



**UNANI PERSPECTIVE AND RECENT STUDIES ON *USR E TAMS*  
(DYSMENORRHOEA)**

**Farzana M.U.Z.N<sup>1\*</sup>, Fahamiya N.<sup>2</sup>, Shiffa M.S.M.<sup>3</sup>, Hisham A.M<sup>4</sup>**

<sup>1</sup>BUMS (SL), MSc (SL), MS –Unani (India), Senior Lecturer Grade-II, IIM, University of Colombo, Rajagiriya

<sup>2</sup>BUMS (SL), MD –Unani (India), Senior Lecturer Grade-II, IIM, University of Colombo, Rajagiriya

<sup>3</sup>BUMS (SL), MD –Unani (India), LLB, AAL (SL), Senior Lecturer Grade-II, IIM, University of Colombo, Rajagiriya

<sup>4</sup>IIM, University of Colombo, Rajagiriya

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**\*Corresponding Author**

**Dr. Farzana M.U.Z.N**

BUMS (SL), MSc (SL),  
MS –Unani (India), Senior  
Lecturer Grade-II, IIM,  
University of Colombo,  
Rajagiriya.

**ABSTRACT**

*Usr e tams* (Dysmenorrhea) is defined as painful menstrual cramps with or without any demonstrable pelvic pathology. It is stated to be the single commonest cause of the female absenteeism from school, college and workplaces that affects almost 50% of women with regular menstruation. In conventional medicine, pain and symptoms are control by giving pain killers, local heat, thiamin, vitamin E, fish oil

supplements and transcutaneous nerve stimulation. Though, the pain killers have its own effects but improving menstrual health requires access to safe and effective medication. This review is aimed to assess the most salient features of *usr e tams* mentioned in Unani classical books such *asasbab*, *alamath*, *ilmulamraz* and *ilaj*. This review will provide comprehensive data which mentioned in Unani classical texts like Al Qanoon fit Tibb, Zakeera Kwarsham Shahi, Tibb e Akbar, Tarjuma Kamilus Sana and Al Hawi about *usr e tams* and further information collected from electronic data base on PubMed /Google scholar, CINHALL, EBSCO and Science Direct using keywords. Treatment modalities mentioned in Unani texts for *usr e tams* is easy to administer and cost effective. This over-view may help

the investigators to identify the benefits of this ancient treatment method for *usr e tams* and to carry out further research by utilizing modern parameters to validate the Unani claims.

**KEYWORDS:** *Usr e tams*; Conventional medicine; Unani text; Pain killers.

## INTRODUCTION

Dysmenorrhoea is derived from the Greek word “Dys” means ‘difficult/painful/abnormal’, “meno” means ‘month’ and “rrhoea” means ‘flow’, that is painful menstrual flow.<sup>[1]</sup> It is a common gynecological disorder that affects more than 50% of menstruating women in the age group of 18-25years.<sup>[2]</sup> According to Indian data in the first year of menarche 38% of girls develop dysmenorrhoeal pain, 20% experienced in the second and third year after menarche and about 80% of women develop dysmenorrhea within 3 years of menarche. Over the age of 25 years, the cause of dysmenorrhoea is usually secondary to pelvic pathology.<sup>[3]</sup> Recently, George and Bhaduri concluded that dysmenorrhoea is a common problem in Sri Lanka and India with prevalence of 87.87%.<sup>[4]</sup> This problem not only has a significant effect on quality of life and personal health but also has a global economic impact.<sup>[5]</sup> Further it is found that an estimated 600 million hours are lost annually from school or work because of dysmenorrheal.<sup>[6]</sup>

Dysmenorrhoea has been classified in to primary and secondary. The objective of this study is to review the ancient concept of *usr e tams* (dysmenorrhoea) mentioned in Unani system of medicine in the light of available new information and to appraise the effects of herbs with an objective to update the current knowledge regarding the use of herbs for management of *usr e tams*.

The exact cause of primary dysmenorrhea is still in debate. However, there are several hypothesis/ theories has been put forward for primary dysmenorrhea.

