bilirubin and excrete into the gut [3].

Hepatic or hepatocellular jaundice develops when the liver cannot transport bilirubin across the hepatocyte and into the bile, occurring as a result of parenchymal liver disease. Bilirubin transport across the hepatocytes may be impaired at any point between the uptake of unconjugated bilirubin into the cells and the transport of conjugated bilirubin into the canaliculi. Additionally, swelling of cells and oedema resulting from the disease itself may cause obstruction of the biliary canaliculi. The amount of increased bilirubin varies with this kind, and both unconjugated and conjugated bilirubin concentrations rise in the blood. Hepatic jaundice can be due to acute or chronic liver injury [3].

Post hepatic or obstructive jaundice is developed due to the failure of hepatocytes to initiate bile flow, or obstruction of bile flow in the bile ducts or portal tracts, or obstruction of bile flow in the extra hepatic bile ducts between the porta hepatis and the papilla of Vater. In the absence of treatment, cholestatic jaundice tends to become progressively more severe because conjugated bilirubin is unable to enter the bile canaliculi and passes back into the blood, and also because there is a failure of clearance of unconjugated bilirubin arriving at the liver cells [3]. Causes of obstructive jaundice are illustrated as intra-hepatic; primary biliary cirrhosis, primary sclerosing cholangitis, alcohol, drugs, cystic fibrosis, severe bacterial infections, hepatic infiltrations (lymphoma, granuloma, amyloid, metastases), pregnancy, inherited cholestatic liver disease, e.g. benign recurrent intrahepatic cholestasis, chronic right heart failure, and extra hepatic; carcinoma (ampullary, pancreatic, bile duct, liver metastases), choledocholithiasis, parasitic infection, traumatic biliary strictures, chronic pancreatitis [3]. Obstructive jaundice (*Yarqān Suddī*) induced by obstructive lesions like severe infiltration, cyst, tumor in the liver, bile duct and gall bladder [7,8].

According to Unani concept, non obstructive jaundice (*Yarqān Ghair Suddī*) precipitated by anemia (*Fiqr-ud-Dam*), disease crisis (*Buḥrān*), hot ill temperament of the liver (*Su-i-Mizaj-i-Kabid Haar*), ill temperament of the body (*Su-i-Mizaj-i-Badan*), hepatitis (*Waram-i-Kabid*), toxicity (*Sammiyat-e-Haiwan*), and hot weather or air (*Hawa-e-Haar*) [7-9]. Sometimes, the body's defensive mechanism expels the bile towards the skin and extremities during a disease crisis, which results in jaundice. Ill temperament of the liver may develop due to improperly metabolized food materials converted into bile and transmitted into blood circulation. Jaundice may occur due to excessive heat of the entire body or blood vessels, which accumulates more bile into the blood vessels, as is frequently seen in hyperpyrexia and pyaemia. Jaundice may occur due to toxic drugs and hazardous foods or the bite of poisonous animals, e.g. snakes, wasps, ants, locusts, etc. [7,8].

II. CLINICAL MANIFESTATIONS

Jaundice is clinically characterized by icterus, Murphy's sign, Charcot's triad, Reynold's Pentad, and Courvoisier's sign or law [3,10]. Murphy's sign, also known as Sweeney's sign, is considered positive if the patient exhibits tenderness and stops breathing upon inhalation as the gallbladder descends downward and makes contact with the examiner's hand. It may be a sign of cholecystitis. Charcot's triad is a manifestation of biliary obstruction with right upper quadrant pain, jaundice, and fever. Reynold's Pentad is represented by right upper quadrant pain, jaundice, fever, hypotension, and altered mental status found in acute cholangitis. Courvoisier's sign or law is explained as an enlarged, non-tender, and palpable gallbladder, which is present in patients with obstructive jaundice due to tumours of the biliary tree or pancreatic head [3,10]. Urine colour becomes dark in hepatic and post-hepatic types but normal in pre-hepatic type [3,10]. Stool appears acholic or pale in the post-hepatic type but normal in the pre-hapatic and hepatic types [3,10]. Pruritus is present in the post-hepatic type but absent in the pre-hapatic and hepatic types [3, 10]. Late clinical features of obstructive jaundice may appear as weight loss, steatorrhoea, osteomalacia, and bleeding tendency due to malabsorption of vitamins A, D, E, and K, associated with xanthelasma and xanthomas [3].

III. INVESTIGATIONS

Jaundice is biochemically assessed by the liver function test (LFT), which includes measurements of serum bilirubin, alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), gamma-glutamyl transferase, and albumin [3].

Jaundice caused by parenchymal liver disease is typically accompanied by elevations in transaminases (AST, ALT), though other LFTs, such as cholestatic enzymes (GGT, ALP), may also increase. Acute jaundice with an AST level of more than 1000 U/L is strongly suggestive of hepatitis A or B, drug usage (such as paracetamol), or hepatic ischaemia. ALP and GGT levels are comparatively more elevated in obstructed jaundice than aminotransferases [3].

Magnetic resonance imaging (MRI), abdominal ultrasonography (ultrasound), computerised tomography (CT) scan or computerised axial tomography (CAT) scan, endoscopic retrograde cholangiopancreatography (ERCP), and liver biopsy were also investigated to determine the causes of jaundice [3,10].

IV. MANAGEMENT

The jaundice patient's temperament deviates from normal to a dominantly hot and dry state due to hyperbilirubinemia, and bile has a tendency to become heated and dry. Therefore, it is typically rectified by utilizing foods, vegetables, fruits, drugs, and measures with cold and wet effects [7,8]. It is called heterotherapy (*'Ilāj bi'l Ḍidd*) in Unani medicine. The main objectives of management for jaundice (*Yarqān*) are to remove its underlying causes (*Izāla'-i-Sabab*), concoct the bilious humour (*Nuḍj-i-Ṣafrā'*), expel the altered bile from the body (*Tanqiya'-i- Ṣafrā'*), and moderate the bile (*Ta'dīl-i-Ṣafrā'*), which refers to returning the qualitatively and quantitatively altered bile to its normal state [7-9]. This goal is accomplished by adopting three different Unani therapeutic modalities, including dietotherapy (*Ilaj bi'l Ghidha'*), regimenal therapy (*Ilaj bi'l Tadbir*), and pharmacotherapy (*Ilaj bi'l Dawa'*) [4,9].

A. **Dietotherapy (Ilaj bi'l Ghidha')**

As per the Unani concept, easily-digestible foods and fruits such as green pumpkin (*Cucurbita moschata*), purslane (*Portulaca oleracea*), common mellow (*Malva sylvestris*), cucumber (*Curcumis sativus*), mung bean (*Vigna radiata*), red lentil (*Lens culinaris*), long melon (*Cucumis melo*), orange (*Citrus sinesis*), sweet lemon (*Citrus limetta*), pineapple (*Ananas comosus*), coconut water (*Cocos nucifera*), watermelon (*Citrullus lanatus*), and sour oxymel (*Sikanjabīn Tursh*) to be used in jaundice. [7,8] The entire parts of radish (Raphanus sativus) and turnip (Brassica rapa) are the best vegetables for jaundice [7].

