Therapeutic potential of Murmakki (Commiphora myrrha) in gynaecological disorder: A Unani review

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Abstract

Murmakki is a well-known and potent herbal drug used in various traditional medicines for its various beneficial effects on different Gynaecological ailments and diseases. It is commonly known as Gum Resin. It consists of oleogum resin obtained by exudation from the stem of a plant Commiphora myrrha. It is used in Saudi Arabia, Indian and Western Medicine and is listed in the British pharmacopoeia as an antispasmodic and expectorant. In ancient traditional Persian manuscripts, it has been noted that myrrh acts as a uterine stimulant and probably cause complete abortion. In Unani Medicine, it is used as a potent drug for dysmenorrhea and amenorrhea as mentioned by Avicenna and Razi in their treatises. This review article discusses the pharmacognosy, phytotherapy, phytochemical and biological studies of Commiphora myrrha along with comprehensive review based on Unani Medicine.

Keywords: Murmakki, Commiphora myrrha, Oleo gum resin, Gynaecological disorders.

1. Introduction:

The health of women is one of society’s most critical issues because women must be physically, mentally and emotionally well before they can devote themselves to serving their families and consider other important social issues. There are many Gynaecological disorders found in women e.g. Usr-i-tams (Dysmenorrhoea), Ehtbas-i-tams(Amenorrhea), Sailan-ur-rahem (Leucorrhoea), kasrat-i-tams (menorrhagia), Warm-i-Farj wa Mebal (Vulvitis and Vaginitis), Marz akyas khusyur rehm (Polycystic ovarian disease), Quruhal reham (cervical ectopy), sul’ah-ur-Reham (uterine tumour), isthasqa ur Rahem (hydrometra), that needs to be timely diagnosed and cured to avoid major health problems. We have several single drugs to treat gynaecological ailments, drug Murmakki (Commiphora myrrha) has tremendous outcomes as per classical Unani literature in gynaecological diseases.

The Commiphora genus belongs to the family Burseraceae and comprises over 200 species, which is a native that belongs to the seasonally dry tropic of Africa, Arabia, and India. The name Commiphora originates from the Greek words kommi meaning gum and phero meaning to bear. The African name for Commiphora is kenniedoo the direct translation cannot die. Myrrh, a yellow fragrant oleo-gum resin, is a famous traditional herb, which is derived from the damaged bark of Commiphora genus Commiphora myrrha (Nees) is a small tree or a large shrub found in the dry and arid regions of Ethiopia and Somalia (the largest producers and exporters of myrrh) and to some extent in northern Kenya.

In the Unani system of medicine, various formulations are available in the treatment of Gynaecological diseases, which have been used locally in the form of Humool (pessary), Shiyaf (suppository), Farzaja (tampon), zimad (emenagogue) and Abzan (Sitz bath) for immediate healing of the wound. Exhibiting the properties of myrrh followed by Mudirr-i-haiz (emenagogue), Usr-i-tams (dysmenorrhoea), Munafis-i-balgham (expectorant), Qatil-i-deedan-am (antihelmintic), Muhallil-i-warm (anti-inflammatory), Mudamil-i-qurooh (wound healing), dafa’ ta‘ffun (antiseptic) etc. Myrrh causes expulsion of janin o mashima due to its bitter taste. Myrrh used as hamool in farj foul smell will disappear. Myrrh act as the best uterus cleanser. scientific reports have claimed the medicinal values of Commiphora myrrha have Anti Inflammatory, Antipyretic activities, Antimicrobial acidity, and Analgesic activity against zoonotic disease.

This review article gives a detailed description of gynaecological diseases as mentioned in classical Unani text, ethnobotanical description, action, therapeutic uses, treatment as well as evidence-based Unani medicine.
2. Material and Method

A small tree, branches are often spiny, leaves are usually 3-foilate, the lateral leaflets sometimes small or absent, flowers small fascicled, polygamous, calyx tubular, teeth usually 4, valvate petals usually found inserted on edge if the disk, stamens 8-10 on the disk alternately long and short filaments dilated below, ovary sessile, 2-4 celled; ovules 2 in each cell style short, stigma 3-4 lobed; drupe ovoid resinous, containing a 1-3 celled nut or 2-3 nuts.

