REVIEW ARTICLE

Jawarish jalinoos: A polyherbal unani formulation for gastrointestinal disorders

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Abstract

Introduction: *Murakkab* drugs of Unani medicine has been an important aspect of disease treatment since antiquity. Physicians prepared different formulations for various diseases. *Jawarish Jalinoos* is an Unani polyherbal formulation listed under the *Majooniath* category in the National Formulary of Unani Medicine, Part-I. It has a long history of traditional use for the management of several disorders related to gastrointestinal, cardiac, kidney, metabolism, and general health. The present study examined the effects of *Jawarish Jalinoos* in gastrointestinal and other disorders. **Materials and Methods:** Empirical searches were conducted on the medicinal plant via significant search engines such as Google Scholar, Scopus, PubMed, Microsoft academic, and Web of Science from inception up to July 2021. Besides, references from classical Unani literature and books, non-English journals were also included. **Results**: The ingredients of *Jawarish Jalinoos* contain, almost all, more or less, essential oils and their essential oil value should give a reliable therapeutic index. Its ingredients contain α- pinene, β- pinene, limonene, jatamansone, α-terpinyl acetate, eugenol, linalool, coumarin, gingerols, monoterpenes, sesquiterpenes, shogaols, etc., which possesses potent antimicrobial, anti-inflammatory, gastroprotective, neuroprotective, and antioxidant properties. **Discussion and Conclusion:** Till now, not a single study has been done on its pharmacological properties. According to different *Unani Qarabadeen's* (Pharmacopoeias) this formulation is used in various ailments such as *Zo'f-ī -Azae-Raeesa* (weakness of the principle organs such as brain, heart, and liver), *Zo'f-ī-mi'da* (stomach weakness), *Nafakh-ī-Shikam* (flatulence), *Khafqān* (palpitation), Haemorrhoids, Tinea, *Niqras* (Gout), *Sang-ī-Gurdā* (Renal calculus), *Sang-ī-Mathānā* (Vesicular calculus), but scientific studies and clinical trials are needed on this compound formulation to ensure its scientific validation.

Key words: Unani medicine, murakkab, qarabadeen, *Zo'f-ī -Azae-Raeesa,* carminative

INTRODUCTION

Traditional medicine such as Unani, Ayurveda, and Siddha play an important role in the health care of the rural population of the developing world.[1] Unani System of medicine is one of the oldest systems with its efficient drugs derived from plant, animal, and mineral resources which prevail to date. It is native to Greece, enriched and established by the Arabs and Persians, which was introduced about 1000 years ago in India.[2] The name Unani is derived from the Greek word "Ionian" which means the knowledge of the states of the human body in health and disease.[3] The theoretical framework of this system is based on the teachings of *Buqrat* (Hippocrates 460-377 B.C.) and *Jalinoos* (Galen) (130–200 A.D.). Arabs provided a scientific justification for this. This system was imbibed by the other contemporary systems of Egypt, Syria, Iraq, China, and India. In India, Unani Medicine was introduced by the Arabs and soon it took firm roots in the soil of our country and has ever since been serving a vast section of its people. Still today this enrichment process continues. *Buqrat* (Hippocrates) systematized, *Jalinoos* (Galen) established its foundations and Arab Physicians such as *Razi* (Rhazes 850–932 AD) and *Ibn-e-Sina* (Avicenna) (980–1037 AD) constructed an imposing edifice. In India, *Masihul Mulk Hakeem Ajmal Khan* (1864–1927 AD) championed the cause of Unani Medicine.[2] The Unani system of medicine is a comprehensive medical system

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that meticulously deals with the different states of health and disease. There are many diseases, for which the Unani system has highly effective treatments, but they require optimization and testing according to the current regulatory scenario to validate these valuable medicines scientifically.[4] The treatment methods are divided into four different parts in this System, namely Dietotherapy (*Ilaj-Bil-Ghidha*), Regimental Therapy (*Ilaj-Bil Tadbeer*), Pharmacotherapy (*Ilaj-Bil-Dawa*), and Surgery (*Ilaj-Bil-Yad*). Both single and compound drugs are used in pharmacotherapy.[5]

Murakkab (compound) drug is used in situations where a mufrad (single) drug is not adequate to cure an illness. Centuries ago, Unani physicians began using *Murakkab* medication to treat a disease. The *Murakkab* drugs developed by Unani physicians had a lot of consideration for the concepts of treating a disease and clear knowledge of the various aspects of single drugs.[6] Among the compound formulations, *Jawarish Jalinoos* is a formulation that is used in the Unani system of medicine and prescribed for the treatment of so many diseases for centuries with a great reputation.[2] This formula is known as *Mujarrab* (tested) formulae.[7] The term *Jawarish* is derived from the Persian word *"Gawarish"* which means digestion. It is a gastrointestinal dosage form that is made from different ingredients for different purposes such as stomach tonic, digestive, carminative, laxative, astringent, visceral analgesic, anti-hemorrhoid, antiemetic, anti-reflux, and anti-colic.[8] Consequently, the *Jawarish* forms of medicine are usually used to treat digestive problems.[9] *Jawarish Jalinoos* was named after the famous philosopher-physician *Jalinoos* (Galen), Physician of *Yunan* (Greece).