Hard and late-digestible foods like milk, meat, mutton, fish, apple (*Malus pumila*), papaya (*Carica papaya*), spinach (*Spinacia oleracea*), fenugreek (*Trigonella foenum-graecum*), and brinjal (*Solanum melongena*) are to be avoided in jaundice [7].

White gourd water (*Āb-i-Kaddu*), water melon (*Āb-i-Tarbuz*), and barley water (*Mā'al-Sha'īr*) are suggested for toxicity (*Sammiyat-e-Haiwan*) induced jaundice [11]. Whey (*Mā'al-Jubn*) and barley water (*Mā'al-Sha'īr*) mixed with 3 g of each Turanjabeen (*Alhagi maurorum* exudate) and Tabasheer (*Bambusa arundinacea* gums) are the most useful diets for black jaundice (*Yarqān Aswad*) and hot ill temperament of the liver (*Su-i-Mizaj-i-Kabid Haar*) related jaundice, respectively [7,8]. Red lentil (*Lens culinaris*), mung bean (*Vigna radiata*), purslane (*Portulaca*

oleracea), Aloo Bukhara (*Prunus domestica*), almond (*Prunus amygdalus*), mulberry (*Morus macroura*), pomegranate (*Punica granathum*), and water melon (*Āb-i-Tarbuz*) are highly beneficial for hepatitis (*Waram-i-Kabid*) associated jaundice [11].

B. **Regimenal therapy (*Ilaj bi'l Tadbir*)**

The basic aim of this type of therapy is to attenuate the morbid material (*Talṭīf-i-Mādda wa Taqtiy-i-Mādda*) and resolve the disease matter. According to the cause of jaundice, patients are advised to adopt the various modes of regimes described below;

Therapeutic bathing or Turkish bathing (*Ḥammām*) in lukewarm water and moderate exercise (*Riyāḍat Mu'tadila*) before bathing can be done to help the body's defensive mechanisms expel the morbid material easily, as well as therapeutic massage (*Dalk*) with Roghan Baboona (*Matricaria chamomilla* flower oil) and Roghan Soya (*Anethum sowa* oil) should also be applied over the body in disease crisis (*Buḥrān*) induced jaundice [8, 11].

Blood-letting from the basilic vein (*Faṣd-i-Bāsilīq*) should be performed before medications in hot ill temperament of the liver (*Su-i-Mizaj-i-Kabid Haar*) related jaundice. Additionally, a purgation (*Ishāl*) can be induced by Tukhm-e-Kasni (*Cichorium intybus* seeds) 10.5 gm, Aloo Bukhara (*Prunus domestica*), and 10 numbers of Tamar-e-Hindi (*Tamarindus indica*) [11].

A purgation (*Ishāl*) can be induced by bile purgative (*Mus'hil-i-Ṣafrā'*), which consists of decanted liquid of soaked Halela-Zard (*Terminalia citrina*), Aloo Bukhara (*Prunus domestica*), Banafsha (*Viola odorata*), Tamar-e-Hindi (*Tamarindus indica*), Khayar-e-Shambar (*Cassia fistula),* and Turanjabeen (*Alhagi maurorum*) in disturbed body temperament (*Su-i-Mizaj-i- Badan*) associated jaundice [8,11].

Venesection from the basilic vein (*Faṣd-i-Bāsilīq*) or axillary vein (*Faṣd-i-Ibṭī*) should be done according to the patient's age, energy, and seasons in hepatitis (*Waram-i-Kabid*) caused jaundice. In addition to a purgation (*Ishāl*) can be induced by decoction (*Joshānda*) containing Halela Zard (*Terminalia chebula*), Bisfayej (*Polypodium vulgare*), Shahatra (*Fumaria pulviflora*), Gul-e-Surkh (*Rosa damascena*), Tukhm-e-Kasni (*Cichorium intybus*), Tukhm-e-Kasoos (*Cuscuta reflexa*), Tukhm-e-Bathua (*Chenopodium album*), Pursiya wa Sha'n (*Adiantum capillus-veneris*), Aloo Bukhara (*Prunus domestica*), Unnab (*Zizyphus jujuba*), Sapistan (*Caordia myxa*), and Khayar-e-Shambar (*Cassia fistula*) [11].

Blood-letting from the median cubital vein **(***Faṣd-i-Akḥal***) s**hould be done in toxicity (*Sammiyat-e-Haiwan*) induced jaundice [11].

Venesection from the axillary vein (*Faṣd-i-Ibṭī*) and third dorsal metacarpal vein (*Faṣd-i-Usaylim*) should be performed in obstructive jaundice (*Yarqān-i-Suddi*). Additionally, a purgation (*Ishāl*) can be induced by a decoction of Afsanteen (*Artemisia absinthium* whole plant) with Ayarij (*Aloe vera* dried juice of leaf)) and Saqmonia (*Convolvulus scammonia* gums) [11].

Blood-letting from the third dorsal metacarpal vein (*Faṣd-i-Usaylim*) should be performed in black jaundice (*Yarqān Aswad*), inclusive of a purgation (*Ishāl*), which can be induced by a decoction of Aftimoon (*Cuscuta epithymum* whole plant) [11].

C. **Pharmacotherapy (*Ilaj bi'l Dawa'*)**

The general principles of Unani treatment to eradicate jaundice (*Yarqān*) are recommended as correction of morbid temperament (*Iṣlāḥ-i-Sū'-i-Mizāj*), alleviation of raised body temperature (*Taskīn-i-Ḥarārat*), alleviation of abnormal bile (*Taskīn-i-Ṣafrā'*),concoction of bilious humour (*Nuḍj-i-Ṣafrā'*), evacuation of morbid humour from body (*Tanqiya'-i-Badan*), resolution of the swellings (*Taḥlīl-i-Awrām*), attenuation of thick viscid matter (*Talṭīf-i-Mādda*), inducing deobstruction (*Taftīḥ-i-Sudad*), and toning up of liver (*Taqwiyat-i-Kabid*) [4,7,8,11,12]. Following these guidelines, the Unani medications that should be administered for jaundice are as follows;

Luaab-e-Isapghol (*Plantago ovate* husk mucilage), Aab-e-Kasni (*Cichorium intybus* leaf water), Khurfa (*Portulaca oleracea* leaf), Turanjabeen (*Alhagi maurorum* exudate), Tabasheer (*Bambusa arundinacea* gums), and antidotes such as Tiryaq-e-Kabeer and Tiryaq-e-Farooque are given to the patient of toxicity induced jaundice[8,11].