Ethnobotanical description of Commiphora myrrha:

More than 200 species of Commiphora are native to the seasonally dry tropics about 40 species occur in Arabia and on the African coast of the red sea often cultivated in western India, and South Africa. Yellowish and shedding of leaves occur early in autumn, and the plants are deciduous for most of the year they are brittle and on breaking show a rough and waxy fracture. A small, thorny tree or shrub that can grow to 9 feet high, branches are often spiny, leaves are usually 3-foilate, young plants are green, and irregularly roundish of various sizes, opaque reddish and when broken exhibits a rough waxy surface 3 it is brittle 6 and pleasant.

2.1 Vernacular names:

<table>
<thead>
<tr>
<th>Eng</th>
<th>myrrh 9,12</th>
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<tbody>
<tr>
<td>Arabic</td>
<td>mur, 9,11</td>
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<tr>
<td>Hindi</td>
<td>bol, 9,12</td>
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<tr>
<td>Malayalam</td>
<td>nārum pasamaram 12</td>
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<tr>
<td>Bengali</td>
<td>gandarsh 6,12</td>
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<tr>
<td>Persian</td>
<td>bol, mur 3,9,11</td>
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<tr>
<td>Sanskrit</td>
<td>bolah, rasagandha 12</td>
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<tr>
<td>Kannada</td>
<td>bola;vola 6,9,12</td>
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<tr>
<td>Tamil</td>
<td>vellappan polam 6,7</td>
</tr>
<tr>
<td>Telugu</td>
<td>ballin tropolam 6,9</td>
</tr>
<tr>
<td>Urdu</td>
<td>mur</td>
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<tr>
<td>Unani</td>
<td>murmalki 6,7</td>
</tr>
<tr>
<td>Gujrathi</td>
<td>bol 6,9</td>
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<tr>
<td>ayurvedic</td>
<td>bula, hirabolah, surasa, barbara, gandarasa 7</td>
</tr>
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2.2. Parts used: Resin from the stem 3,6,9,11,12,14

2.3 Temperament: Har 3⁰ and Yabis 2⁰ 3,6,10,11,14

2.4. Dosage: ½ gm to 2 gm. 14 5 to 15 gms 6 3-5 g. 7 5 to 15 grains, 9,1-2 gms 3,11,13,15

2.5. Form used: safajo 3 shiyaf, 4 humool, 4,10,11,13,18 faraja, 4,5,18 fathila, abzan, zinam, 4 huqha, 4 joshanda, 13 tincture 9,16 Majoan, 3 gurs (pills) 3,5

3. Results

3.1. Afal (action):

Mudir-i-haiti (emmenegogue), 3,6,7,9,10,11,14, Urs i-tams (dysmenorrhea), 10,11,12 Mahalī i-awram (anti-inflammatory) 3,6,7,8,10,11,12 Dafa-i-tuffan (antispetic) 3,6,7,8,10,11,14, Majāff (siccative), 3,11 Īoli (detergent) 3,8,10,11,14 Kāsir-i-riyāh (carminative) 3,7,8,10,11,14, Muqawwi-e-meda (gastric intestinal tonic) 10,11, Muhallīl (resolvent) 10,11,14 Mūfatel (deobstruent), 3,11 Musakhīn (analgesic), 3,10 Muharrīk (stimulant) 3,6,7,9,10,11,14, Tāryaq (antidote) 3 qabiz (Astringent), 2,3,6,7,9,10,11,13,14 qatil-i-deedan āma (antihelminthic), 10,13,11,14 antiungal, cytotoxic 10 stomachic, hāzim (digestive), 9,13 bacteriostatic, 7, 3,11 Musir, baul (diuretic), 8,10,13,14 deodorant, 10 ophthalmic, 8,10,14 anti viral, 7,10,13 Musaffi (blood purifier), 7 arthritis, 13 Asthma, 3 Muqawwi-e-bah (aphrodisiac). 10