Jawarish Jalinoos is a classical semisolid Unani formulation having *Muqawwi-e-Aam* (general tonic), *Kāsir-ī-reyāh* (carminative), *Muqawwi-ī-bāh* (aphrodisiac), and *Hāzim* (digestive) actions.[10] It is widely used successfully in the treatment of various stomach, intestine, and urinary bladder diseases.[7] It is indicated for the management of *Zof-e-Aza-e-Raeesa* (weakness of vital organs), *Zo'f-ī-mi'da* (stomach weakness), *Zof-e-Kabid* (weakness of liver), *Khafqān* (palpitation), *Sudā'* (headache), *Su'āl* (cough), *Bawaseer* (hemorrhoids), *Niqras* (gout), *Naar-e-farsi* (eczema), *Kasrat-i-Bawl* (polyurea), and *Sang-ī-Gurdā* (renal calculus), and *Sang-ī-Masānā* (vesical calculus). It is also effective in headaches, excessive micturition, and keeps hair black. It has been used clinically for decades without any significant adverse effect reported so far.[2,7,11,12] The ingredients of *Jawarish Jalinoos* contain, almost all, more or less, essential oils and its essential oil value should give a reliable therapeutic index.[13]

According to Classical Unani Books, the original preparation of *Jawarish Jalinoos* contained eighteen ingredients. However, there are certain variations regarding with quantity of ingredients of the compound in different *Qarabadeen*.

INGREDIENTS OF *JAWARISH JALINOOS* AS PER NATIONAL FORMULARY OF UNANI MEDICINE PART 1

Jawarish Jalinoos is a semi-solid preparation made with the following ingredients in the composition, as given in Table 1.

Table 1: Ingredient of *Jawarish Jalinoos*

S. no.	Ingredient	Botanical name	Part used	quantity
1.	*Mastagi*	*Pistacia lentiscus* Linn	Resin	25 g
2.	*Sumbul-Teeb*	*Nardostachys jatamansi* DC	Rhizome	10 g
3.	*Heel Khurd*	*Elettaria cardamomum* (L) Maton.	Fruit	10 g
4.	*Saleekha*	*Cinnamomum cassia* Blume.	Stem bark	10 g
5.	*Darchini*	*Cinnamomum zeylanicum*	Inner stem bark	10 g
6.	*Khulanjan*	*Alpinia galangal* Linn	Rhizome	10 g
7.	*Qaranfal*	*Syzygium aromaticum (L.)* Merr. L and M Perry	Flower bud	10 g
8.	*Sad Kufi*	*Cyperus rotundus* Linn.	Rhizome	10 g
9.	*Zanjabeel*	*Zingiber officinale* Roscoe	Rhizome	10g
10.	*Filfil Daraz*	*Piper longum* Linn	Fruit	10 g
11.	*Filfil Siyah*	*Piper nigrum* Linn	Fruit	10 g
12.	*Qust Shirin*	*Saussurea lappa* C.B. Clarke	Root	10 g
13.	*Oode Balsan*	*Commiphora opobalsamum* L./*Commiphora gileadensis* (L.)	Wood	10 g
14.	*Asaroon*	*Asarum europaeum L.*	Rhizome	10 g
15.	*Habbul Aas*	*Myrtus communis* Linn.	Fruit	10 g
16.	*Chiraita Shirin*	*Swertia chirayita* Buch. Ham.	Whole plant	10 g
17.	*Zafran*	*Crocus sativus* Linn.	Style and stigma	10 g
18.	Sugar/ Honey			600 g

Important Points Regarding Preparation of *Jawarish Jalinoos*[14]

i. All ingredients except *Zafran* (*Crocus sativus*) and *Mastagi* (*Pistacia lentiscus*) are to be ground in a pestled mortar and the mesh number 80 is used to sieve the powder.
ii. Before mixing in the *Qiwam, Zafran* (*C. sativus*) should always be ground with *Arq-e-Keora* (Screw Pine distillate), *Arq-e-Gulab* (Rose distillate), or *Arq-e-Bed Mushk* (Common Willow distillate).
iii. *Mastagi* (*P. lentiscus)* is pulverized by slow and light motion in a porcelain mortar. This is also dissolved in some oil over low fire and then added to the formulation along with the other drugs

METHOD OF PREPARATION AS PER THE UNANI PHARMACOPOEIA OF INDIA PART 2 VOL. 3

Take all the ingredients of pharmacopoeial quantity. Clean, dry, and grind all ingredients separately *and* sieve through mesh number 80. Mix the powders of all ingredients except *Mastagi and Zafran*. Dissolve Sugar/Honey on slow heat in 700 ml of water. Add the 0.1% citric acid when it is boiling and prepare a *qiwam* of 72% consistency. Mix *Zafran* and boil till a *qiwam* of 75% consistency is obtained. Remove the vessel from the fire. Add the mixed powders of all ingredients and mix thoroughly to prepare the homogeneous mass and allow it to cool.