**Psychological:** Girls with anxiety has low pain threshold and suffers more primary dysmenorrheal.<sup>[7]</sup>

**Muscular incoordination:** Spasmodic dysmenorrhea due to uncoordinated muscle action of the uterus which is due to an imbalance in the autonomic nervous control of muscles. This overactive sympathetic system leads to hypertonus of the circular fibers of the isthmus and internal os.<sup>[8]</sup>

**Cervical obstruction:** Organic stricture of the uterus can cause severe pain. Severe uterine flexion was also thought to contribute to trapped menstrual blood and obstructed menses.<sup>[9]</sup>

**Inadequate liquefaction of menstrual clot:** deficiency of thrombolysis causes failure of menstrual clots to liquefy and the consequent passage of these clots through the cervix causes menstrual pain.<sup>[10]</sup>

**Excess prostaglandin (PGF<sub>2</sub> and PGE<sub>2</sub>):** Excess prostaglandins are released from secretory endometrium to cause spasm of uterine muscles during menses.<sup>[11]</sup>

**Unani Concept of *Usr e Tams*:** The direct meaning of *Usr e Tams* is painful menstruation.<sup>[12]</sup> The Unani Physicians described the term “Dysmenorrhea” under the heading of “*Auja e Rehm*”( pain on uterus)<sup>[13], [14]</sup> and also under various headings like, *sue e mizaj* (abnormal temperament), *ghaleez balgham va sauda* (thick phlegm and yellow bile), *ihthibas e tams* (amenorrhoea), *warm e rehm* ( inflammation of the uterus) and *ikhtenaqur rehm* (hysteria) with their experiences.<sup>[13]</sup>

**Etiology and Unani Pathophysiology:** Unani eminent physicians have described various causes of dysmenorrhea under the heading of *voj e rehm* (pain on uterus) / *dard e rehm* (pain on uterus) / *usr e tams*. According to them imbalance of humors causes obstruction in the flow of menstruation. Ibn Sina has mentioned in Al Qanoon that any *sudda* (obstruction) in the flow of menstruation may cause *usr e tams*.<sup>[14]</sup> Hkm. Ajmal Khan, explained that, *usr e tams* is caused by *ghaleez khoon* (thick blood) and during menstruation, *rehm* (uterus) undergoes forceful contraction to expel the *ghaleez khoon*, which results pain in *rehm*.<sup>[15]</sup>

### Types of *Usre Tams*

***Usr e Tams Ibtedayee* (Primary Dysmenorrhoea):** On menarche the girl experienced that, blood flow in the uterus, ovaries and in the internal genital organs are increased and causes congestion. So due to congested vessels, young girls feel severe pain in pubic region, lower back, thighs and calf muscles. This condition gradually improves when the menstrual flow becomes regular after 4 – 5 cycles.<sup>[13,16]</sup>

***Usr e Tams Suddi* (Obstructive Dysmenorrhoea):** This condition may be due to small size of the uterus or obstruction of the cervical opening. Cervical obstruction may be due to *warme fame reham* (Inflammation of the cervix), *rasooli* (swellings), and healed wounds of the cervix and sometimes due to *ingelab e rehm* (inversion of the uterus).The patient may

have headache, giddiness, nausea and vomiting. Patient may feel severe pain and sometime faint.<sup>[13]</sup>

#### ***Usr e Tams Tashannuji (Spasmodic Dysmenorrhoea)***

This condition commonly seen in unmarried and oversensitive women. Usually patient experiences severe pain and cramps two days before the menstruation. It radiates towards the thighs, inguinal and suprapubic regions. The os becomes narrowed due to spasmodic condition of the uterus and patient feels agonizing pain. At this time, bleeding from the uterus is very scanty. The patient again experiences severe spasmodic pain accompanied with profuse bleeding and as a result patient may faint.<sup>[13,17]</sup>

#### ***Usr e Tams Warmi (Inflammatory Dysmenorrhoea)***

Painful menstruation occurs due to inflammation of the uterus or accumulation of the blood in the uterus. This condition is usually seen after delivery when the uterus does not return in its normal position or due to *warm e rehm*, *inqelab e rehm* etc. Mostly obese women experience this type of *Usr e Tams*.

