



Dawa ul Kurkum: An Innovative Hepato-protective Unani Formulation: A Review

Abdul Hafeez¹, Mohammad Yusuf Ansari², Abrar Mohd Khan³, Mohd Danish⁴,
Hamida Bano Ansari⁵

¹ Medical Officer Incharge, State Unani Hospital, Kharjarwa, Deoria, UP.

² Professor Dept. of Ilmu Advia (Pharmacology), Hakeem Abdul Hameed Unani Medical College, Dewas, MP.

³ Research Associate, Clinical Research Unit (CCRUM) Bhopal, MP.

⁴ Consultant Physician, Hamdard Wellness, Ghaziabad UP.

⁵ Professor Dept. of Ilmu Qabalat wa Amraz Niswan (Gynae&Obstretics), Hakeem Abdul Hameed Unani Medical College, Dewas, MP.

Abstract : Liver disease refers to an inflammatory and pathological condition which may be due to viral infection, autoimmune hepatitis and hepatitis that occurs as a secondary result of medications, drugs, toxins, and alcohol. Autoimmune hepatitis is a disease that occurs when your body makes antibodies against your liver tissue. If symptoms occur with an acute infection, they can appear anytime from two weeks to six months after exposure. Symptoms manifested by fever, fatigue, nausea, vomiting, abdominal pain, anorexia, dyspepsia, irregularity in bowel habits, dull ache in hepatic region, Jaundice, dark urine, light-colored stools Hepatitis, Cirrhosis, Ascites, Haemochromatosis, Hepatic failure etc .

In view of high prevalence and absence of any approved therapies, this review was an attempted to explore the efficacy and safety of *Dawa-ul-Kurkum* in liver disease. *Dawa-ul-Kurkum* has potential to reduce the symptoms and grading of Hepatic dysfunctions, Anaemia, Ascitis, inflammation of Liver and spleen. There was no any adverse effect observed while using formulation. Hence it can be concluded that the drug *Dawa-ul-Kurkum* is effective and safe in the management of hepatic dysfunction and it is a novel remedy for the management of liver diseases. It was observed that after different clinical studies, Anorexia, Nausea, Dyspepsia and Heaviness in right hypochondriac region were significantly reduced and drug is effective in relieving symptoms, reduction in body weight and dull ache and dissolving fat from hepatocyte. Ultrasonography of patients shows grade I fatty liver and no patient remains in grade II fatty liver though its results on liver enzymes and lipid profile were insignificant statistically. The safety profiles of Dawa ul Kurkum were evaluated after laboratory investigations which include Complete blood count, Hb%, ESR, Blood Urea, S. Creatinine, SGOT, SGPT, and Alkaline Phosphatase shows significant difference.

IndexTerms - *Dawa-ul-Kurkum*; Hepatic dysfunctions; Anorexia; Unani Medicine; liver disease.

Introduction Liver ailments nowadays are a major worldwide health problem which is a major cause of morbidity and mortality. Liver disease is the tenth most common cause of death in India as per the World Health Organization. Liver disease may affect every one in 5 Indians. Around 10 lakh patients of liver cirrhosis are newly diagnosed every year in India. Hepatocellular carcinoma is the second most common cause of death due to malignancy in the world. Liver disease refers to an inflammatory and pathological condition which may be due to viral infection, autoimmune hepatitis and hepatitis that occurs as a secondary result of medications, drugs, toxins, and alcohol.