Dose

7–10 g with water before or after a meal.[11,12]

Action

Muqawwi-ī-jigar (liver tonic), *Muqawwi-ī-Aam* (general tonic), *Kāsir-ī-reyāh* (carminative), *Hāzim* (digestive), *Muqawwi-ī-bāh* (aphrodisiac),[11,12] *Mushtahi* (appetizer).[9,10]

Therapeutic Uses

Zof-e-Aza-Raeesa (weakness of the principal organs such as brain, heart, and liver), *Zo'f-ī-mi'da* (stomach weakness), *Nafakh-ī-Shikam* (flatulence), *Khafqān* (palpitation), *Kasrat-i-Bawl* (Polyuria), *Headache*, *Su'āl-e-Balghami* (Phlegmatic cough), Hemorrhoids, Tinea, *Niqras* (Gout), *Sang-ī-Gurdā* (Renal calculus), *Sang-ī-Masānā* (Vesicular calculus),[11,12] *Zof-ī-Masana* (Weakness of the kidney), and prevent greying of hair.[9,10]

STANDARDIZATION OF *JAWARISH JALINOOS*[14,15]

Meena *et al*.[1] develop the Standard Operating Procedure for the preparation of *Jawarish Jalinoos* and to evaluate its pharmacopeial standards. The physicochemical study of *Jawarish Jalinoos* shows the presence of moisture content 19.87%, ash content 0.8% and acid insoluble ash 0.20%. Alcohol- and water-soluble extractive values of the drug obtained were 40.80% and 62.78%, respectively, and their parameters such as heavy metals, microbial load, aflatoxins, and pesticide residues were found within the permissible limit. Physicochemical standards of *Jawarish Jalinoos* are mentioned in Table 2.

IDENTIFICATION

Thin Layer Chromatography

Take 2 g of sample with 20 ml of alcohol and reflux for 30 min in a water bath. Filter and concentrate up to 5 ml and carry out the thin layer chromatography. Apply the alcohol extracts to silica gel G on the TLC plate. Develop TLC plate

Table 2: Physicochemical standards of Jawarish Jalinoos

Appearance	Semi-solid
Colour	Dark brown
Smell	Pleasant
Taste	Sweetish bitter
Alcohol-soluble matter (%w/w)	Not <40.00
Water-soluble matter(%w/w)	Not <62.40
Successive extractives	
Pet. ether (60–80")	0.85%
Chloroform	0.30%
Ethyl alcohol	1.50%
pH of 1% aq. Solution	5.18
pH of 10% aq. Solution	4.85
Total ash (%w/w)	Not more than 1.00
Water-soluble ash (%w/w)	0.562%
Acid insoluble ash (%w/w)	Not more than 0.3
Volatile oils	0.3% v/w
Saponification value	78.54
Alkaloids	0.10%
Total phenolics	0.4%
Reducing sugars (%w/w)	Not <30.00
Reducing sugars (%w/w)	Not more than 6.00
Loss on drying at 105°(%w/w)	Not more than 20.00
Total Nitrogen	0.04%
Potassium	140.45 mg/g of ash
Sodium	9.82 mg/g of ash
Calcium	56.30 mg/g of ash
Copper	0.0044 mg/g of ash
Iron	7.82 mg/g of ash
Magnesium	23.457 mg/g of ash