Decoction water consisting of 35 mg of Afsanteen (*Artemisia absinthium* whole plant), Pursiya wa Sha'n (*Adiantum capillus-veneris* whole plant), Aab-e-Karafs (*Apium graveolens* leaf water), Aab-e-Bathua (*Chenopodium album* leaf water) each, and 3 g of Gariqoon (*Laricifomes officinalis* fungus) is suggested for obstructive jaundice. In addition, a formulation of 10 g of Afsanteen (*Artemisia absinthium* whole plant), 20 g of Tukhm-e-Bathua (*Chenopodium album* seeds), 5g of Revand Chini (*Rheum emodi* root), and Usara-e-Ghafis (*Gentiana kurroo* dried extract) along with 25 ml of Sikanjabeen (oxymel) is employed. *Jalinoos* (Galen) advises ingesting a powder (*Safūf*) that contains 3 g of Afsanteen (*Artemisia absinthium* whole plant) and Anisoon (*Pimpinella anisum* seeds) each, 3 pieces of Badam Talakh (*Prunus amygdalus* fruit), and 25 ml of Sikanjabeen (oxymel) [11,12].

Qurs Tabasheer Mulayyin (2 tablets), Aab-e-Kasni Sabz (*Cichorium intybus* fresh leaf water), Aab-e-Kasoos (*Cuscuta reflexa* herbs water) 20 ml each, and 20 ml of Sikanjabeen are more useful for the hot ill temperament of the liver (*Su-i-Mizaj-i-Kabid Haar*) causing jaundice [11]. If the body temperature of that patient becomes high, then 20 ml of Aab-e-Kasni (*Cichorium intybus* leaf water), and Aab-e-Kasoos (*Cuscuta reflexa* herb water) each, Sikanjabeen Sada (35 ml), 2 g of Tabasheer (*Bambusa arundinacea* gums), and 5 g of Tukhm-e-Bathua (*Chenopodium album* seeds) will be the most beneficial [11].

D. **Mechanism of Action of Unani drugs**

Unani drugs used for the treatment of jaundice (*Yarqān*) can be attributed to the presence of multiple spectrums of actions including anti-inflammatory (*Muhallil-i-Aurām*), attenuant (*Mulaṭṭif*), deobstruent (*Mufattiḥ-i-Sudad*), diuretic (*Mudirr-i-Bawl*), bile-calming (*Musakkin-i-Ṣafrā'*), laxative (*Mulayyin*), bile purgative (*Mus'hil-i-Ṣafrā'*), bile alterative (*Mu'addil-i-Ṣafrā'*), hepatotonic (*Muqawwī-i-Kabid*), and hepatoprotective (*Muḥāfiẓ-i-Jigar*) activities [4,7,8,11,12]. Anti-inflammatory (*Muhallil-i-Aurām*) activity may resolve the morbid and inflammatory matter of the liver, gall bladder, and biliary ducts. Attenuant (*Mulaṭṭif*) disintegrates morbid and obstructive material into smaller particles [4,13]. Deobstruent (*Mufattiḥ-i-Sudad*) potential may dissolve thick or viscous matter and may help to clear the obstruction of the liver, gall bladder, and biliary channels, to allow normal flow of bile [4,13]. Diuretic (*Mudirr-i-Bawl*) activity may excrete out the raised conjugated bilirubin; water soluble bile through urine and it can also help to flush out easily elevated unconjugated bilirubin from kidney possibly by converting it into conjugated bilirubin [4,13,14]. Bile-calming (*Musakkin-i-Ṣafrā'*) activity may neutralize excessive heat of bile and may concoct abnormal bile to make able for eradication. Bile purgative (*Mus'hil-i-Ṣafrā'*) activity may help to expel out the concocted bile through loose motions [4,13]. Laxative (*Mulayyin*) property may provide bulk-forming substances, as the bile has an affinity to bind with fibers (cellulose), so it also helps in the excretion of bile through stool [4,14]. Bile alterative (*Mu'addil-i-Ṣafrā'*) activity normalize the qualitative and quantitative changes in the bile caused by jaundice. Hepatotonic (*Muqawwī-i-Kabid*) activity may tone up liver cells and regulate liver function. Hepatoprotective (*Muḥāfiẓ-i-Jigar*) can protect liver cells from the toxic effects of high bilirubin. Antinauseant (*Musakkin-i-Ghathayān*), antiemetic (*Musakkin-i-Qay'*), digestive (*Hāḍim*), and carminative (*Kāsir-i-Riyāḥ*) activities may facilitate escaping the symptoms of jaundice [4,13].

E. **Single Drugs (*Mufrad Advia*)**

The herbal-derived Unani single drugs used for the management of jaundice (*Yarqān*) are illustrated as follows [4,7-9,11,1215,16];

Table 1: Unani single drugs used for the management of Jaundice (Yarqān)

Unani Name / Common Name	Botanical Name / Scientific Name	Part Used	Temperament	Pharmacological Action
Afsanteen (Wormwood)	*Artemisia absinthium* Linn.	Whole plant	Hot 2° & Dry 3°	Anti-inflammatory (*Muhalli-i-Aurām*), Deobstruent (*Mufattiḥ*), Diuretic (*Mudirr-i-Bawl*), Hepatotonic (*Muqawwī-i-Kabid*), Stomachic (*Muqawwī-i-Mi'da*).
Aloo Bukhara (Damascus Plum)	*Prunus domestica* Linn.	Fruit	Cold 1° & Wet 1°	Bile-calming (*Musakkin-i-Ṣafrā'*), Bile purgative (*Mus'hil-i-Ṣafrā'*), Laxative (*Mulayyin*).
Amaltas (Golden Shower Tree)	*Cassia fistula* Linn.	Kernel	Hot 1° & Wet 1°	Anti-inflammatory (*Muhalli-i-Aurām*), Purgative (*Mus'hil*).
Anar (Pomegranate)	*Punica granathum* Linn.	Fruit	Cold 1° & Wet 1°	Bile-calming (*Musakkin-i-Ṣafrā'*)
Anisoon (Anise / Aniseed)	*Pimpinella anisum* Linn.	Seeds	Hot 1° & Dry 1°	Digestive (*Hāḍim*), Carminative (*Kāsir-i-Riyāḥ*).
Asaroon (European Wild Ginger)	*Asarum europeaum* Linn.	Root	Hot 2° & Dry 1°	Anti-inflammatory (*Muhallil-i-Aurām*), Diuretic (*Mudirr-i-Bawl*)
Badam (Almond)	*Prunus amygdalus* Batsch.	Fruit	Hot 1° & Dry 1°	Diuretic (*Mudirr-i-Bawl*)
Bisfayej (Common	*Polypodium vulgare*	Rhizome	Hot 1° & Dry 1°	Purgative (*Mus'hil*), Anti-