Over the ten decades, the development and mass production of chemically synthesized drugs have revolutionized health care in most parts of the world. This chemically synthesized drugs produces toxic effect on liver. However, large sections of the population in developing countries still rely on traditional practitioners and herbal medicines for their primary care.¹

In Unani system of medicine, Liver is a vital organ in body i.e Aza e Raisa, which control all metabolic regulations and detoxifies chemicals and metabolizes so many drugs. Dysfunction of liver leads to cause many ailments in body. This dysfunction of liver affects the whole body and later on, the body is devoid of nutrition and innate heat (*Hararat-e-Gharizia*). It is manifested by anorexia, dyspepsia, irregularity in bowel habits, dull ache in hepatic region, Jaundice, Hepatitis, Cirrhosis, Ascites, Haemochromatosis, Hepatic failure etc .^{2,3,4,5}

Application of modern medical technologies to traditional medicine has further authenticated the use of these several mono- and polyherbal agents in a variety of complex pathophysiological states. A large number of medicinal plants have been used traditionally for immunomodulation and hepatoprotection. In Unani Medicine there is a large number of single and poly herbal compound available for hepatic ailments in which one of so called Dawa ul Kurkum.⁶

Dawa-Ul-Kurkum is a semisolid medicinal compound preparation in the form of majoon.⁷

Its name is due to its Chief Ingredient *Kurkum (Crocus sativa)*. It is also called *Majun-ul-Jaawi* and *Dawa-ul-Zafran*. It is first prepared by *Jalinoos* and is the best drug among all drugs which are used for liver diseases.^{8,9,11,12} Temperament of this formulation described as *Haar^{2D} & Motadil* or *Ratab^{1D 10}*

According to *Jurjani*, *Dawa ul Kurkum* has beneficial effect in Anaemia and Ascitis and ascitis which is due to inflammation of Liver and spleen. Drug of choice for sue mizaj Barid Kabid wa Tihaal (liver and spleen), releases obstruction, carminative, relieves renal colic pain and removes the tenacious Phlegmatic matter through urine.⁹

Ibn sina & Razi described *Dawa ul Kurkum* used in *Warme Kabid Barid (Chronic Hepatitis)* and *Warme sulb (Cirrhosis of liver)* has more efficient and beneficial¹³ and ingredients described as *Sunbuluteeb (Nardostachis jatamansi)*, *Mur Makki (Commiphora myrrh gum)*, *Saleekha (Cinnamomum tamala)*, *Shagufa-e-Izkhair (Andopogon schoenanthus)*, *Qust (Saussurea lappa)*, *Darcheeni (Cinnamomum zeylanicum bark)* *Zafran (Crocus sativa)* in equal parts *Sharab Musallas (Ethyl alcohol)* *Qand Sufaid (Saccharum officinarum)* were used in *Q.S*^{7,10}

All the ingredients except *Mur Mukki* grounded to a fine powder. *Mur Mukki* soaked in *Sharab-e-Musallas* (Brandy 1 part and water 3 parts) overnight in the. Then *Qand* (Jaggery) were added to the liquid base, and thereafter powdered drugs were added to the base, mixed properly and *Majoon* prepared and used in dose 5 – 10 grams once in the morning.⁷

Actions of this formulation are *Muqawwi-e-Kabid* (Liver tonic),^{7,10} *Muqaww- e-Meda*(Gastric tonic),^{7,8,10} *Mudirr-e Baul* (Diuretic), *Muhallil-e-Warm -e-Kabid wa Tihaal* (hepatitis and splenitis), *Musakkin* (Analgesic), *Mufatteh-e-Sudad* (Deobstruent),^{10,11} *Humma (Antipyretic)* , *Kasir-e-Riyah* (Carminative)^{7,11} *Muqawwi-e-Jigar, Meda wa Am'a* (Hepatonic, Gastrotonic, Enterotonic)¹⁴and It is beneficial in those liver and spleen disorders, which are mainly due to coldness.² It is also beneficial in *Istisqa (Ascitis)*,^{2,7,8,10} It is also used in *Zof-e- Kabid* (Hepatic retardation)^{2,10} *Zof-e-Tihal* (Splenetic retardation), *Zof-e-Meda, Salabat-e-kabid*(Rigidity of Liver)² , *Waram-e-Kabid (Hepatitis)* ,*Salabat-e-Tihal* (Firmness of spleen),¹⁰ *Salabat-e-meda* (Firmness of stomach),² *Yarqan*(Jaundice),⁸ *Zof-e-Hazm* (Indigestion),^{7,8,10} *Waja-ul- Kulya* (Renal Colic), *Ehtebas-e-Baul*(Urine retention),¹⁰ *Su-ul-Qunia* (Anaemia),⁸ *Hepatic and Splenic pain*,²² *Chronic Diseases*, It makes colour fair.^{2,7}

