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Ulcer healing property of *Commiphora myrrha* Engl. (Mur makki)

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Abstract

There is an increasing trend in the world to use medicinal herbs in healthcare delivery system. Usage of medicinal herbs are although time tested for their safety, efficacy, social acceptability and lesser adverse effects, it should be scientifically validated for acceptance of by enlarge. Thus, it becomes essential to evaluate the claims of these herbal drugs mentioned in the classical text and pharmacopeias of indigenous medical systems using modern scientific techniques. *Commiphora myrrha* known as *Mur Makki*, is a common herb, which has been used in Unani medicine for its effects to cure various diseases from antiquity. This plant is also pharmacologically studied for its antiulcerogenic, antioxidant, antimicrobial, and anti-inflammatory properties. This review attempts to highlight the available literature on *Commiphora myrrha* with respect to its ethnobotany, pharmacognostic characteristics, traditional uses, chemical constituents and summary of its various pharmacologic activities and clinical effects and more focus was driven towards its ulcer healing property.

Keywords: *Commiphora myrrha*, mur makki, medicinal herbs, indigenous medicine, healing ulcers

Introduction

Gum resin is secreted from the bark of the plant *Murmakki* (*Commiphora myrrha*). The majority of the species yield a fragrant oleo-gumresin following damage to the bark. Yellowish gum is obtained by crushing or squeezing the bark. Secretions get solidified after excreted from bark. Drug is in the form of irregular roundish masses varying in size from small grains up to the pieces of the size of the egg. The drug possesses an agreeable aromatic odour and bitter and acrid but not unpleasant taste. The name *Commiphora* originates from the Greek words *Kommi* (Meaning “gum”) and *phero* (meaning “to bear”). *Commiphora* has shown to dominate over 1.6 million km² of *Acacia-commiphora* woodland in sub-tropical East Africa. Of the more than 200 species of *Commiphora* native to the seasonally dry tropics of Africa, Arabia and India, about 40 species occur in South Africa. The African name for *Commiphora* is “*Kanniedood*” the direct translation being “cannot die”. This is the sustainability of the plant and also refers to the fact that the truncheons grow easily when planted. Yellowing and shedding of the leaves occurs early in autumn, and the plants are deciduous for most of the year, a feature very typical of *Commiphora*. They are brittle and on breaking show a rough and waxy fracture^[1-2].



Fig 1: *Commiphora myrrh* oleo resin

Unani medicinal review

Botanical name: *Commiphora myrrh* Engl.^[3]

Family: Burseraceae^[1, 4]

Vernaculars^[4-7]

English: Myrrh

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Arabic: Mur makki

Hindi: Bol

Persian: Mur

Urdu: Mur makki

Parts used: Resin from the stem [2, 8-11]

Temperament (Mizaj): Har 3⁰ and Yabis 2⁰, Har 3⁰ and Yabis 2⁰ [2]

Har 2⁰ and Yabis 2⁰ [2, 11, 12]

Dosage: 0.5 to 1 gm [2], 1 gm to 2 gm [9], 1-2 gm [12].

Forms used: Powder (safoof), Confection (*Majoon*), Pills (*qurs*) [2]

Action (Af'aa): *Dafaetaffun*, *Mujaffif*, *Jali*, *Kasireriyah*, *Muqavviemeda*, *Muhallil*, *Mufatteh*, *Musakhin*, *Muharrik*, *Munaffisebalgham*, *Mudirrehaiz*, *Tiryaaq* [2, 9, 13].

Uses: Ulcer (*Qurooh*), Indigestion (*Sue hazm*), amenorrhea (*Ehtebase tams*), Intestinal worm (*Deedane ama*) [2, 13].

Adverse effect (Muzir): Head ache, hot temperament (*harmizaj*) [2, 6, 13].

Correctives (Musleh): *Shehadkhalis*, *Kafoor*, *Baridwaratab* drugs [2, 14].

Substitute (Badal): Gum of *Mukul*, *Chiraita*, Black pepper, *Gond*, *Badam Talkh*, *Qust*, *Momiyai*, *Jundbedastar* [2, 13].

Compound formula (*Murakkabat*)

Dawaulkurkum,

Majooneantaki,

Qurseemusallas,

Tiryaaqearba,

Tiryaaqewabai,

Tiryaaqesamania,

Tiryaaqenzla,

Zimadekhanzeer,

Majunekundur,

Habe mudir [9, 12, 14, 15]

Ethnobotanical description of *Commiphora myrrha* Engl.

The tree is small with spiny branches; leaves are 3-foliolate, flowers are small polygamous. A gum-resin exudate spontaneously from cracks and fissures of the bark and otherwise can be collected by incision. Gum is collected on goat skins. Gum masses are irregularly roundish of various sizes, opaque reddish brown in colour and when broken exhibit a rough waxy surface [14, 16].

Action: Emmenagogue [1], expectorant [2], antihelmintic [10], antiseptic, stimulant and tonic [1, 17], anti-inflammatory [17], Analgesic [2, 18], astringent, decongestant, deodorant, stomachic, digestive, carminative [19], bacteriostatic [20], intellect promoting, aphrodisiac, diuretic, deodorant, ophthalmic [21].