Polypody)	Linn.			inflammatory (*Muhallil-i-Aurām*), Carminative (*Kāsir-i-Riyāḥ*)
Barhamdandi (Brahmādaṇḍī)	*Tricholepis glaberrima* DC.	Whole plant	Hot 1° & Dry 1°	Bile purgative (*Mus'hil-i-Ṣafrā'*), Anti-inflammatory (*Muhalli-i-Aurām*)
Brinjasif (Common Mugwort)	*Artemisia vulgaris* Linn.	Whole plant	Hot 2° & Dry 1°	Anti-inflammatory (*Muhallil-i-Aurām*), Deobstruent (*Mufattiḥ*), Diuretic (*Mudirr-i-Bawl*), Attenuant (*Mulaṭṭif*)
Foh (Common Madder / Indian Madder)	*Rubia cordifolia* Linn.	Root	Hot 1° & Dry 2°	Diuretic (*Mudirr-i-Bawl*), Deobstruent (*Mufattiḥ-i-Sudad*)
Gariqoon (Agarikon)	*Laricifomes officinalis* (Vill.) Kotl. & Pouzar.	Fungus	Hot 1° & Dry 3°	Purgative (*Mus'hil*), Deobstruent (*Mufattiḥ-i-Sudad*), Attenuant (*Mulaṭṭif*)
Ghafis (Himalayan Gentian)	*Gentiana kurroo* Royle	Flower, Dried Extract	Hot 2° & Dry 1°	Anti-inflammatory (*Muhalli-i-Aurām*), Diuretic (*Mudirr-i-Bawl*), Attenuant (*Mulaṭṭif*), Humors Purgative (*Mus'hil-i-Akhlāṭ*), Diaphoretic (*Mu'arriq*)
Gul-e-Surkh (Rose)	*Rosa damascena* Mill.	Flower	Murakkab-ul-Quva	Anti-inflammatory (*Muhallil-i-Aurām*), Bile-calming (*Musakkin-i-Ṣafrā'*).
Halela Zard (Myrobalan)	*Terminalia chebula* Retz.	Fruit	Cold 1° & Dry 2°	Purgative (*Mus'hil*), Stomachic (*Muqawwī-i-Mi'da*).
Isabgol (Blond Psyllium)	*Plantago ovata* Forssk.	Husk	Cold 1° & Wet 1°	Febrifuge (*Musakkin-i-Ḥarārat*), Glueing (*Mugharrī*)
Kahu (Lettuce)	*Lactuca sativa* Linn.	Leaves	Cold 2° & Wet 1°	Bile-calming (*Musakkin-i-Ṣafrā'*), Diuretic (*Mudirr-i-Bawl*)
Karafs (Celery)	*Apium graveolens* Linn.	Seeds, Root	Hot 2° & Dry 1°	Deobstruent (*Mufattiḥ-i-Sudad*), Diaphoretic (*Mu'arriq*), Carminative (*Kāsir-i-Riyāḥ*)
Khurfa (Common Purslane / Pursley)	*Portulaca oleracea* Linn.	Seeds, Leaves	Cold 1° & Wet 1°	Refrigerant (*Mubarrid*), Bile-calming agent (*Musakkin-i-Ṣafrā'*), Febrifuge (*Musakkin-i-Ḥarārat*), Diuretic (*Mudirr-i-Bawl*)
Kishneez (Coriander)	*Coriandrum sativum* Linn.	Whole plant	Murakkab-ul-Quwa	Febrifuge (*Musakkin-i-Ḥarārat*), Anti-inflammatory (*Muhalli-i-Aurām*)
Lablab-e-Kabeer (Pinwheel Flower / Crape Jasmine)	*Tabernaemontana divaricata* R.Br. ex Roem. & Schult.	Flower	Moderate	Anti-inflammatory (*Muhallil-i-Aurām*), Deobstruent (*Mufattiḥ*), Laxative (*Mulayyin*)
Magz-e-Tukhm-e-Kaddu (White Gourd)	*Cucurbita moschata* Duch.	Kernel	Cold 2° & Wet 1°	Bile-calming (*Musakkin-i-Ṣafrā'*), Diuretic (*Mudirr-i-Bawl*)
Magz-e-Tukhm-e-Khayarain (Cucumber)	*Cucumis sativus* Linn.	Kernel	Cold 2° & Wet 1°	Bile-calming (*Musakkin-i-Ṣafrā'*), Diuretic (*Mudirr-i-Bawl*)
Mako (Blackberry / Nightshade)	*Solalum nigrum* Linn.	Fruit, Leaves	Cold 2° & Dry 1°	Anti-inflammatory (*Muhalli-i-Aurām*), Febrifuge (*Musakkin-i-Ḥarārat*)
Petha (White Gourd Melon)	*Benincasa hispida* (Thunb.) Cogn.	Kernel	Cold 1° & Wet 1°	Febrifuge (*Musakkin-i-Ḥarārat*), Diuretic (*Mudirr-i-Bawl*)