It is contraindicated in renal diseases; its adverse effect is corrected by use of *Mastaghi (Pistacia lenticus)*. *Dawood Antaki* said that the *Murakkab* (compound) must be used after 2 months of the preparation and can be used up to 3 years of manufacture.⁸

Shelf life of the formulation is 2 months to 1 year, or maximum up to 1 ½ year.⁷ Physicochemical analysis shows its appearance semisolid, color reddish brown, odor like burnt tobacco, consist of alcohol soluble matter 65.76-65.84% and water soluble matter 63.84%. its extractive values in different solvents are as Petroleum Ether 0.75%, Chloroform 0.39%, Ethyl Alcohol 0.99-1.00%, pH of 1% solution 4.38, pH of 10% solution 4.63, Bulk density 1.40-1.41, Total ash 2.16-2.25%, Water soluble ash 0.20-0.32%, Acid insoluble ash 1.21-1.31%, Total phenolics 0.75%, Tannins 0.23%, Reducing sugar 45.60%, Non- reducing sugar 2.80%, Calcium 66.20 mg/g, Copper 0.20 mg/g Iron 0.13 mg/g.¹⁵ Thin Layer Chromatography shows changeable retention factor (Rf) value in Ethanolic Extract with three no. of spots in 1, 4-Dioxane 100% solvent system which sprayed with 1, 4-Dioxane 100% were 0.87, 0.77 and 0.51, in same extract with three no. of spots in Acetone, Chloroform, Methanol (3: 10: 0.5) solvent system which sprayed with 1, 4-Dioxane 100% shows Rf value 0.9, 0.87, and 0.32, similarly in same extract with seven no. of spots in solvent system of Chloroform, Methanol (40: 8) treated with 1, 4-Dioxane 100% shows Rf value 0.86, 0.53, 0.31, 0.23, 0.12, 0.07 and 0.03. Phenolic Extract with three no. of spots in Chloroform, Methanol (40: 8) solvent system which sprayed with 1, 4-Dioxane 100% shows Rf value 0.85, 0.53 and 0.15, similarly in same extract with four no. of spots in solvent system of Acetone, Chloroform, Methanol (3: 1: 0.5) treated with 1, 4-Dioxane 100% shows Rf value 0.99, 0.87, 0.08 and 0.04, for 1 ml Ethanolic Extract + 10 ml Acetone, filtered & spotted the filtrate in 1, 4-Dioxane 100% solvent system with three no. of spots which sprayed with 1, 4-Dioxane 100% shows Rf value 0.87, 0.77 and 0.64.¹⁵

Pharmacological function of each ingredient as described in Unani classical literature are as follows

1. Sumbul ut teeb: *Mohallil-e-Waram* (Resolvent),^{2,16, 17} *Musakkin* (Sedative), *Jali* (Detergent), *Mutayyib-e- Dahan* (Mouth freshner), *Mujaffif (Lithotriptic)*,^{18, 19} *Kasir-e-Riyah* (Carminative),^{17,18} *Muqawwi-e-Meda* (Gastrotonic) , *Muqawwi-e-Kabid* (Hepatonic), *Muqawwi-e-Qalb* (Cardiotonic),^{16,17,18} *Muqawwi-e-Dimag (Cerebrotonic)* , *Mudirr-e-Baul* (Diuretic), *Mufatteh sudad* (Deobstruent)^{16, 18} , *Qabiz* (Astringent)^{2,16,18} *Musakhkhin-e Meda wa Kabid*,^{17,20} *Musakhkhin* (Calorific).¹⁷