Table 3: Description of ingredients of *Jawarish Jalinoos* in Unani medicine

Drug	Parts Used	Dosage	Pharmacological Action	Therapeutic Uses
Pistacia lentiscus Linn.	Resin	1–3 g	*Muqawwi-ī-mi'da* (stomachic), *Muqawwi-ī-jigar* (liver tonic), *Kāsir-ī-reyāh* (carminative), *Daf-ī-ta'ffun* (antiseptic), *Jāli* (detergent), *Munaffis-ī-balgham* (expectorant), *Mutayyib-ī-dahan* (mouth freshener), *Qābiz* (astringent), *Hābis*[13,15]	*Zo'f-ī-mi'da* (stomach weakness), *Zo'f-ī-jigar* (liver weakness), *Nafakh-ī-Shikam* (flatulence), *Ishāl* (diarrhoea), *Sū'-ī-Hadzm* (Dyspepsia), *Zīq al-Nafas* (asthma)[13,15]
Nardostachys jatamansi DC	Rhizome	3–5 g	*Muqawwi-ī-'asāb* (nerve tonic), *Muharrik-ī-a'sāb* (nervine stimulant), *Mufatteh Sudad* (deobstruent), *Muqawwi-ī-bāh* (aphrodisiac), *Jāli* (detergent), *Mutayyib-ī-dahan* (mouth freshener), *Mujaffif* (siccative), *Muqawwi-ī-qalb* (cardiotonic), *Muqawwi-ī-dimāg* (neurotonic), *Mudirr-ī-bawl* (diuretic), *Kāsir-ī-reyāh* (carminative), *Musakkin* (sedative)[13,15]	*Sudā'* (headache), *Sar'* (epilepsy), *Ikhtināq al-Raḥim* (hysteria), *Rā'shā* (chorea), *Nafakh-ī-Shikam* (flatulans), *Istisqā* (ascites), *Yarqān* (jaundice), *Waram-ī-Kabid* (hepatitis), *Waram-ī-Rahim* (metritis), *Warām-ī-Masānā* (cystitis)[13,15]
Elettaria cardamomum (L) Maton	Fruit	3–5 g	*Muqawwi-ī-mi'da* (stomachic), *Mutayyib-ī-dahan* (mouth freshener), *Kāsir-ī-reyāh* (carminative), *Mufarreh qalb* (exhilarant), *Muqawwi-ī-qalb* (cardiotonic), *Musakkin* (sedative), *Mudirr-ī-bawl* (diuretic), *Hāzim* (digestive)[13,15]	*Bakhr al-Fam* (Halitosis), *Zo'f-ī- hazm* (Delayed digestion), *Nafakh-ī-Shikam* (flatulence), *Zo'f-ī-Qalb* (weakness of heart), *Khafqān* (palpitation) *Qai* (vomiting), *Ghisyan* (nausea), *Dard-ī-jigar* (pain in liver)[13,15]
Cinnamomum cassia Blume	Stem bark	1–3 g	*Muqawwi-ī-mi'da* (stomachic), *Muqawwi-ī-jigar* (liver tonic), *Kāsir-ī-reyāh* (carminative), *Hāzim* (digestive), *Mufarreh qalb* (exhilarant), *Muqawwi-ī-qalb* (cardiotonic), *Mudirr-ī-bawl* (diuretic), *Mudirr-ī-haiz* (emmenagogue), *Munaffis-ī-balgham* (expectorant)[15,16]	*Zo'f-ī- hazm* (Delayed digestion), *Zo'f-ī-mi'da* (stomach weakness), *Nafakh-ī-Shikam* (flatulence), *Zo'f-ī-jigar* (liver weakness), *Zukām* (Coryza), *Su'āl* (cough)[13,15]
Cinnamomum zeylanicum Blume	Inner stem bark	1 to 3 g	*Mulattif* (demulcent), *Kāsir-ī-reyāh* (carminative), *Munaffis-ī-balgham* (expectorant), *Muqawwi-ī-mi'da* (stomachic), *Muqawwi-ī-jigar* (liver tonic), *Qābiz* (astringent), *Moharrik-ī-bāh* (sexual stimulant), *Mudirr-ī-bawl* (diuretic), *Mudirr-ī-haiz* (emmenagogue), *Muqawwi-ī-qalb* (cardiotonic), *Muharrik -ī-qalb* (cardiac stimulant) *Musakkin-ī-alam* (analgesic)[13,16]	*Bakhr al-Fam* (Halitosis), *Bahaq* (pityriasis alba), *Zo'f-ī-Bāh* (sexual debility), *Zīq al-Nafas* (asthma), *Iḥtibās al-Bawl* (retention of urine), *Khafqān* (palpitation), *Zo'f-ī-Qalb* (weakness of heart), *Zo'f -ī-dimāgh* (brain weakness), *Su-ī-hazm* (indigestion), *Su'āl-ī-Balghami* (productive cough)[13,16]
Alpinia galanga (L.)	Rhizome	1–3 g	*Muqawwi-ī-'asāb* (nerve tonic), *Muqawwi-ī-bāh* (aphrodisiac), *Mufarreh qalb* (exhilarant), *Munaffis-ī-balgham* (expectorant), *Mutayyib-ī-dahan* (mouth freshener), *Musakkin-ī-alam* (analgesic)[15,16]	*'Asābi amraaz* (Disease of the nerve), *Zo'f-ī-Bāh* (sexual debility), *Zīq al-Nafas* (asthma) *Bahtus soot*, *Khushunat-ī-Halaq* (sore throat), *Bakhr al-Fam* (Halitosis)[13,15]
Syzygium aromaticum (L.) Merr. L M Perry	Flower bud	1–3 g	*Muqawwi-ī-mi'da* (stomachic), *Muqawwi-ī-jigar* (liver tonic), *Munaffis-ī-balgham* (expectorant), *Daf-ī-ta'ffun* (antiseptic), *Mufarreh* (exhilarant), *Musakkin-ī-alam* (analgesic), *Dāf-ī-tashannuj* (antispasmodic), *Muhallil-ī-warm* (anti-inflammatory)[13,15]	*Bakhr al-Fam* (Halitosis), *Waja'al-Asnān* (toothache), *Zo'f-ī-mi'da* (weakness of stomach), *Zo'f-ī-jigar* (weakness of liver), *Su-ī-hazm* (indigestion), *Nafakh-ī-Shikam* (flatulence), *Qulanj* (colitis), *Istisqā* (ascites), *Taqtīr al-Bawl* (Dribbling of urine), *Khafqān* (palpitation)[13,15]

(Contd...)