Pudina (Mint)	*Mentha spicata* Linn.	Whole plant	Hot 1° & Dry 2°	Bile-calming (*Musakkin-i-Ṣafrā'*), Diuretic (*Mudirr-i-Bawl*), Diaphoretic (*Mu'arriq*), Digestive (*Hāḍim*), Carminative (*Kāsir-i-Riyāḥ*)
Pursiya wa Sha'n (Maidenhair Fern)	*Adiantum capillus-veneris* Linn.	Whole plant	Moderate	Diuretic (*Mudirr-i-Bawl*), Attenuant (*Mulaṭṭif*), Anti-inflammatory (*Muhalli-i-Aurām*), Deobstruent (*Mufattiḥ*)
Revand Chini (Himalayan Rhubarb)	*Rheum emodi* Wall.	Root	Hot 1° & Dry 2°	Purgative (*Mus'hil*), Diuretic (*Mudirr-i-Bawl*)
Sandal Safed (Indian Sandalwood)	*Santalum album* Linn.	Sawdust	Cold 1° & Dry 1°	Calming (*Musakkin*), Antiseptic (*Dafey-e-Ta'affun*)
Sandal Surkh (Red Sandalwood)	*Lingoum santalinum* (L.f.) Kuntze	Sawdust	Cold 1° & Dry 1°	Calming (*Musakkin*), Blood purifier (*Muṣaffī-i-Dam*).
Sapistan (Indian Cherry / Glue Berry)	*Cordia dichotoma* G. Forst.	Fruit	Hot 1° & Dry 1°	Attenuant (*Mulaṭṭif*), Glueing (*Mugharrī*), Bile-calming (*Musakkin-i-Ṣafrā'*)
Saqmonia (Scammony)	*Convolvulus scammonia* Linn.	Gums	Hot 3° & Dry 1°	Bile purgative (*Mus'hil-i-Ṣafrā'*), Stomachic (*Muqawwī-i-Mi'da*), Hepatotonic (*Muqawwī-i-Kabid*)
Shahtoot (Mulberry)	*Morus macroura* Miq.	Fruit	Hot 1° & Wet 1°	Attenuant (*Mulaṭṭif*), antibilious (*Qāṭi'-i-Ṣafrā'*), Deobstruent (*Mufattiḥ-i-Sudad*)
Sibr (Aloe)	*Aloe vera* Linn. Burm.f.	dried latex	Hot 2° & Dry 2°	Purgative (*Mus'hil*), Laxative (*Mulayyin*), Anti-inflammatory (*Muhalli-i-Aurām*), Stomachic (*Muqawwī-i-Mi'da*), Hepatotonic (*Muqawwī-i-Kabid*)
Tabasheer (Bamboo Silica / Banslochan)	*Bambusa arundinacea* (Retz.) Willd.	Gums	Cold 1° & Dry 2°	Refrigerant (*Mubarrid*), Antiemetic (*Musakkin-i-Qay'*), Anti-diarrheal (*Dafey-e-Is'hāl*)
Tukhm-e-Bathua (Melde / White Goosefoot)	*Chenopodium album* Linn.	Seeds	Hot 1° & Dry 1°	Laxative (*Mulayyin*), Diuretic (*Mudirr-i-Bawl*),
Tukhm-e-Hammaz (Ruby Dock / Bladder Dock)	*Rumex vesicarius* Linn.	Seeds	Cold 1° & Dry 1°	Calming (*Musakkin*), Glueing (*Mugharrī*)
Tukhm-e-Kasni (Chicory)	*Cichorium intybus* Linn.	Seeds	Cold 1° & Dry 1°	Bile-calming (*Musakkin-i-Ṣafrā'*), Deobstruent (*Mufattiḥ-i-Sudad*), Diuretic (*Mudirr-i-Bawl*)
Tukhm-e-Kasoos (Giant Dodder)	*Cuscuta reflexa* Roxb.	Seeds	Hot 1° & Dry 2°	Purgative (*Mus'hil*), Attenuant (*Mulaṭṭif*), Anti-inflammatory (*Muhalli-i-Aurām*), Diuretic (*Mudirr-i-Bawl*), Hepatotonic (*Muqawwī-i-Kabid*)
Tukhm-e-Kharpazah (Muskmelon)	*Cucumis melo* Linn.	Seeds	Hot 2° & Wet 1°	Febrifuge (*Musakkin-i-Ḥarārat*), Deobstruent (*Mufattiḥ-i-Sudad*), Hepatotonic (*Muqawwī-i-Kabid*)
Tukhm-e-Sambhalu (Five-Leaved Chaste Tree)	*Vitex negundo* Linn.	Seeds	Hot 1° & Dry 1°	Anti-inflammatory (*Muhallil-i-Aurām*), Attenuant (*Mulaṭṭif*), Diuretic (*Mudirr-i-Bawl*)
Tukhm-e-Tarbuzah (Watermelon)	*Citrullus lanatus* (Thunb.) Matsum &	Seeds	Cold 1° & Wet 1°	Febrifuge (*Musakkin-i-Ḥarārat*), Diuretic (*Mudirr-i-Bawl*)

	Nakal			
Turab (Radish)	*Raphanus sativus* Linn.	Root	Hot 2° & Dry 1°	Attenuant (*Mulaṭṭif*), Diuretic (*Mudirr-i-Bawl*), Anti-inflammatory (*Muhalli-i-Aurām*), Digestive (*Hāḍim*), Carminative (*Kāsir-i-Riyāḥ*)
Turanjabeen (Camelthorn / Caspian Manna)	*Alhagi maurorum* Medik	Exudates	Moderate	Bile purgative (*Mus'hil-i-Ṣafrā'*)
Unsul (Onion)	*Allium cepa* Linn.		Hot 2° & Dry 1°	Anti-inflammatory (*Muhalli-i-Aurām*), Diuretic (*Mudirr-i-Bawl*)
Zafran (Saffron)	*Crocus sativus* Linn.	Stigma	Hot 1° & Dry 1°	Anti-inflammatory (*Muhalli-i-Aurām*), Diuretic (*Mudirr-i-Bawl*)
Zarishk (Barberry)	*Berberis vulgaris* Linn.	Fruit	Cold 1° & Wet 1°	Bile-calming (*Musakkin-i-Ṣafrā'*), Bile Alterative (*Mu'addil-i-Ṣafrā'*)

F. **Compound Drugs (Advia-e-Murakkabah)**

Unani pharmacopeial formulations used for the management of jaundice (*Yarqān*) include distillate (*Arq*); Arq Afsanteen, Arq Brinjasif, Arq Kasni, Arq Mako, electuary (*Dawā' / Jawārish / Ma'jūn*); Dawa-ul-Kurkum, Dawa-ul-Luk, Jawarish Tamar Hindi, Jawarish-e-Ood Tursh, Majoon-e-Dabeed-ul-Ward, pill; Habb-e-Kabid Naushadari, tablet; Qurs-e-Ghafis, Qurs-e-Tabasheer Molaiyin, Qurs-e-Ward, Qurs-e-Zarishk, syrup; Sharbat Buzoori Motadil, Sharbat-e-Deenar, oxymel (*Sikanjabīn*); Sikanjabeen Buzoori Motadil, Sikanjabeen Lemuni, Sikanjabeen Nanaee, Sikanjabeen Sada [17-19]. Their pharmacological actions, ingredients, dosage, and method of administration are described below in detail;

Arq Afsanteen

It has anti-inflammatory (*Muhallil-i-Aurām*) and deobstruent (*Mufattiḥ-i-Sudad*) properties. Therapeutically, it is used for the treatment of hepatitis (*Waram-i-Kabid*), and hepatic obstruction (*Tasaddud-i-Kabid*) [17]. It contains mainly aqueous distillate from Afsanteen (*Artemisia absinthium*). The recommended dosage is 50 to 100 ml, which should be taken orally twice a day, in the morning and evening, on an empty stomach, with 60 ml of Arq Badiyan or 20 ml of Sharbat Kasoos [17].

Arq Brinjasif

It possesses anti-inflammatory (*Muhallil-i-Aurām*) activity. It resolves the swelling of visceral organs. It is more beneficial for the treatment of liver diseases and phlegmatic fever [18]. It primarily contains aqueous distillate from Brinjasif, and other ingredients include Shukayi (*Fagonia cretica* whole plant), Badranjboya (*Melissa parviflora* leaf), Badiyan (*Foeniculum vulgare* fruit), and Mavaiz-e-Munaqqa (*Vitis vinifera* fruit) [18]. The dosage is 60 to 120 ml twice daily, to be consumed orally on an empty stomach in the morning and evening with fresh water [18].