Patient feels heaviness in suprapubic region and pain in lower back region accompanied with nausea, vomiting, headache, mild fever etc., 5 -7 days prior to onset of menstruation. There is inflammation in the uterus and *Balgham e ghleez* adherent in the cervix. Hence, on the first day of menstruation the blood flows out in very small quantity then it continue flows with pain in small quantity.<sup>[13,17]</sup>

The other etiological factors are, *sue e mizaj*, *warm e rehm*, *zof e rehm* (weakeness of the uterus), *qurooh e rehm* (ulcer of the uterus), *sailanur rehm* (leucorrhoea), *sartan e rehm* (uterine cancer), *sailan e khoon* (menorrhagia), *Ithibas e tams*, *sozish e khussiyatur rehm* (burning of ovary), *kasarat e sawda va balgham* (excess of black bile and phlegm) and consumption of *ghaleez ghiza* (thick food).<sup>[13, 14, 17]</sup>

***Alamath (Symptoms):*** Pain starts with the menses, felt in the supra pubic region, lower back and radiates to inner sides of thighs.<sup>[15]</sup> If the condition persists for a long time it may lead to even *ikhtenaqur rehm*.<sup>[18]</sup>

***Usool e Ilaj (Treatment principles):*** Treatment of *usr e tams* is based on four modalities which mentioned in the classical Unani literature, Viz;

1. *Ilaj bil Ghiza* (Dietotherapy)

2. *Ilaj bil Dawa* (Pharmacotherapy)
3. *Ilaj bil Tadbeer* (Regimenal therapy)
4. *Ilaj bit Nafseeyati* (Psychological treatment)<sup>[18]</sup>

The principle in the management of pain is removing the cause and elimination of *madda* (humour). Applying the same method to eliminate the *ghair e tabayee mada* (abnormal humour) by two ways. They are eliminating *madda* by *tanqiya* (elimination) and correction of *sue e mizaj*.<sup>[19]</sup>

### ***Ilaj bil Ghiza***

In case of general weakness in *usr e tams* patients are advised to take highly nutritious diet. Eg: mutton *kashorba* (soup), *murghka shorba* (chicken soup), *anar sheereen* (sweet *Punica granatum*). Diet rich in iron. Eg: *gajar* (*Docus carota*), *palak* (*Spinacia oleracea*) and diet rich in magnesium. Eg: *machli* (fish), *doodh* (milk), *kareela* (dry fish), *moongki dhal* (*Vignar adiate*).<sup>[13, 14, 15, 18]</sup>

### ***Ilaj bil Tadbeer***

It is one of the four methods of the treatment in the Unani system of Medicine, which can be used independently or in combination with other methods treatment like *Ilaj bil ghiza*, *Ilaj bil yad* (surgery) and *Ilaj bil dawa*.

### ***Hijama (Cupping)***

*Hijama bil shruth* (Dry cupping) of lower limb near ankle and below umbilicus are advisable.<sup>[14]</sup>

### ***Fasad (Venesection)***

Before menstruation *fasad* on *rage safin* (popliteal vein) can be done.<sup>[14]</sup>

### ***Dalaq (Massage)***

Massage on lower abdomen with *roghan e qust* (*Saussure alappa* oil), *roghan e kashkash* (*Papaver somniferum*), gives relief from *usr e tams*.<sup>[12,13]</sup>

***Ilaj bil Dawa:*** It relates to restoration and normalization of physiological function after purging. The basic tenet of treatment is to normalize the altered *mizaj* according to the concept of *Ilaj bil zid* (opposite treatment). To generalize weakness of the patient following medicines are indicated. Eg: *kusth e faulad* (calcinations of iron rust), *khameer e abresham*