Table 3: (*Continued*)

Drug	Parts Used	Dosage	Pharmacological Action	Therapeutic Uses
Cyperus rotundus Linn.	Rhizome	5–7 g	*Muqawwi-ī-dimāg* (neurotonic), *Muqawwi-ī-'asāb* (nerve tonic) *Kāsir-ī-reyāh* (carminative), *Mudirr-ī-bawl* (diuretic) *Mudirr-ī-haiz* (emmenagogue), *Mufarreh qalb* (exhilarant), *Muqawwi-ī-qalb* (cardiotonic), *Muqawwi-ī-mi'da* (stomachic)[15,16]	*Zo'f-ī-mi'da* (stomach weakness), *Zo'f-ī-'asāb* (weakness of nerve), *Zo'f-ī-'Dimāgh* (Cerebrasthenia), *Nisyān* (Dementia), *Yarqān* (jaundice), *Laqwa* (facial palsy), *Ra'sha* (tremor), *Ishāl* (diarrhoea), *Za*hīr (Dysentery), *Hayza* (Food poisoning), *Itibās-ī-Bawl* (retention of urine), *Ih*tibās *al-Tamth* (Amenorrhoea)[15,16]
Zingiber officinale Rosc.	Rhizome	1–2 g	*Hāzim* (digestive), *Kāsir-ī-reyāh* (carminative), *Muqawwi-ī-'asāb* (nerve tonic), *Muharrik* (stimulant), *Munaffis-ī-balgham* (expectorant), *Jāli* (detergent), *Qatil kiram shikam*, *Dafe hamuzat*[13,15]	*Zo'f-ī-mi'da* (stomach weakness), *Sū'-ī-Hazm* (Dyspepsia), *Laqwa* (facial palsy), *Ra'sha* (tremor), *Nafakh-ī-Shikam* (flatulans), *Waja' al-Mi'da* (Gastralgia), *Zo'f -ī--Ishtihā* (Anorexia), *Waja' al-Mafāsil* (Polyarthritis), *Waja' al-Qutn*, *Su'āl* (cough), *Zīq al-Nafas* (asthma), *Sailan-ur-Rahem* (Leucorrhoea)[13,15]
Piper longum Linn.	Fruit	1–2 g	*Muqawwi-ī-mi'da* (stomachic), *Kāsir-ī-reyāh* (carminative), *Muqawwi-ī-bāh* (aphrodisiac), *Muhallil* (resolvent), *Musakhkhin*[13,16]	*Zo'f-ī-mi'da* (stomach weakness) *Nafakh-ī-Shikam* (flatulence), *Dard-ī-Shikam* (pain in stomach)[13,16]
Piper nigrum Linn.	Fruit	1–3 g	Externally- *Jāli* (detergent), *Musakkin* (sedative), Internally – *Muharrik* (stimulant), *Muqawwi-ī-mi'da* (stomachic), *Muqawwi-ī-jigar* (liver tonic), *Muqawwi-ī-'asāb* (nerve tonic), *Kāsir-ī-reyāh* (carminative), *Mudirr-ī-bawl* (diuretic), *Mudirr-ī-haiz* (emmenagogue), *Muqawwi-ī-bāh* (aphrodisiac), *Munaffis-ī-balgham* (expectorant)[13,15]	*Nafakh-ī-Shikam* (flatulence), *Fasād al-Had*m (Dyspepsia), *Zo'f-ī- hazm* (Delayed digestion), *Kasrat-i-Riyah*, *Bahaq* (pityriasis alba) *Su'āl* (cough), *Zo'f-ī-'asāb* (weakness of nerve), *Zo'f-ī-Bāh* (Anaphrodisia/Loss of libido)[13,16]
Saussurea lappa C.B. Clarke	Root	2–3 g	*Jāli* (detergent), *Mujaffif* (siccative), *Muqawwi-ī-'asāb* (nerve tonic), *Munaffis-ī-balgham* (expectorant), *Musakkin-ī-alam* (analgesic), *Kāsir-ī-reyāh* (carminative), *Qātil-ī-didān-ī-ama* (anthelmintic), *Mudirr-ī-bawl* (diuretic), *Mudirr-ī-haiz* (emmenagogue), *Muhallil-ī-warm* (antiinflammatory)[13,16]	*Fālij* (Hemiplegia), *Laqwa* (facial palsy), *Ra'sha* (tremor), *Waja' al-Mafāsil* (Polyarthritis), *Niqras* (Gout), *Warm-ī-T*ihāl (splenitis), *Dīdān-ī-Am'ā'* (Worm infestation), *Ih*tibās *al-Tamth* (Amenorrhoea), *Daf-ī-ta'ffun* (antiseptic)[13,15]
Commiphora gileadensis (L.)/ *Commiphora opobalsamum* L.	Wood	2–3 g	*Muqawwi-ī-Dimāgh* (brain tonic) *Munaffis-ī-balgham* (expectorant) *Muqawwi-ī-mi'da* (stomachic) *Mukhrij-ī-janin wa Mashīma*[15,16]	*Sar'* (epilepsy), *Dawār* (virtigo) *Su'āl-ī-Balghami* (productive cough), *Zīq al-Nafas* (asthma)[13,15]
Asarum europaeum L.	Rhizome	3–5 g	*Muqawwi-ī-'asāb* (nerve tonic), *Mudirr-ī-bawl* (diuretic), *Mudirr-e-Haiz* (Emmenagogue), *Muqawwi-ī-dimāgh* (brain tonic), *Muhallil* (resolvent), *Musakkin* (sedative), *Munaqqi-ī-Dimāgh* (brain tonic)[13,15]	*Sar'* (epilepsy), *Laqwa* (facial palsy), *Ra'sha* (tremor), *Iḥtibās al-Bawl* (retention of urine), *Iḥtibās al-Tamth* (Amenorrhoea), *Zo'f-ī-Dimāgh* (Cerebrasthenia), *Nisyaan* (Dementia), *'Irq al-Nasā* (Sciatica), *Niqras* (Gout)[13,16]
Myrtus communis Linn.	Fruit	3–5 g	*Qābiz* (astringent), *Hābis-ī-dam* (haemostatic), *Muqawwi-ī-mi'da* (stomachic), *Muqawwi-ī-qalb* (cardiotonic), *Mujaffif Muqawwi-ī-Sha'r* (Hair tonic), *Masood Sha'r*[15,16]	*Ishāl* (diarrhoea) *Jiryān al-Dam* (Bleeding) *Warm-ī-Litha* (Gingivitis), *Bawl al-Dam* (uraemia) *Kasrat-ī-Tamth* (Polymenorrhoea) *Salas al-Bawl* (Urinary incontinence)[13,16,17]