Arq Kasni

It acts as an anti-inflammatory (*Muhallil-i-Aurām*) and bile-calming (*Musakkin-i-Ṣafrā'*) agent. It is quite useful for hepatitis (*Waram-i-Kabid*), jaundice (*Yarqān*), and excessive thirst (*Atash-e-Mufrat*) [17,18]. Its chief ingredient is aqueous distillate from Tukhm-e-Kasni (*Cichorium intybus* seeds) [17]. The dosage is 75 to 100 ml twice daily, to be taken orally on an empty stomach in the morning and evening with fresh water [17].

Arq Mako

It has anti-inflammatory (*Muhallil-i-Aurām*) and hepatotonic (*Muqawwī-i-Kabid*) potentials. It is used to treat inflammation of visceral organs (*Waram-i-Ah'sha'*) and weakness of the liver (*Zo'af-i-Kabid*) [17,18]. Its chief component is the aqueous distillate from Mako (*Solalum nigrum* seeds) [17]. The dosage is 60 to 120 ml twice daily, to be administered orally on an empty stomach in the morning and evening with fresh water [17].

Dawa-ul-Kurkum

It possesses diuretic (*Mudirr-i-Bawl*) and hepatotonic (*Muqawwī-i-Kabid*) activities. It is useful for weakness of the liver (*Zo'af-i-Kabid*), indigestion (*Zo'af-i-Hazm*), ascites (*Is'tisqa'*), nephralgia (*Waj-ul-Kulya*), and retention of urine (*Iḥtibās al-Bawl*) [17]. Its main component is Za'frān (*Crocus sativus* stigma), and other ingredients are

Sumbul-ut-Teeb (*Nardostachys jatamansi* rhizome), Mur (*Commiphora myrrha*), Saleekhah (*Cinnamomum aromaticum* bark), Qust (*Saussurea lappa* root), Izkhar (*Andropogons choeranthus* bud), Darchini (*Cinnamomum zeylanicum* inner stem bark), and Shahad (*Apis mellifera* honey) [17]. The recommended dosage is 5 to 10 g, to be taken orally twice a day, on an empty stomach in the morning and evening, with fresh water [17].

Dawa-ul-Luk

It has anti-inflammatory (*Muhallil-i-Aurām*) and deobstruent (*Mufattiḥ-i-Sudad*) properties. It resolves hepatitis (*Waram-i-Kabid*), ascites (*Is'tisqa'*), and hardness of the spleen (*Salabat-i-Tihāl*) [17]. Its chief ingredient is Luk Maghsool (Lac), and other constituents are Qust Talkh (*Saussurea hypoleuca* root), Shagufa-e-Izkhar (*Andropogons choeranthus* bud), Tunrmus (*Lipinus album*), Habb-ul-Ghaar (*Prunus laurocerasus* seed), Tukhm-e-Hulba (*Trigonella foenum-graecum* seed), Filfil Siyah (*Piper nigrum* fruit), Rewand Chini (*Rheum officinale* root), and Shahad (*Apis mellifera* honey) [17]. The dosage is 5 g to 10 g, to be ingested twice daily, on an empty stomach in the morning and evening, with fresh water [17].

Habb-e-Kabid Naushadari

It possesses digestive (Hāḍim), stomachic (*Muqawwī-i-Mi'da*), and hepatotonic (*Muqawwī-i-Kabid*) activities. It eradicates indigestion (*Zo'af-i-Hazm*) and hepatitis (*Waram-i-Kabid*) [17,18]. Its constituents are Naushadar (ammonium chloride), Namak-e-To'am (sodium chloride), Namak Siyah (black salt), Namak-e-Sang (rock salt), Tankar Biryan (borax), Narkachoor (*Zingiber zerumbet* rhizome), Halela Siyah (*Terminalia chebula* fruit), Post-e-Halela Kabli (*Terminalia chebula* unripe fruit), Baobarang (*Embelia ribes* seed), Filfil Siyah (*Piper nigrum* fruit), Zanjabeel (*Zingiber officinale* rhizome), and Arq-e-Gulab (*Rosa damascene* flower distillate) [17]. The dosage is 500 mg to 1 g or 2 pills to be administered orally twice a day, after a meal with fresh water [17].

Jawarish Tamar Hindi

It has digestive (*Hāḍim*), antiemetic (*Daf-i-Qai*), and antibilious (*Dafey-i-Safra*) properties. It eliminates weakness of the stomach (*Zo'af-i-Meda*), vomiting (*Qai*), and nausea (*Ghisyan*) [17]. It contains mainly Aab-e-Tamar Hindi (*Tamarindus indica* kernel water) and other ingredients such as Gul-e-Surkh (*Rosa damascene* flower), Kishneez (*Coriandrum sativum* fruit), Mastagi (*Pistacia lentiscus* resin), Dana Heel Khurd (*Elettaria cardamomum* fruit), Zarishk (*Berberis aristata* fruit), Tabasheer (*Bambusa bambos* crystal), Sazaj Hindi (*Cinnamomum tamala* leaf), Post-e-Turanj (*Terminalia chebula* fruit rind), Pudina (*Mentha arvensis* aerial), Sandal Safaid (*Santalum album* heart wood), Aab-e-Anar (*Punica granatum* fruit water), Murabba-e-Amla (*Emblica officinalis*), and Qand Safaid (*Saccharum officinarum* crystal) [17]. The dosage is 5 g to 10 g, to be ingested twice daily, after a meal with fresh water.

Jawarish-e-Ood Tursh

It possesses digestive (*Hāḍim*), antiemetic (*Daf-i-Qai*), and antibilious (*Dafey-i-Safra*) activities. It is quite beneficial for weakness of the stomach (*Zo'af-i-Meda*), vomiting (*Qai*), and nausea (*Ghisyan*) [17]. It comprises Ood Hindi (*Aqullaria agallocha* wood), Sumbul-ut-Teeb (*Nardostachys jatamansi* rhizome), Heel Khurd (*Elettaria cardamomum* fruit), Zafran (*Crocus sativus* stigma), Post-e-Turanj (*Terminalia chebula* fruit rind), Qaranful (*Syzygium aromaticum* flower bud), Darchini (*Cinnamomum zeylanicum* inner stem bark), Badranjboya (*Melissa parviflora* leaf),, Mastagi (*Pistacia lentiscus* resin), Tabasheer (*Bambusa bambos* crystal), Aab-e-Seb Tursh (*Malus Sylvestris* fruit water), Arq-e-Gulab (*Rosa damascene* flower distillate), Aab-e-Lemu Kaghzi (*Citrus aurantifolia* fruit water), and Asal (*Apis mellifera* honey) [17]. The dosage is 5 g to 10 g, to be ingested twice daily, after a meal with fresh water.