*hakeem arshad wala, sharbat e anar*.<sup>[16, 17, 19]</sup> If it is due to *sauda, munsij va mushil e sauda* (cognition and purging of black bile) could be given. Eg. *Usthakudoos (Lavandula stoechas)*, *Aftimoon (Cuscutareflexa)*, *Unnab (Zizyphus vulgaris)*, *Shahathira (Fumaria parviflora)*, *Magz e jamalgota (Croton tiglium pulb)*.<sup>[18, 20, 21]</sup> During the attack *musakkin e alam dawa* (pain killers medicine) can be used like *Abhal (Juniperus communis)*, *Afiyun (Papaver somniferum)*, *Lehsan (Allium sativum)*. *Baboonah (Matricaria chamomilla)*, *Barg e makko (Solanum nigrum leaves)*, *Hilteet (Ferula foetida)*, *Darchini (Cinnamom zeylanicum)*, etc. can be used as *muhallil e warm* (anti-inflammatory). As a *mudir e haiz* (emmenagogue), *Abhal*, *Asokchaal (Saracaindica)*, *Kalonji (Nigella sativa)* could be used. But in case of chronic condition due to *ghaleez balgham, munsij va mushil e balgham adviya* can be used. Such as *Khatmi (Althaea officinalis)*, *Persiaawshen (Adiantum capillusveneris)*, *Adosa (Adathda vesica)*, *Anjir (Ficus carica)*<sup>[4,12,13,14,17]</sup> are effective in uterine pain<sup>[13]</sup> and *Zafran (Crocus sativus)* got immense role in relieving uterine pain.<sup>[13]</sup> *Ajwain (Hyoscyamus niger)*, *thukm e shibbat (Anethum sowa seeds)* two *misqal* in the form *joshanda* (decoction) mixed with 60 *misqalq* and *Kand e safaid* for seven days is used in *dard e rehm*.<sup>[22]</sup> A *majoon* (confection) made with honey is used in *usr e tams*<sup>[13]</sup> *Posth e amalthas (palli)[Cassia fistula legume]* 21 gm, *Javithri (Myristica fragrans)* 3gm, *qand e siya* (sugar candy) 2.5 tola soak in water whole night and prepare *josanda* next morning till it reduced to half and should be taken first three days of menstruation.<sup>[15]</sup>

As a *mussakinath e alam* (analgesics); *gul e teesu (Butea frondosa)*, *Roghan e behroza (Pinus longifolia (pine oil))* and *posth e khaskash (Papver somniferum)* can be used.<sup>[23]</sup>

### **Nutool (Irrigation)**

with *joshand e baranjasib (Artemisia vulgaris decoction)* can also use.<sup>[13]</sup>

### **Humool (Vaginal pessary)**

*Humool* made with *zaranvand mudahraj (Aristolochia rotunda)*, *charita (Swertia chirata)*, *pudina (Mentha arvensis)*, with honey is advisable. *Humool* should be inserted 3 days prior onset of menstruation. *Humool* made with breast milk or powdered salt or *mazu (Quercus infectoria)* also can be used.<sup>[17]</sup>

As a *humool* following single preparations also can be use; *dammul akhwain (Dracaena cinnabari)*, *gil e aramani (Aluminium silicate)*, *kasees (sulphates of iron)*, *habsul hadeed,*

(Iron oxide), *musk* (*Moschus moschiferus*), *samagh e arabi* (*Acacia arabica*), *taj* (*Cinnamomum cassia*).<sup>[13]</sup>

#### **Zimad (Poultice)**

Make fine paste of *thukm e sabbith*, *qust talk*, *murmacci* (*Commiphora myrrha*) (each 6gm) by adding *roghan e erend* (*Ricinus communis* oil) (12gm) and apply on lower abdomen with luke warm water.<sup>[13]</sup>

#### **Abzan (Sitz Bath)**

*Abzan* with decoction of *abhal*, *gul e baboon*, *pudina*, *thukm e shabbith*, *thukm e karafs* (each 9gm) boiled in 1 liter water and add 20 liter of hot water.<sup>[13]</sup> *Abzan* with *joshand e methi* (*Trigonella foenum*), *joshand e soya* and *joshand e-qusth* are also beneficial.<sup>[13]</sup> *Izkar* (*Andropogon jwarancusa*), *karnab* (*Brassica oleracea*), *taj* (*Cinnamomum cassia*) can be use as a sitz bath.<sup>[23]</sup>