(Contd...)

Table 3: (*Continued*)

Drug	Parts Used	Dosage	Pharmacological Action	Therapeutic Uses
Swertia chirata Buch. Ham.	Whole plant	5–7 g	*Muṣaffi-ī-dam* (blood purifier), *Mudirr-ī-bawl* (diuretic), *Mulattif* (demulcent), *Qābiz* (astringent), *Muqawwi-ī-mi'da* (stomachic), *Kāsir-ī-reyāh* (carminative), *Mudirr-ī-haiz* (emmenagogue), *Muqawwi-ī-jigar* (liver tonic), *Muhallil-ī-warm* (anti-inflammatory)[13,15]	*Sū'-ī-Hadzm* (Dyspepsia) *Nafakh-ī-Shikam* (flatulans) *Fasād al-Dam Istisqā* (ascites) *Buthūr* (Eruptions), *Taqtīr al-Bawl* (Dribbling of urine), *Zo'f-ī-Ishtihā* (Anorexia)[13,15]
Crocus sativus Linn.	Style and stigma	1–2 g	*Jāli* (detergent) *Daf-ī-ta'ffun* (antiseptic), *Muqawwi-ī-qalb* (cardiotonic), *Muhallil-ī-warm* (anti-inflammatory) *Mufarreh qalb* (exhilarant), *Muqawwi-ī-jigar* (liver tonic), *Muqawwi-ī-'asāb* (nervine tonic), *Mudirr-ī-bawl* (diuretic), *Mudirr-ī-haiz* (emmenagogue)[13,15]	*Amrāḍ-ī-Qalb* (Cardiac Diseases), *Nazla* (Catarrh), *Zukām* (Coryza), *Zo'f -ī-Basar* (Asthenopia), *Khafqān* (palpitation), *Istisqā* (ascites), *Yarqān* (jaundice)[15,16]

Table 4: Important isolated Chemical constituent and Scientific studies on ingredients of *Jawarish Jalinoos*

Drug	Chemical constituent	Scientific Studies
Pistacia lentiscus Linn.	α- pinene, β- pinene, limonene, β- caryophyllene, germaerene and γ-cadinene[18-20]	Antioxidant, Antimicrobial, Antifungal, Anti-inflammatory, Cardioprotective, Wound Healing, and Antidiabetic[21-24]
Nardostachys jatamansi DC	Jatamansone or valeranone, pyranocoumarin, actidine and volatile oil[25,26]	Antifungal, Hepatoprotective, Anticonvulsant, Neuroprotective, Anti-Parkinson's, Antioxidant, Antidiabetic, Antiestrogenic, Antihypertensive[27-30]
Elettaria cardamomum (L) Maton	1,8-cineole, α-terpinyl acetate, flavonoids, catechin, Myricetin, Quercetin, Kaempferol, Carotenoids, Lutein and β-carotene[31,32]	Antioxidant, Anticancer, Cytotoxic, Antifungal, Antibacterial, Insecticidal[33-35]
Cinnamomum cassia Blume.	Terpenoids, Phenylpropanoids, Glycosides, Lignans, Lactones[36,37]	Anti-Tumor, Anti-Inflammatory, Analgesic, Anti-diabetic, Anti-obesity, Antibacterial, Antiviral, Cardiovascular Protective, Cytoprotective and Neuroprotective[38-41]
Cinnamomum zeylanicum Blume.	Trans-cinnamaldehyde, Eugenol, linalool Coumarin, trans-Cinnamyl acetate, β-caryophyllene, α-Pinene, β-Pinene, β-Phellandrene, 3-Phenylpropyl acetate and α-Humulene[42-44]	Anti-microbial, Anti-parasitic, effects on blood pressure, glucose and lipids, Anti-nociceptive, Anti-inflammatory, Wound healing, Hepato-protective, and Cytotoxicity[45-48]
Alpinia galanga (L.)	Phenylpropanoid, Diterpene, Curcuminoid[49,50]	Antimicrobial, Antifungal, Anti-inflammatory, Hepatotoxicity, Immunomodulator, Anti-Diabetic, Anti-Oxidant, Anticancer property[51-54]
Syzygium aromaticum (L.) Merr. L M Perry	Eugenol, β-caryophyllene, eugenol acetate, alkaloids, coumarins, catechins, flavonoids, phenols, saponins, terpenoids, tannins, and steroids[55-57]	Antibacterial, Antioxidant, Antifungal, Anti-inflammatory, Anticancer, Nematocidal, Herbicidal, Acaricidal, Anesthetic effect, Insecticidal[55,58,59]
Cyperus rotundus Linn.	α-Cyperone, myrtenol, caryophyllene oxide and β-pinene, flavonoids, tannins, glycosides, monoterpenes, sesquiterpenes, sitosterol, alkaloids, saponins, and terpenoids[60-62]	Antimicrobial, Antiparasitic, Insecticidal, Neuroprotective, Anti-inflammatory, Analgesic, Anticancer, Antioxidant, Hypolipidemic, Effect on platelets function, Hepatoprotective, Antidiabetic, Anti-dysmenorrhea[63-66]
Zingiber officinale Rosco	Essential oils, Gingerols ([6]-,[8]-, and[10]-gingerols), monoterpenes, sesquiterpenes, shogaols, Alkaloids, Tannins, Carotenoids, Saponin, Flavonoids, Steroids, Cardenolides[67,68]	Anti-cancer, Anticoagulant, Antiemetic, Anti-inflammatory, Antinociceptive, CVS and lipid-lowering, Gastrointestinal, Weight loss effects, Antiarthritic, Antimicrobial, Radioprotective, Antigenotoxic and Antioxidant[69-72]