Majoon-e-Dabeed-ul-Ward

It has anti-inflammatory (*Muhallil-i-Aurām*), diuretic (*Mudirr-i-Bawl*) potentials. It is indicated in ascites, hepatitis, gastritis, swelling of the uterus, and weakness of the liver [17,18]. Its chief constituents are Gul-e-Surkh (*Rosa damascene* flower) and Zafran (*Crocus sativus* stigma) and other constituents includes Izkhar Makki (*Cymbopogon jwarancusa* leaf), Agar Hindi (*Aquliaria agallccha* wood), Balchhar, (*Nardosachys jatamansi* rhizome), Banslochan, (*Bambusa arundinacea* crystal), Tukhm-e-Kansi (*Cichorium intybus* seed), Tukhm-e-Kasoos (*Cuscuta reflexa* seed), Tukhm-e-Karafs (*Apium graveolens* seed), Taj Qalmi (*Cinnamomum cassia*), Darchini (*Cinnamomum zeylanicum* inner stem bark), Zarawand Mudharaj (*Aristolochina rotunda* root), Qust Shirin (*Saussurea hypoleuca* root), Gul-e-Ghafis (*Gentiana dahurice* flower), Luk Maghsool (*Lac*), Foh (*Rubia Cordifolia* root), Qiwam Shakar (*Saccharum officinarum* crystal), Gawzaban (*Borago offiinalis* leaf), and Mastagi (*Pistacia*

lentiscus resin) [18]. The recommended dosage is 5 to 10 g. It is to be taken with 60 ml of Arq-e-Badiyan or Arq Brinjasif or 40 ml of Sharbat-e-Deenar on an empty stomach twice a day orally with fresh water [18].

Qurs-e-Ghafis

It acts as an anti-inflammatory (*Muhallil-i-Aurām*) and deobstruent (*Mufattiḥ-i-Sudad*) agent. Therapeutically, it is used in cholecystitis (*Waram-i-Mirara*), hepatitis (*Waram-i-Kabid*), spleenomegally (*Waram-i-Tehal*), and jaundice (*Yarqan*) [17]. Its components are Usara-e-Ghafis (*Gentiana olivierii* extract), Turaijabeen (*Alhagi maurorum* exudates), Gul-e-Surkh (*Rosa damascene* flower), Sumbul-ut-Teeb (*Nardostachys jatamansi* rhizome), and Tabasheer (*Bambusa bambos* crystal) [17]. The dosage is 5 g to 10 g, to be ingested twice daily, on an empty stomach in the morning and evening, with fresh water [17].

Qurs-e-Tabasheer Molaiyin

It possesses laxative (*Mulayyin*), attenuant (*Mulaṭṭif*), and anti-pyretic (*Daf-i-Tap*) potentials. It is more beneficial for constipation (*Qabz*), fevers (*Hummiyat*), sore throat (*Khushunat-e-Halaq*), and tuberculosis (*Sil-o-Dique*) [17]. It is composed of Tabasheer (*Bambusa bambos* crystal), Turanjabeen (*Alhagi maurorum* exudates), Maghz-e-Tukhm-e-Khiyarain (*Cucumis sativus* kernel), Maghz-e-Tuktam-e-Kaddu (*Cucurbita moschata* kernel), Nishasta-e-Gandum (*Triticum aestivum* starch), Samagh-e-Arabi (*Acassia arabica* gum), Kateera (*Tragacanth religiosum* gum), Khashkhaash Safaid (*Papaver somniferum* seed), and Lo'aab-e-Aspagol (*Plantago ovata* husk) [17]. The dosage is 3 g to 5 g, to be administered orally twice a day, on an empty stomach in the morning and evening, with lukewarm water [17].

Qurs-e-Ward

It has deobstruent (*Mufattiḥ-i-Sudad*) and anti-pyretic (*Dafey-e-Tap*) properties. It removes hepatic obstruction (*Sudad-i-Kabid*) and bilious fever (*Hummiyat-i-Safrawi*) [19]. Its constituents are Gul-e-Surkh (*Rosa damascene* flower), Usara-e-Ghafis (*Gentiana olivierii* extract), Tabasheer (*Bambusa bambos* crystal), Rubb-us-Soos (*Glycyrrhiza glabra* dried extract), and Sumbul-ut-Teeb (*Nardostachys jatamansi* rhizome) [19]. The dosage is 3 g to 5 g, to be ingested twice daily, on an empty stomach in the morning and evening with fresh water [19].

Qurs-e-Zarishk

It has hepatotonic (*Muqawwī-i-Kabid*), anti-inflammatory (*Muhallil-i-Aurām*), and diuretic (*Mudirr-i-Bawl*) activities. It is more useful for weakness of the liver (*Zof-i-Kabid*), anaemia (*Su-ul-Qunya*), and retention of urine (*Iḥtibās al-Bawl*) [17]. It consists of Zarishk (*Berberis aristata* fruit), Rewand Chini (*Rheum officinale* root), Gul-e-Surkh (*Rosa damascene* flower), Maghz-e-Tukhm-e-Khiyaram (*Cucumis sativus* kernel), Sandal Safaid (*Santalum album* heart wood), Tukhm-e-Kasni (*Cichorium intibus* seed), Luk MaghsooI (lac), Asl-us-Soos (*Glycyrrhiza glabra* root), Gul-e-Nilofar (Nymphaea alba flower), and Tabasheer (*Bambusa bambos* crystal) [17]. The dosage is 5 g to 10 g, to be taken orally twice a day, on an empty stomach in the morning and evening with fresh water [17].

Sharbat Buzoori Motadil

It possesses diuretic (*Mudirr-i-Bawl*) and deobstruent (*Mufattiḥ-i-Sudad*) activities. It removes retention of urine (*Iḥtibās al-Bawl*) and hepatic obstruction (*Tasddud-i-Kabid*). Its components include Bekh-e-Kasni (*Cichorium intibus* root), Bekh-e-Badiyan (*Foeniculum vulgare* root), Tukhm-e-Kasni (*Cichorium intibus* seed), Tukhm-e-Khiyarza (*Cucumis sativus* seed), Tukhm-e-Khiyar (*Cucumis sativus* seed), Tukhm-e-Kharbuza (*Malva sylvestris* seed), Khar-e-Khasak Khurd (*Tributes terrestris* fruit), and Qand Safaid (*Saccharum officinarum* crystal) [17]. The recommended dosage is 25 to 50 ml, to be consumed twice daily on an empty stomach with fresh water.