Further using *mulayyinath* (laxatives) and *mushilath* (purgatives) also giving relief from *usr e tams*. They are; *elva* (*Aloe vera*), *maghz e amalthas* (*Casia fistula*), *namak* (sodium chloride), *roghan e bedanjr* (*Ricinu scommunis* oil) and *tukm e qurtum* (*Carthamu stinctorius*).<sup>[23]</sup>

#### **Common Unani Murrakkab Dawa (compound preparations) Used in Usr e Tams**

- *Safoof e muir e haiz*
- *Safoof e busoorimothadil*
- *Hab e muidir e haiz*
- *Dawa e mudir*
- *Qur e kafoor*
- *Kusth e sadaf*<sup>[13,15]</sup>

#### **Common Unani Mufred Dawa (single medicines) Used in Usr e Tams**

*Hulba*, *kalonji*, *zeerasafaid*, *thukum e karafs*, *hilteet*, *revendchini*<sup>[18, 24]</sup>, *abhal*, *doda kapas* (*Gossipium kapas*), *meshktharamashi* (*Mentha pulgeium*), *tukum e qurtum* (*Cartham austinctorius* seeds).<sup>[23]</sup>



Table 01: List of Herbs Retrieved from Clinical Trials of Dysmenorrhoea

No	Herb	Type of study	No of patients included	Parameters used to assess	Main result of studies	Studies received on Dysmenorrhea
01	Saffron and Aniseed	Double blind randomized placebo control trial, 3weeks	180 students (18-27yrs old)	VAS	Herbal extract was more effective than mefenamic acid in pain reduction	Khodakarami <sup>[25]</sup> (2003)
02	Ginger	Double blind randomized placebo control trial, 3weeks	150 students	VMSS	There was no difference between the 2 groups	Ozgoli <sup>[26]</sup> (2007)
03	Cinnamon	Double blind randomized placebo control trial, 3weeks 2 Cycles	47 single female students (18-30 years old )	Questionnaire and VMSS	Reduction in pain compared to placebo	AkhavanAmjadi <sup>[27]</sup> (2009)
04	Mint	Randomized clinical trial, 2 cycles	100 single female students (18-22 years old)	Questionnaire and VMSS	There was no difference between 2 groups	Amoyirokn <sup>[28]</sup> (2012)
05	Ginger	Randomized control trial 3 cycles	22 females(18 and over)	VAS	Ginger is as effective as mefenamic acid for pain relief in primary dysmenorrhoea	Shirvani <i>et al</i> <sup>[29]</sup> (2015)
06	Ginger	Randomized control trial 3 cycles	64 females (17-19 years old)	VAS	Combined effect of ginger and exercise and exercise have higher efficacy than exercise alone	Gupta <i>et al</i> <sup>[30]</sup> (2013)
07	Jatamansj	Randomized control trial 3 cycles			Constrictor response of histamine, acetylcholine and serotonin on smooth muscles	Gupta <i>et al</i> <sup>[31]</sup> (1962)
08	Fennel	Comparative study	Should compare pain relief		80% of girls in the Middle age groups 73% girls	Moderen and Asadipair <sup>[32]</sup> (2006)
09	Garlic			Dil seed relaxant effects of gastric juice on smooth and cardiac muscles		Aqel <i>et al</i> <sup>[33]</sup> (1991)



10	Mint	Randomized control trial 3 cycles	Girls 18-21 years 3 Cycles	VAS	Peppermint is effective as mefenamic acid	Roghan Abad <i>et al</i> <sup>[34]</sup> (2011)
11	Fennel	Randomized control trial 3 cycles	25 Females	VAS, Questionnaire	Reduction of pain compared to placebo	Moslemi <i>et al</i> <sup>[35]</sup> (2012)
12	Dill seed	Randomized control trial 3 cycles		Questionnaire	Reduction of pain compared to placebo	.Mohameddinia M <sup>[36]</sup> (2013)
13	Chamomile	Randomized control trial 3 cycles	32 Females	VAS, Questionnaire	Reduction of pain compared to placebo	Modares .M <sup>[37]</sup> (2011)
14	Fennel	Randomized control trial 3 cycles	54 girls	-	Its essential oil model for dysmenorrhea, pharmacology and toxicity study	Ostad <i>et al</i> <sup>[38]</sup> (2001)
15	Asafoetida	Animal study	Rat	-	Asafetida gum extract have antispasmodic effect.	Fatehi <i>et al</i> <sup>[39]</sup>