(Contd...)

Table 4: (*Continued*)

Drug	Chemical constituent	Scientific Studies
Piper longum Linn.	Piperine, Piperlongumine, α-Pinene, Sabinene Flavonoids, Catechin, Epicatechin, Dehydropipernonaline[73,74]	Anti-inflammatory, Analgesic, Antioxidant, Anti-microbial, Anti-cancer, Anti-parkinsonian, Anti-stress, Nootropic, Anti-convulsant, Anti-Diabetic, Hepatoprotective, Anti-hyperlipidemic, Anti-platelet, Anti-angiogenic, Immunomodulatory, ACE inhibitor, Anti-arthritis, Anti-ulcer, Anti-asthmatic, Anthelmintic, Anti-fungal, and Anti-fertility[75-78]
Piper nigrum Linn.	a- and b-pinene, myrcene, a-phellandrene, limonene, linalool, methyl-propenal, 2- and 3-methylbutanal, butyric acid, 3-methylbutyric acid, Alkaloids, glycosides, terpenoids, steroids, flavonoids, tannins, and anthraquinones [79,80]	Antimicrobial, Antioxidant, Anticancer, Analgesic, Anticonvulsant, Anti-inflammatory, Hypoglycemic, hypolipidemic, Neuroprotective[81-83]
Saussurea lappa C.B. Clarke	terpenes, anthraquinones, alkaloids, flavonoids, Terpenes costunolide, dihydrocostunolide, 12-methoxydihydrocostunolide, dihydrocostus lactone, dehydrocostus lactone[84,85]	Anticancer, Antidiabetic, Anti-inflammatory, Hepatoprotective, Antiulcer, Immunomodulatory, Anticonvulsant, Angiogenesis, Anti-hepatotoxic, Antidiarrheal, Hypolipidemic, Antiparasitic, Antiviral [86-88]
Commiphora gileadensis (L.)/*Commiphora opobalsamum* L.	Sesquiterpene, a-pinene, camphene, b-pinene, myrcene, and limonene[89,90]	Antiulcer, Antiproliferative, Hypotensive action, Hepatoprotective, Anti-inflammatory[90-92]
Asarum europaeum L	Asarone, methyl-eugenol, bornyl acetate, terpenes, quercetin, isorhamnetin, and trans-aconitic acid[3,93]	E-asarone exerts hypolipidemic and significant antithrombotic properties. The compound showed also mosquitocidal, nematocidal, and antifeedant activities. (E)-asarone, (Z)-asarone also has toxic effects[94]
Myrtus communis Linn.	Quercetin, catechin, myricetin, α-pinene, 1,8-cineole, and limonene[95,96]	Antioxidant, Antibacterial, Hepatoprotective, Anti-inflammatory, Anti-diabetic, Insecticidal, Antimutagenic[97-100]
Swertia chirata Buch. Ham.	Amarogentin, swertiamarin, mangiferin, swerchirin, sweroside, amaroswerin and gentiopicrin, Xanthones, lignans, alkaloids, flavonoids, terpenoids, iridoids, secoiridoids, chiratin, ophelicacid, palmitic acid, oleic acid, and stearic acid[101-104]	Antibacterial, Antifungal, Antileishmanial, Anthelmintic, Antimalarial, Anti-hepatitis B virus, Anti-inflammatory, Hypoglycemic, Antidiabetic, Antipyretic, Anticarcinogenic, Analgesic, Hepatoprotective, Antiviral[105-108]
Crocus sativus Linn.	Apocarotenoid, glycosides, crocin, picrocrocin, Carotinoids, lycopene, alpha-, beta-, gamma-carotene[109-113]	Antidepressant, Anticonvulsant, Antianxiety, Memory improvement, Morphine-withdrawal syndrome, Antidiabetic, antioxidant, dermatological, Immunological, Cardiovascular, Respiratory, Reproductive, Gastrointestinal, Smooth muscle relaxation, Anticancer, Antiparasitic, Anti-inflammatory[60,109,110,114-116]

by using toluene and ethyl acetate (1:1) as mobile phase. Spray the TLC plate for visualization with 5% vanillin-sulfuric acid reagent and heat to 110 °. Eight spots appear at R*f* values 0.96 (Violet), 0.81 (Brown), 0.72, 0.68, 0.62, 0.56 (Grey), 0.34 (Blue), and 0.20 (Grey).[15]