2. Mur Makki : *Mohallil-e-Waram*(Resolvent), *Mufatteh Sudad* (Deobstruent), *Musakhkhin* (Calorific), *Mulayyin* (Laxative),¹⁷ *Moharrik* (Stimulant), *Munaffis-e-Balgham* (Expectorant),¹⁸ *Daf-e-Taffun* (Antiseptic), *Kasir-e-Riyah* (Carminative),^{16,17} *Jali*(Detergent),^{17,19} *Mulattif* (Demulcent), *Munziji*(Concoctive)¹⁹, *Mufatteh Sudad* (Deobstruent),^{17,18} *Mudirr-e-Tams*(Emmenagogue),^{16,18,20}

3. Saleekha / Taj Qalami: *Mohallil*(Resolvent), *Mulattif* (Demulcent), *Mufatteh sudad-e-Kabid* (Hepatic Deobstruent),^{2,8,17,19} *Muqawwi-e-Aza-e-Rayeesa* (Tonic To Vital Organs),^{16, 19} *Muqatte*(Remover),^{2, 8} *Qabiz* (Astringent),^{2, 17} *Muqawwi-e-Badan* (General Tonic),^{2,16, 17} *Mudir-e-Baul* (Diuretic),^{16, 20} *Musakhkhin*(Calorific), *Kasir-e-Riyah* (Carminative),^{16, 17}

4. Izkhair: *Munziji Akhlat Ghaleeza* (Concoctive to viscous humors), *Dafe Tashnnuj* (Antispasmodic), *Mufatteh Sudad* (Deobstruent), *Mohallil Auram* (Resolvent),^{8,17,18} *Kasir Riyah* (Carminative), *Mudirr Baul wa Haiz* (Diuretic & Emmenagogue),^{17,18} *Muqawwi Meda* (Gastrotonic), *Mushtahi* (Appetizer),^{2, 16} *Musakkin Ghisyan* (Nausea), *Jali* (Detergent), *Muqatte*, *Musakkin* (Sedative).²

5. Qust: *Jali*(Detergent),^{2,19,18} *Mohallil-e-Waram* (Resolvent), *Mujaffif* (Siccative), *Muqawwi-e- Asab* (Nervine Tonic), *Munaffis-e-Balgham* (Expectorant), *Musakkin-e-Alam* (Analgesic),^{2,16,18} *Kasir-e-Riyah* (Carminative),^{21,16,18} *Qatil-e-Deedan-e-Ama* (Vermicidal), *Mudirr-e-Baul*(Diuretic), *Mudirr-e-Haiz*(Emmenagogue),^{16 18 19} *Muharrik Quwat-e-Tabiya*¹⁶

6. Darchini: *Musakhkhin* (Calorific), *Munziji* (Concoctive), *Mulayyin* (Laxative),^{17,18} *Mulattif*(Demulcent), *Daf-e-Taffun* (Antiseptic), *Mohallil-e- Waram* (Anti-inflammatory),^{2,16,17,18} *Kasir-e-Riyah*(Carminative)^{17,18,20}, *Daf-e-Taffun* (Antiseptic), *Mufatteh Sudad*(Deobstruent), *Muhallil*(Resolvent),^{16, 17} *Munaffis-e-Balgham* (Expectorant), *Muqawwie- Meda*, *Muqawwi-e-Kabid*,^{2, 8, 16, 18,20} *Jazib*(Absorbent),¹⁶ *Dafe Ufoonat* (Disinfectant)¹⁹, *Qabiz* (Astringent), *Moharrik-e-Bah* (Aphrodisiac), *Mudirr-e-Baul* (Diuretic), *Mudirr-e-Haiz* (Emmenagogue).