## CONCLUSION

Unani medicine (Greeco-Arabic Medicine) is bestowed with vast literature on gynecological diseases like; *ihthibas e tams*, *kasarat e tams*, *usr e tams*, *sartan* etc. Dysmenorrhea is a one of the complicating disease which affects the quality of life of women, psychological trauma and low self-esteem. In Unani classical texts, *usr e tams* / *voj e tams* mentioned with its *asbab*, *alamath* and *ilaj* properly. In conventional system, synthetic drugs prescribed for long-term, especially the prostaglandin inhibitors which cause many adverse effects, such as indigestion, headaches, and drowsiness leading to failure rate upto 20% in alleviating dysmenorrhea. The treatment for *usr e tams* mentioned in Unani classical books mainly possess *mudir e haiz*, *musakkin*, *muhallil*, *daf e thasannuj* and *mufateh e sudad* action which helps to relieve the pain. It is safe, cost effective, and have minimal side effect. Therefore it is the time to switch on our Unani system of medicine in the treatment of *usr e tams* with scientific parameters to prove the efficacy in future.

**REFERENCES**

1. Abdel- Moneim, FM et al. Constituents of local plants. XIV, The antispasmodic principle in *Cymbopogon proximus*, *planta Med.* 1999; 3: 209.
2. Padubidri VG, Daftary SN. *Shaw's Textbook of Gynecology*, 14<sup>th</sup> Edi. New Delhi: Elsevier, 2008; 265.
3. Andresch.B, Milsom I. An epidemiologic. *Obstet Gynecology* 1982; 144: 600- 655
4. George A, Bhaduri A. Dysmenorrhea among adolescent girls – symptoms experienced during menstruation. *Health promotion Edus* 2002; 17: 4
5. Chary S, Ray A, Ray S, Thomas GA, Menstrual characteristics and prevalence and effect of dysmenorrhea on quality of life of medical students. *International journal of collaborative research on internal medicine and public health.* 2012; 4(4): 276- 93 (Assessed on 3 of March 2016)
6. Dawood YM, Dysmenorrhea. *Glob Libr Women's Med.* 2008; 17-19.
7. Measuring menstrual discomfort; A comparison of interview and Diary Data. *Epidemiology.* 2008; 19(6): 846- 850.
8. Kumar P. *Jeffcoate's Principles of Gynecology.* VII ed. New Delhi; Jaypee Brothers, 2008: 619- 622.
9. Coperland LJ, Jarrel JF McGregor JA. *Textbook of Gynecology.* Philadelphia: WB Saunders Company, 1993: 398- 403.
10. Kamal B, Vasant BP, Rustom PS. *Principle and Practice of Obstetrics and Gynecology for Postgraduate.* N. Delhi: JP Brothers. Medical Publisher (P) Ltd. 1996: 242 – 244.
11. Roger PS. *Gynecology in Primary Care.* Williams and Wilkins. 1997: 389 –396.
12. Jilani G, Makhzan e Hikmat 1<sup>st</sup> ed. Vol- II. Ejaz Pulishing House. New Delhi; 1996: 788-793.
13. Razi Zakaria. *Kitabul Havi.* Vol. IX. New Delhi: CCRUM. 2001; 20: 30 -33.
14. Ibn Sina. *Al Qanoon Fil Tib (Urdu Translation).* Vol-II Idarae Kitabus Shifa, New Delhi: 2007: 340-34.
15. Ajmal Khan, Hazik, *Idara Kitabul Shifa.* Darya kanj, New Delhi, 2002: 461-470.
16. Ibn Sina, *Al- Qanoon Fil- Tibb (Urdu Translation).* New Delhi: Ejaz Publication House; 2010: 447- 448.
17. Jurjani SS. *Zakheera Khawarazam Shahi.* Vol. 2<sup>nd</sup>. Lucknow: Matba Navil.
18. Khan AM, *Al Akseer (Translator By: M Kabeeruddin), Daftar Al Maseeh,* New Delhi: 1940:1356-1364.
19. Azmi KAS, *Amraz e Nisa.* Quami Council Barae Farogh, New Delhi: 1997: 504 513.