3.2. Uses:

Qabis (astringent), digestive, Kāsir-i-riyāh (carminative), 8,12 Munafis-i-baigam (expextorant), 8,9,12,15 Muqawwi-e-bah (aphrodisiac), 8,13 Qatil-i-Deedan-i-ama (antihelminthic), 8,12,15 Musir-baul (diuretic), deodorant, 8,10 warm-i-shabatur riyāh (branchchitis), 8,12 Waja ul mufassil (rheumatoid arthritis), 8,12,15 iqunissa (sciatica), 8,12,15 ghrur (ulcers), 3,8 amaraz-i-jild (skin diseases), 8,12 dafa-i-taffun (antiseptic) 12,15 Mudir-i-hayd (emmenagogue). 12

3.3. Gynaecological Uses:

Iltihābat tams: (Amenorrhoea) Myrrh prepared as decoction used for Amenorrhoe, 13 unmurakki, marzanjosh, azkhar, saleeqha, podina, hasha, karhan, shonez, ghust, akleelul mulk.

Cervical stenosis: shafo of mus is inserted into the introitus for the opening of cervix in cervical stenosis 91 Kasrath -i- tams (menorrhagia): musurakki 1.75 gm along with half boiled egg stops excessive bleeding, 4, 8 Iltihābat-i-rahim: (PID) application of mus in the form of humool cures the inflammation. Qatil-i- janneh (Abortifacient): is used as an abortifacient due to its bitter taste. 8

Usr-i-tams (Dysmenorrhea): Mur, satarfarsi, tukhme shapth, qst talaq, tukhme karafs, shaham e Hanzal each 4 gms grind with aabe sabz maroogh and add roghan e baid anjeer for application of paste Istkharka ur Rehm: (hydrometa) humool of murakki, qaranfil, nakochar reduces water accumulation in the uterus. 5 Huqna (Enema) of murmakk causes immediate expulsion of fetus and placenta. Huqna (Enema) of murmakk along with ethi (fenugreek) removes the hardness of uterus. 4

Humool (pessary): murmakk ground with Aabe aas remove the bad smell of vagina.

Murakki along with alcohol inserted into the cervix causes...
immediate expulsion of newborn.  8
Murmmakki acts as a uterine cleanser.  4,8
Joshanda (Deoaction) of murmakk is useful as emmenagogue and diuretics.  13
Galactogogue: murmikki along with jaggery increases milk secretion.  8

Uterine tumours: Murmakk, sibr, tukhme ulsi, ersa, ajwain desi each 4 gm, tukhme halb in 13 gms, filfil e siya, charaita, gogul, ushk, farfeoon, qast talq, zaravand mudarji, ratinj each 12 gms grind it a fine powder and mix with Aabe makoo sazb marookh and applied as zimad for uterine tumours.  5

3.4. Adverse effect: (Muzir): Headache, hot temperament (har mizaj).  3,18 Bladder.  14

3.5. Correctives (Musleh): Shehad,  6,14,15 Kafoor,  6,8,14 Barid wa ratat drugs.  13

3.6. Substitute (Badaal): Gum of Mukul, Chiraita,  6 Black pepper, Gond, Badam Talkh,  3 Qust  3,12,13,14,15 Moniyav,  14,15 Jundbedastar.  11,14,15