7. Zafran: *Jali* (Detergent),^{2,16, 18} *Muqawwi-e-Kabid wa meda* (Hepato-Gastrotonic),^{2,16,17} *Muqawwi-e-Qalb* (Cardiac Tonic), *Munziji* (concoctive),^{16, 17, 18, 19} *Musakhkhin* (Calorific), *Hazim* (Digestive),¹⁷ *Muqawwi-e-Tihal*, *Qabiz* (Astringent), *Mufarreh* (Exhilirant)^{16, 17} *Mufatteh* (Deobstruent)¹⁶.

All these functions of the each ingredient of *Dawa ul Kurkum* have been evaluated scientifically i.e

1. Sumbul-ut-teeb shows Hydroalcoholic extract of *Nardostachys jatamansi* exhibit hepato protective activity in rats against Carbon tetra chloride induced hepatotoxicity.²² Ethanolic extract of *Nardostachys jatamansi* protects liver in rats against liver

damage induced by thioacetamide.²³ Ethanolic extract of *Nardostachys jatamansi* revealed antihepatotoxic and antioxidant activity against d-galactosamine induced hepatotoxicity in wistar rats.²⁴ Ethanol Extract of *Valeriana wallichii* revealed hepatoprotective and antioxidants activity in rats against Carbon tetra chloride induced hepatotoxicity.²⁵

2. Mur makki: Chen Y et al reported that essential oils obtained from myrrh revealed anticancer activity in hepatocellular carcinoma.²⁶ Salama A et al reported that extracts of Myrrh have hypoglycemic activity and antioxidant activity.²⁷ Al-Rejaie SS et al reported that ole-gum resin of myrrh exhibit hepatoprotective effect against **ethanol-induced hepatotoxicity in Rats.**²⁸

3. Salikha : Water and ethanol extracts of dry bark of *Cinnamomum cassia* exhibit antioxidant effect.²⁹ Various Parts of *Cinnamomum cassia* extract revealed antioxidant activity reported by Cheng-Hong Yang et al.³⁰

4 Izhkhar: It is reported that aqueous Extract of *Cymbopogon Citratus* showed hepatoprotective effect against Hydrogen Peroxide-Induced Liver Injury in Male Rats.³¹ *Cymbopogon citratus* extract exhibit antioxidant activity against carbon tetrachloride-induced hepatic oxidative stress and toxicity.³²

5 Quist: Aqueous methanol extract of *Saussurea lappa* acts as antihepatotoxic activity against D-galactosamine and lipopolysaccharide induced hepatitis in mice.³³ Alnahdi HS et al reported that of *Saussurea lappa* acts as prophylactic effect in albino rats against liver injury induced by deltamethrin intoxication.³⁴

6. Darchini: Ethanolic extract of cinnamon extract acts as a potent hepatoprotective agent against CCl₄ induced hepatotoxicity in rats.³⁵ Moselhy SS et al reported that aqueous and ethanolic extracts of cinnamon exhibit hepatoprotective activity against carbon tetrachloride (CCl₄) induced lipid peroxidation and hepatic injury in rats.³⁶

7. Zafran: It is reported that extract of *Crocus sativus* (saffron) petals at the dose of 20 mg/kg exhibit Hepatoprotective effect against acetaminophen toxicity in male Wistar rats.³⁷ Moharjeri M et al reported that ethanolic extract of *Crocus sativus* L. (Saffron) stigma revealed antihepatotoxic effect in rats against rifampin induced hepatotoxicity at the dose of 80 mg/kg.³⁸ Ethanolic Extract of Saffron (Dried Stigmas of *Crocus sativus* L.) showed Protective Effect of on Hepatic Tissue Injury in Streptozotocin Induced Diabetic Rats.³⁹ Razavi BM documented that Saffron acts an antidote or a protective agent against natural or chemical toxicities.⁴⁰

Discussion

Dawa-ul-Kurkum and the Hydroalcoholic extract of Dawaul kurkum preparation modulate immune mechanisms during their hepatoprotective effects against the paracetamol induced liver damage. The protective effects may be mediated through maintenance/restoration of the oxidant-antioxidant homeostatic balance.⁴¹