20. Akbar Arzani. Tib e Akbar. Faisal publication. Deoband, 1903: 590-591.
21. Khan Ajmal. Bayaz e Ajmal. New Delhi: Ejaz Publication House. 1995: 137-138.
22. Hasan A Kitab e Mukhtarate Fil Tib Vol- I New Delhi : CCRUM; 2005: 140,141.
23. Farah Ahmed, Qudsia Nizami, A Aslam. Classification of Unani Drugs.Fine offset works; New Delhi: 2005: 237-238
24. Said HM, Hamdard Pharmacopeia of India, Vol I, New Delhi: department of AYUSH; 2007: 385.
25. Khodakarami N, Moatar F, Ghahiri A and Shahdan S. The effect of an Iranian herbal drug on primary dysmenorrhea: a clinical controlled trial. J. Midwifery Women's Health 2009; 54: 401-404.
26. Ozgoli G, Goli M and Moatar F. Comparison of effects of ginger, mefenamic acid, and ibuprofen on pain in women with primary dysmenorrhea. J. Alter. Compl. Med. 2009; 15: 129-132.
27. Akhavan Amjadi M, Mojab F and Shahbaz-Zadegan S. Effects of Cinnamomum zeylanicum on the severity and systemic manifestations of dysmenorrhea. Med. J. Arak Uni. 2009; 9: 204-209.
28. Amoyi Rokn-Abaad M and Sarafraz N. Comparison effect of of supermint and Ibuprofen on dysmenorrhea. J. Ghom. Uni. Med. Sci. 2012; 5: 37-41.
29. Shirvani MA, Motahari-Tabari N, Alipour A. The effect of mefenamic acid and ginger on pain relief in primary dysmenorrhea: A randomized clinical trial.Arch Gynecol Obstet 2015; 291: 1277-81.
30. Gupta R, Kaur S, Singh A. Comparison to assess the effectiveness of active exercises and dietary ginger vs active exercises on primary dysmenorrhea among adolescent girls. Nursing Midwifery Res J 2013; 9: 168-77.
31. Gupta, SS et al. effect of Nardostachys jatamansi and Rhus succedanea against constrictor responses of histamine acetylcholine and serotonin on smooth muscles. Ind J. Physio. Phrmacol. 1962:22-37.
32. Moderen Nejad V, Asadipour M. comparison of the effectiveness of fennel and mefenamic acid on pain intensity in dysmenorrhea, East mediterr Health J.1006:12 (3-4): 423-427.
33. Aqel MB et al. Direct relaxant effects of garlic juice on smooth and cardiac muscles. J Ethnpharmacol. 1991; 33(1-2): 13-19.
34. Rokn-Abad A, Sarafraz N. Journal Qum Med Scie, 2011; 5 (3): 41-37.

35. Moslemi L, Aghamohammadi A, Bekhradi R, Zafari M. Knowledge & Health, 2012; 7(2): 61-64.
36. Mohammadinia N , Rezaei MA, Salehian T, Dashipour AR. J Shahrekord Univ Med Sci, 2013; 15(5): 57-64.
37. Modares M, Mir-Mohammadali M, Ashrieh Z, Mehran E. Journal of Medical Sciences Babol, 2011; 13 (3): 58-50.
38. Ostad SN et al. the effect of fennel essential oil on uterine contraction asa model for dysmenorrhea and toxicology study. J Ethnopharmacol, 2001; 76(3): 299-304.
39. Fatehi M et al. antispasmodic and hypotensive effects of Ferula asafetida gum extract. J Ethnopharmacol. 2004; 91(2-3): 321-324.