3.7. Compound formula (Murrakkabat): Hab-i-Mudir 3,6,11,12,13,14,15 Majoon Kundra 3,6 Majoon Murrmakk, Dawuul Kurkum saqhe, Dawuul Kurkum Kabeer 6 Tiyaq Arbu,  3,6,11,13,14,15 Tiyaq-i-Wabaye,  3,6,13 Qurs, Musulak,  3,15 Tiyaq e nazla,  3-Habb-i-Taao,  11,12,13 tiyaq-yi-samania, zimade khanzeer.  3

3.8. Chemical constituents: Myrrh contains resin (25–40%), gum (57–61%), and volatile oil (7–17%). A large portion of the resin is ether-soluble containing α, β, and γ-cummorphic acids, resenes, the esters of another resin, acid and two phenolic compounds. The volatile oil is a mixture of cuminic aldehyde, Eugenol, cresol, pinene, limonene, dipentene, and two sesquiterpenes. The disagreeable odour of the oil is due to main the disulphide. The gum contains proteins (18%) and carbohydrates (64%) which is a mixture of galactose, arabinose, glucuronic acid, and an oxidase enzyme.  16

Phytochemicals present in this plant resulted in a series of metabolites including terpenoids, steroids flavonoids, lignans, and carbohydrates and exhibited diverse biological activities such as cytotoxic, anaesthetic, anti-inflammatory and antimicrobial effects, anti dysmenorenheic activity.  2

3.9. Pharmacological Studies:

3.9.1. Cytotoxic activity: C. myrrha was reported to have cytotoxicity activity on human gynecologic cancer cells in clinical trial due to the presence of two compounds of diterpene resin acid, which significantly inhibit proliferation of humanovarian cancer.  2

Emmenagogue activity: Khatoon et al. reported that Mur is effective in PCOD-related secondary amenorrhoea when used in combination with Muqil and Abhal and induced withdrawal bleeding along with menstrual regulation due to the presence of steroids and flavonoids. Moreover, Mur contains phytosterols, saponins, terpenoids, lignans and phenolic compounds; and glycosides and alkaloids in Abhal which exerts hormone-like action in the body and thus withdrawal bleeding and menstrual regulation.  17

Anti dysmenorenheic activity: Extract of myrrh exhibits significant anti dysmenorenheic activity (Wang et al2009) and inhibits uterine contraction and aromatase activity. (Suetal 2008)  2

Anti inflammatory activity:

C. myrrha extract exhibits anti-inflammatory effect as evident by the decrease in volume of paw oedema induced by formalin in rats probably due to an inhibition of release of inflammatory mediator PGs.  10 anti-inflammatory and antipyretic activities in mice has been documented for myrrh.  3

Analgesic activity:

C. molmol extract exhibit analgesic activity in rats due to the presence of bioactive compounds that raised the pain threshold by depressing pain receptors centrally in the brain and also by inhibiting the release of prostaglandins (PGs). Thus C. molmol extract appeared to produce an analgesic effect through both central and peripheral mechanisms  10 analgesic activity and antihyperlipidemic effect of Commiphora myrrha extract was investigated insprague-Dawley rats. It showed positive significant results by reducing the inflammation and elevated serum levels of triglycerides and total cholesterol.  3

3.10. Experimental Studies:

1. Cervical Ectopy in Qurra rehama: Murrmakk -half part and each one part of phitkiri, poste anar, finely powdered and mix with aabe aas and aabe barge saru, later on add equal quantity make as Hamool in fresh ulcer and traumatic oozing wounds. Farza ya - Kundur, anzaroot, damal akhwain, jossra, poste anar, shibe yamani, Murrmakk, gule surkh are finely powdered and mixed with aabe bartang or aabe aas or aabe laal prepared as farza ya if the ulcer is associated with blood stained discharge.  10

2. Trichomoniasis vaginalis infection: The effectiveness of an oleo resin extract derived from myrrha., commiphora molmol was given to the metronidazole and tinidazole resistant females as two capsules (60/1mg) for six to eight successive days on an empty stomach two hours before breakfast. All patients were considered cured, in conclusion, the results in the present study support the two safe plant extracts (Commiphora molmol and Punica granatum) proved to be valuable agents in treating T. vaginalis infection.  19