Uses: Stomatitis, dyspepsia, amenorrhoea, asthma, sorethroat [1], uterine infection, used in stomatitis, dyspepsia, amenorrhoea, dysmenorrhoea, asthma, spongy gum, rheumatoid arthritis, sciatica, wounds and skin diseases [3, 10].

Major chemical constituents

The oleo-gum resin, myrrh contains carbohydrates as galactose, xylose, arabinose, resins as α , β and γ commiphoric acids, commiphorinic acid, commiferin. Steroids (campesterol, cholesterol), terpenoids (α -Amyrin, Furanosesquiterpenes, including furaneudesma-1,3-diene (major), furaneudesma-1,4-diene-6-one, lindestrine, curzerenone, furanodiene, 2-methoxyfuranodiene and 4,5-dihydrofuranodiene-6-one) are also present. Volatile oils

constitute 1.5-17%, which contains α -pinene, dipentene, limonene, cuminaldehyde, cinnamic aldehyde, eugenol, m-cresol, heerabolene, formic acid, acetic acid, palmitic acid, myrrholic acid. Water soluble gum of myrrh contains D-galactose, l-arabinose, 4-methyl D-Glucorinic acid, acidic oligosaccharides and aldo-biuronic acids [4].

Results and Discussion

Scientific reports claiming the medicinal values of *Commiphora myrrh*

Anti-inflammatory, antipyretic, hypoglycaemic activities: *Murmaki* confirmed the actions of anti-inflammatory [17], Anti-inflammatory activity and antipyretic activities in mice had been documented for myrrh. Hypoglycaemic activity in both normal and diabetic rats has been reported for a myrrh extract [22].

Anti-microbial activity

In an *in vitro* study conducted to evaluate the antimicrobial efficacy of *Commiphora myrrh*, on *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa* and *Acinetobacter baumannii*, the plant was extracted out in water, 80% ethanol and n-hexane both in combination and individually and tested against gram negative bacteriae. The results were significantly positive [22, 23].

Analgesic activity

Analgesic effect and antihyperlipidemic effect of *Commiphora myrrh* extract was investigated in Sprague-Dawley rats. It showed positive significant result by reducing the inflammation and elevated serum levels of triglycerides and total cholesterol [24].

Activity against zoonotic disease

A clinical study was conducted to know the therapeutic effect of Myrrh against a zoonotic disease, *Fascioliasis*. patients passing Fasciola eggs in stools were treated with Myrrh gum extract in a dose of 12mg/kg body weight for 6 days consecutively and then followed up for a period of 3 months. Results showed a marked reduction in the egg count during the trial and were not detectable at the end of treatment [25].

P.D. Soni *et al.* reported that the ulcer protective potential of an ethanol extract of *Commiphora* was assessed against different induced acute gastric ulcer models in rats showed dose-dependent ulcer protective effects in all the ulcers models. This investigation proved the indication claimed in Unani pharmacopeias as an ulcer (*Mudamile Qurooh*) healing drug [4, 15].

A recent clinical trial conducted in a hospital setting in 2017 revealed that using a poly herbal formula in which *Commiphora* was a chief ingredient, had demonstrated significant wound healing property in peptic ulcer [26]. Raniah Abdullah Al Eid conducted an RCT and found *Commiphora myrrh* mouthwash had an improvement effect on wound healing after tooth extraction [27]. Jamal Albishri described in his trial that mouth wash made of *Commiphora myrrh* was effective for the oral ulcer in the patients with Behçet's disease [28].

Md. Rizwanullah *et al.* and Shah Alam *et al.* in their case studies used two different Unani formulas with *Commiphora myrrh* as main ingredient and proved to be very efficient in treating non-healing ulcers [25, 26]. Anwar Ajamli *et al.* stated in their review article that *Commiphora myrrh* is recommended as a gastric ulcer remedy while Tooba Fahad *et al.* also concluded the same that *Commiphora myrrh* is beneficial in all types of ulcers [31, 32].

Conclusion

The results of this review suggested *Commiphora myrrh* is an extensively used medicinal plant in many ailments of different medical systems. It is used as a single drug and also as a main content in many medicinal formulas especially in Unani Medicine and other system of Medicine. It is reported to contain essential oil, coumarins, alkaloids and flavonoids. The pharmacologic and clinical studies reported in the present review confirm the therapeutic value *Commiphora myrrh* in healing of ulcers. This herb is an important source of various types of compounds with diverse chemical structures as well as pharmacologic properties. Presence of such a wide range of chemical compounds indicates that the plant could serve as a "lead" for the development of new agents having efficacy in various disorders such as healing of ulcers in Upper GIT. Unani physicians have mentioned the uses of *Commiphora myrrh* in various systemic disorders. However, scientific studies have proven its efficacy in some properties of drug specially in healing of ulcers. Further the review results deserved further investigation to prove medicinal properties of *Commiphora myrrh* to benefit the ailing patient to get relieve cost effectively.

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