Dawa-ul-Kurkum increases appetite due to correction of dystemperament^{2,9} and due to number of its ingredients which have appetizing (*Mushahhi*) properties.^{2,16} *Dawa-ul-Kurkum* reduces nausea through increase production of heat (*Taskhin*)^{2,9} in stomach and by number of its ingredients which have digestive^{20,17} and anti emetic properties.^{2,17} In *Su-e-Mizaj Kabid Barid* dyspepsia may be due to increase *Burudat*(Coldness)² and/or accumulation of *Ghaleez Balgham* (Viscous Phlegm)^{2,9} in liver & stomach. *Dawa ul Kurkum* reduces this symptom via elimination of *Balgham*^{10,17} and correction of *Mizaj*^{2,10} Many ingredients of *Dawa-ul-Kurkum* have anti inflammatory (*Muhallil*),^{16,18} Deobstruent (*Mufatteh*)¹⁶ and carminative (*Kasir-e-Riyah*)^{17,18} properties, therefore *Dawa-ul-Kurkum* reduces dull ache or heaviness in right hypochondriac region.

In observation of clinic research marked weight reduction may be due to instructions to strictly adhere to prescribed diet (20-25 kcal/kg/body weight) and exercise (Brisk walk) for 40 minutes 4-5 times per week. This study is consistent with Ahmad NZ et al.⁽⁴²⁾ NAFLD (Non Alcoholic Fatty liver disease) or *Su-e-Mizaj Kabid Barid* may be due to dystemperament of liver (*Su-e-Mizaj Kabid*) and accumulation of *Balgham* (phlegm) in the liver¹⁹ according to Unani system of medicine, while in modern system of medicine exact aetiopathogenesis of NAFLD and NASH (Non Alcoholic Steato Hepatitis) is still unknown. The *Dawa-ul-Kurkum* potentially reduced NAFLD via correction of temperament and evacuation of phlegm (*Balgham*), because a number of its ingredients have *Musakkhin*(Calorific),^{17,18} *Munzij*(Concoctive),^{19,17} *Mufatteh Sudad* (Deobstruent),^{19,16} and *Muhallil* (Resolvent),^{2,18} property.

It is observed in clinic research; patients of grade II fatty liver turn out to be I grade fatty liver. Ultrasonography of patients shows 30% of case had no fatty liver, 70% cases of grade II category of fatty liver turn out to be grade I fatty liver and no patient remains in grade II fatty liver though its results on liver enzymes and lipid profile were insignificant statistically. The safety profiles of *Dawa ul Kurkum* were evaluated after laboratory investigations which include Complete blood count, Hb%, ESR, Blood Urea, S. Creatinine, SGOT, SGPT, and Alkaline Phosphatase shows significant difference. There was no any adverse effect observed during and after completion of the trial in any group. The maintenance of laboratory investigations throughout the course of study confirmed that the test drug is safe for the patients and apparently has no harms.⁴³

Conclusion

The review of *Dawa ul Kurkum* concludes that it is a novel remedy for the management of liver diseases. It was observed that after clinical studies, Anorexia, Nausea, Dyspepsia and Heaviness in right hypochondriac region were significantly reduced and drug is effective in relieving symptoms, reduction in body weight and dull ache and dissolving fat from hepatocyte. With all these qualities, this Unani formulation may be considered as an effective, beneficial and safe remedy in the treatment of Non-alcoholic fatty liver disease and in Chronic Hepatitis and Cirrhosis of liver. While modern system of medicine till date has limited treatment for liver diseases, *Dawa ul Kurkum* can serve as a remedy for patients having liver diseases, Chronic Hepatitis and Cirrhosis of liver, based upon significant changes observed in subjectively, ultrasonography and biochemical evaluation. The drug was also found to be safe as is evident from the maintenance of safety parameters without any ADR. The review is of considerable restating value by adopting such researches approach could be helpful in the integration of traditional and modern medicinal concepts in the greater interest of drug development and justifying management for hepatic ailments.

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