3. Incomplete Abortion:

Myrrh used as capsules in incomplete abortion: capsules containing 500 mg of Myrrh oleo-gum-resin three times a day for 2 weeks. the result of ultrasound examination sh owed a significant decrease in the size of RPOC after treatment with myrrh and suggested that Myrrh was effective and safe and may be considered as an alternative option in the treatment of patients with RPOC.  20

4. PCOS: All crude drugs (Muqil, Murrmakk, Abhal) were taken in equal quantity; cleaned, finely powdered and tablets were prepared; one tablet was approximate 750 mg and three tablets were administered orally thrice daily to fulfill the dose of 6 g/day with water for 7 days in a month for three cycles. The present study showed that oral administration of Muqil, Murrmakk, and Abhal induced withdrawal bleeding in maximum patients (63.33%) of PCOD-associated secondary amenorrhoea in the first treatment cycle and menstrual regulation (73.33%) in subsequent cycles of treatment. Hence, it can be inferred that research drugs may be an effective therapeutic option in patients with PCOD-associated secondary amenorrhoea as it has a significant effect on inducing withdrawal bleeding.  17

5. Episiotomy wound healing:

Women in intervention groups received a 10-min sitz-bath of myrrh extract of frankincense extract twice a day for 1 week. While the women in the control group received the betadine sitz-bath for the same time. The main outcome was the episiotomy wound healing, which was measured using the
REEDA scale before the intervention, on the 2nd and 7th postpartum days.

An improvement in the episiotomy wound healing was significantly in patients receiving myrrh, the total reeda score was significantly improved in patients receiving myrrh than those receiving either frankincense or betadine. This improvement in wound healing by myrrh was mostly contributed by better scores in redness, ecchymosis and approximation. 21

6. Usur-E-Tams (Dysmenorrhea):

During the study, Majoon Murmakki 3gm and control group mefenamic acid 500mg two times a day was given orally from 1st to 5th days of menstruation for two consecutive cycles, and significant relief was observed in dysmenorrhea and associated symptoms in the patients. Hence, Majoon murmakki is a safe, herbal therapeutic option that can provide an alternate management option with no adverse effects and conventional treatments in usr tamth (dysmenorrhea). The findings in the present study demonstrated that majoone murmakki is as effective as mefenamic acid in the management of usr tamth. 22

7. Leucorrea:

Murmuki 5 gm (Commiphora myrrha) along with boiled egg was given orally early in the morning for 2 months and the follow-up was taken after every 15 days. After one month the patient got remarkable improvement in white discharge, backache and itching. At the end of 3 follow up the vaginal discharge was disappeared and the patient gets relief from other signs and symptoms. The Unani medicine is based on the principle of temperament and the medicine Murmuki bears temperament Hot and Dry which is an antagonist to temperament of Sailanur-rehm (Leucorrea) patient. 23

4. Discussion and Conclusion:

The findings from the present review of Murmakki, (Commiphora myrrha), Oleo gum resin used locally in the form of humool, Shiyaf, Farzaja, Zimad, Abzan. Capsules, safoof, Qurs, Joshanda and majoon murmakki is effective in the management of Gynaecological disorders. The effect of murmakki may be attributed to its properties like musakkinie-awjāh (analgesic), muhallili-i-awrām (anti-inflammatory), midirri-i-bole-wa-hayd diuretic and emmenagogue), muffattih-i-sudad (deobstruent) among others; also analgesic activity of furanosequiterpenes such as furanoloemanes, furanouemanes and furanogermacranaes present in the gum resin extract of myrrh. Hence, Murmuki is a safe and effective herbal therapeutic option that can provide an alternate management option with no adverse events as caused by conventional treatments in Gynaecological disorders. Murmakki have greater significance in the treatment and management of various Gynaecological disorder.

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Conflict of interest: None.

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