Sharbat-e-Deenar

It has anti-inflammatory (*Muhallil-i-Aurām*), deobstruent (*Mufattiḥ-i-Sudad*), and diuretic (*Mudirr-i-Bawl*) properties. It resolves hepatitis (*Waram-i-Kabid*), metritis (*Waram-i-Rahem*), ascites (*Is'tisqa*), pleurisy (*Zat-ul-Janb*) [17,18]. It also removes obstructive jaundice (*Yarqan-i-Suddi*) and constipation (*Qabz*) [17]. It contains Post-e-Bekh-e-Kasni (*Cichorium intibus* root bark), Tukhm-e-Kasoos (*Cuscuta reflexa* seed), Tukhm-e-Kasni (*Cichorium intibus* seed), Ghuncha-e-Gul-e-Surkh (*Rosa damascene* flower bud), Rewand Chini (R*heum officinale* root), Gul-e-Nilofar (*Nymphaea alba* flower), Gaozaban (*Borago offiinalis* leaf), and Qand Safaid (*Saccharum officinarum* crystal) [17]. The dosage is 20 to 40 ml, to be taken orally twice a day on an empty stomach with fresh water [17].

Sikanjabeen Buzoori Motadil

It possesses deobstruent (*Mufattiḥ-i-Sudad*), diuretic (*Mudirr-i-Bawl*), hepatotonic (*Muqawwī-i-Kabid*), and anti-pyretic (*Dafey-e-Tap*) activities. It eliminates hepatic obstruction (*Tasddud-i-Kabid*), mixed fever (*Humma-i-Murakkab*), and retention of urine (*Iḥtibās al-Bawl*) [17]. It comprises Sumbul-ut-Teeb (*Nardostachys jatamansi* rhizome), Heel (*Elettaria cardamomum* fruit), Tukhm-e-Kasni (*Cichorium intibus* seed), Badiyan (*Foeniculum vulgare* seed), Tukkm-e-Karafs (*Apium graveolens* seed), Sirka Naishakar (*Saccharum officinarum* vinegar), and Qand Safaid (*Saccharum officinarum* crystal) [17]. The dosage is 25 to 50 ml, to be taken orally twice a day on an empty stomach with fresh water [17].

Sikanjabeen Lemuni

It acts as a hepatotonic (*Muqawwī-i-Kabid*) and Stomachic (*Muqawwī-i-Mi'da*) agent. It recovers weakness of the stomach (*Zo'af-i-Mi'da*) and weakness of the liver (*Zo'af-i-Kabid*). It abolishes excessive thirst (*Atash-i-Mufrat*), cholera (*Haiza*), nausea (*Ghisyan*), vomiting (*Qai*), and indigestion (*Su-i-Hazam*) [17]. It contains Sirka Naishakar (*Saccharum officinarum* vinegar), Arq-e-Gulab (*Rosa damascene* flower distillate), Aab-e-Lemu Kaghzi (*Citrus aurantifolia* fruit water), and Qand Safaid (*Saccharum officinarum* crystal) [17]. The prescribed dosage is 25 to 50 ml, to be taken orally twice a day on an empty stomach with fresh water [17].

Sikanjabeen Nanaee

It has anti-bilious (*Dafey-e-Safra*) and digestive (*Hāḍim*) properties. It is more beneficial for the treatment of obstructive jaundice (*Yarqan-i-Suddi*), nausea (*Ghisyan*), vomiting (*Qai*), indigestion (*Su-i-Hazam*), and cholera (*Haiza*) [17]. It is composed of Pudina Khushk (*Mentha arvensis* aerial), Sirka Naishakar (*Saccharum officinarum* vinegar), and Qand Safaid (*Saccharum officinarum* crystal) [17]. The dosage is 25 to 50 ml, to be taken orally twice a day on an empty stomach with fresh water [17].

Sikanjabeen Sada

It possesses antibilious (*Dafey-e-Safra*) and anti-pyretic (*Dafey-e-Tap*) activities. It is beneficial to treat nausea (*Ghisyan*), vomiting (*Qai*), obstructive jaundice (*Yarqan-i-Suddi*), bilious fever (*Humma-i-Safrawi*), and (*Su-i-Hazam*) [17]. It consists of Sirka Naishakar (*Saccharum officinarum* vinegar) and Qand Safaid (*Saccharum officinarum* crystal) [17]. The dosage is 25 to 50 ml, to be taken orally twice a day on an empty stomach with fresh water [17].

V. SCIENTIFIC STUDIES

Khan and Lari (2021) determined that the Unani pharmacopeial formulations Majun Dabeedul Ward, Arq Kasni, Arq Mako, and Arq Afsanteen were safe and effective in treating jaundice (*Yarqaan*) of hepatic and post-hepatic variants and had excellent results both clinically and biochemically by normalising elevated hepatic markers [20].

Ansari et al. (2017) reported that commonly used Unani formulations; Arq Mako (50 ml twice a day), Arq Kasni (50 ml twice a day), Dawa-ul-Kurkum (6 g twice a day), Majoon-e-Dabeedulward (6 g twice a day), Sharbat-e-Deenar (20 ml twice a day), and Sharbat-e-Buzoori (20 ml twice a day) in jaundice patients, showed admirable results clinically as well as biochemically, as the raised liver markers and oedematous GB wall were normalized [14].

Siddiqui and Ansari (2015) demonstrated that chronic hepatitis B (CHB) patients with positive hepatitis B surface antigen (HbsAg) were treated for 6 months with the Unani formulation consisting of shahtara (Fumaria officinalis), sarphookah (Tephrosia purpurea), chiraita (Swertia chiraita), gule mundi (Sphaeranthus indicus), and sandal surkh (Pterocarpus Santalinus), 5 g of each in the form of decoction (Joshanda). It was shown that HbsAg turned negative on average 13 weeks after treatment, and a significant relief in the relevant symptoms was also noted [21].

Shakya et al. (2012) studied the antioxidant and hepatoprotective effects of Majoon-e-Dabeed-ul-ward against carbon tetrachloride-induced liver injury. The biochemical and histopathological results of this study showed strong hepatoprotective and antioxidant properties, and the IC50 value was reported as 198 μg/ml [22].

VI. CONCLUSION

Jaundice has recently emerged as one of the major health hazards. Despite the fact that there are numerous treatment options, Unani medicine plays a significant therapeutic and prophylactic role in jaundice by reducing elevated hepatic markers and restoring the normal functions of the liver and gall bladder. In the evidence-based era,

Unani Medicine is proving its effectiveness in the treatment of jaundice and other liver and gallbladder illnesses, and in the future, it may be regarded as a potent mode of treatment for jaundice and other complex diseases. Unani medicine can be quite efficient at preventing the high cost and unfavourable consequences of the drugs and surgeries used to treat jaundice in the allopathic system of medicine.

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