TOXICITY STUDY

Husain *et al*.[4] investigated the toxicity of *Jawarish Jalinoos* in rats. An oral toxicity study was performed as per the OECD Guideline 408. At the dose of 2000 mg/kg b. wt., no adverse effect was seen and therefore, safe for clinical use as specified in the literature.

DISCUSSION AND CONCLUSION

Gastrointestinal symptoms are highly prevalent, but many people who experience them will have no organic explanation for their symptoms. The majority of these people will be labeled as having a functional gastrointestinal disorder

(FGID), such as irritable bowel syndrome, functional dyspepsia, or functional constipation. These conditions affect up to 40% of people at any one point in time, and two-thirds of these people will have chronic, fluctuating symptoms.[117] Mechanisms for FGID include chronic infections, intestinal microbiota, low-grade mucosal inflammation including the increase of eosinophils, systemic immune activation, altered intestinal permeability, in diarrhea predominant IBS altered bile salt metabolism, abnormalities in the serotonin metabolism, and genetic factors. All these factors might be modulated by environmental factors, such as diet.[118] Many groups of medicines applied in the treatment of GID are not fully effective to inhibit their aggravation or maintain long-term remission. Therefore, the present study examined the effects of *Jawarish Jalinoos* in gastrointestinal disorders.

The ingredient of *Jawarish Jalinoos* possesses a gastroprotective, antioxidant, anti-inflammatory effect [Tables 3 and 4]. The Lentisc oil protects intestinal inflammation in colitis rats induced by a 2,4,6-trinitrobenzene sulfonic acid (TNBS) by a modification of arachidonic acid metabolism.[119] The resin of *P. lentiscus* regulates intestinal damage and inflammation in TNBS-induced colitis by regulating oxidant/antioxidant balance[120] and the fatty oil of *P. lentiscus* significantly inhibits gastric ulcers by inhibiting inflammatory responses.[121] *Nardostachys jatamansi* attenuates the severity of acute pancreatitis by reductions in neutrophil infiltration, serum amylase, and lipase levels[122] or by the inhibition of NF-κβ activation.[123] It attenuates alcoholic chronic pancreatitis through the inhibition of pancreatic stellate cell activation.[124] The essential oil and methanolic extract of *Elettaria cardamomum* significantly inhibited gastric lesions by decreasing gastric motility induced by ethanol and aspirin.[125] The oil also significantly inhibited *P. aeruginosa* and *E. coli* and exhibited potent antidiarrheal and antispasmodic effects.[126] Cinnamaldehyde inhibits the growth of intestinal bacteria may be due to the presence of tannins.[127] *Cinnamomum cassia* in combination with other drugs induces a potent laxative effect in loperamide-induced constipation which was mediated by modulation of muscarinic acetylcholine receptors and its downstream signals.[128] The protective effect of aqueous extract of *C. cassia* against constipation induced by loperamide in rats was accompanied by a strong antioxidant property.[129] *Galangan* exerts antiulcer effects through cyclooxygenase and noncyclooxygenase pathways.[130] The methanolic extract of *Cyperus rotundus* significantly inhibits aspirin-induced gastric ulcers through an antioxidant defense mechanism.[131] *Zingiber officinale* prevents indomethacin-induced peptic ulcers because of its high flavonoid and antioxidant content.[132] In an *in-vitro* study, gingerols inhibit the growth of *H. pylori* CagA+ strains.[133] *H. pylori* are the etiological agent responsible for dyspepsia, gastritis, peptic ulcer disease, and gastric carcinoma.[134] The methanolic extract of black pepper and piperine showed antispasmodic activity which was mediated via opioid receptor activation and calcium ion channel blocking activities.[135]. The decoction of *Saussurea lappa* can heal ethylic acid-induced duodenal ulcers in rats, probably because of the enhancement of motility and the increase of motilin and cholecystokinin expression in the duodenum.[136] Myrtle berries juice shows a protective effect against castor oil-induced diarrhea because of its antioxidant and antisecretory properties.[137]

Based on the available literature, it is concluded that *Jawarish Jalinoos* is a drug used in the Unani system of medicine for the treatment of various ailments of the body. It is a multi-potent drug though its major use in the treatment of gastrointestinal diseases, cardiac diseases, kidney diseases, metabolism, and general health also found effective in many other health problems. However its properties, which are claimed by Unani physicians, are not verified by pharmacological studies. However, its standard SOPs (Meena *et al*., 2013) and safety profile are established by Husain *et al*., 2017.

It is concluded that *Murakkabat* (compound formulations) have a vast field to do research work and it is the duty of not only of Unani experts but also those having faith in traditional medicine, to come forward to accept challenges of modern time and establish a new field of research.

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