

# Menorrhagia Management in Iranian Traditional Medicine

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## Abstract

Menorrhagia is a common problem. Medical management for menorrhagia includes hormonal and nonhormonal treatments. These treatments have different side effects, which reduce quality of life. Complementary and traditional medicines have been used to handle menorrhagia for centuries in many cultures. There is a lot of information and data in Iranian traditional documents or books about medicinal herbs that are used by Iranian traditional medicine scientists for the treatment of menorrhagia. The aim of this study was to review the approaches to menorrhagia in Iranian traditional medicine texts. In this study, some main Iranian traditional medicine manuscripts including *Canon of Medicine* and *Al-Havi of Rhazes* were studied to extract important information about menorrhagia management. Iranian traditional medicine physicians have relied on an organized system of etiological theories and treatments for menorrhagia. Their methods for menorrhagia management may be able to convince the desire of many women to preserve their uterus and avoid hormonal therapy.

## Keywords

menorrhagia, treatment, traditional medicine, herb, Avicenna

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## Introduction

Menorrhagia is a common problem<sup>1</sup> that affects physical, emotional, and social activities and quality of life.<sup>2</sup> Menorrhagia may induce severe anemia<sup>3</sup>; it is defined as a menstrual blood loss of 80 mL or more per menstrual cycle<sup>4</sup> or prolonged bleeding that continues for more than 7 days.<sup>3</sup> The prevalence of menorrhagia increases with growing age<sup>5</sup> and includes 18.5% of gynecologic visits in the United States of America.<sup>2</sup> Menorrhagia may be associated with pelvic pathology, systemic disorders, or may be iatrogenic.<sup>6</sup> Many women undergo hysterectomy because of menorrhagia.<sup>5</sup> Medical management for menorrhagia includes hormonal and nonhormonal treatments. Nonsteroidal anti-inflammatory drugs, antifibrinolytics, progestogens, combined oral contraceptive pills, gonadotropin-releasing hormone agonists (GnRH agonists), and so on are used.<sup>7</sup> These treatments have different side effects as well as gastrointestinal symptoms, liver disease, obesity, and thromboembolic diseases. Moreover, hypoestrogenic state as a side effect of these therapies can lead to rapid bone demineralization and menopausal symptoms such as vaginal dryness and hot flushes and so on, which reduce the quality of life.<sup>7,8</sup>

Complementary and traditional medicines have been used to handle menorrhagia for centuries in many cultures. Iranian traditional medicine in the medieval period was one of the

best developed systems of medicine. Indeed, many Iranian medical documents, like the *Canon of Avicenna* (*Al-Qanun fit-teb* or *Canon of Medicine*, 1025 AD), were standard textbooks in medical schools until the 16th century in Europe and have been used in the 19th century in the Middle East.<sup>9</sup> *Makhzan-ol-Advieh* is another Iranian traditional medicine book that is written about herbs, spices, and medical vocabulary. This book, which is written by Mohammad Hossein Aghili

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Alavi Khorasani in the 18th century, is the largest and one of the latest traditional Persian pharmacopeias.<sup>10</sup>

Menorrhagia has been discussed extensively in Iranian traditional medicine under the subject of *Efrat-e-tams*. *Efrat-e-tams* covers a range of menstrual problems and menorrhagia is considered a subtype of it. There is a lot of information and data in Iranian traditional documents or books about medicinal herbs that are used by Iranian traditional medicine scientists for the treatment of *Efrat-e-tams* (menorrhagia). The purpose of this article is to review the management approaches in menorrhagia in the Iranian traditional medicine texts such as the *Canon* and *Makhzan-ol-Adviyeh*.

## Materials and Methods

In this study, 7 main Iranian traditional medicine references and some others including *Canon of Medicine*, *Al-Havi* of Rhazes, *Makhzan-al-Adviyeh* and *Moalejat (Medicine)* of Aghili, *Eksir-e-Azam* of Azam Khan, *Zakhireh Kharazmshahi* of Seyyed Esmail Jorjani, and *Sharh-ol-Asbab* of Nafis-ibn-Evase Kermani were studied to collect important information about menorrhagia. We searched the term of *Efrat-e-tams* (menorrhagia) in uterine diseases chapters of these books. Then, we collected and classified issues about menorrhagia managements. Furthermore, a search in PubMed, Google Scholar, Scopus, and some other databases up to May 2014 was done to get related data about this field. The key terms of search were menorrhagia, treatment, and related terms.

## Results

### Etiologies and Types of Menorrhagia in Iranian Traditional Medicine

According to Iranian traditional medicine literature, menorrhagia is one of the gynecological disorders named *Efrat-e-tams*. Based on Avicenna's opinion, *Efrat-e-tams* has at least one of the following symptoms: (a) heavy menstrual blood loss during a menstrual cycle, (b) prolonged bleeding that continues for more than 7 days, and (c) noncyclic bleeding such as intermenstrual bleeding, uterine bleeding in pregnancy, and postpartum bleeding.<sup>11</sup> Therefore, *Efrat-e-tams* may be equal to menorrhagia, metrorrhagia, menometrorrhagia, hypermenorrhea, and intermenstrual bleeding. Avicenna divided menorrhagia into 2 main categories: pathological and nonpathological. Based on the mechanism of bleeding, the pathological type is also divided into 2 subtypes: uterus disorders and bloody disorders, with several subtypes in each.<sup>12</sup>

### Treatment Approaches

According to Iranian traditional medicine manuscripts, the nonpathologic type does not require treatment because it is a kind of congestion or hyperemia and is a way to dispel unnecessary substances, meaning that some blood losses have some advantages for them. In this group, treatment is necessary only when it causes weakness of the body.<sup>12</sup> The management of the pathologic category includes 2 main approaches: the first is nonmedical treatment such as improving the lifestyle, special

foods consumption, and the cupping; and the second approach is medical. The medical approach is also divided into 2 types: administration of herbal medicines and other natural remedies is the first step and treatment with pharmaceutical formulation of 2 or more bioactive substances if the first approach is not effective.<sup>13,14</sup>

### No Medical Treatment

The main step in this part is dietary modification. The patient's diet should contain plenty of easily digestible foods like yolk of soft-boiled egg. Other recommendations are meat juice (*ma-ol-lahm*) containing Sumac, kebab, and roasted meat with aromatic spices. Vinegar and citron pickle are suitable astringent and styptic agents in this situation.<sup>12</sup> The other nonmedical treatment that is effective and is used in severe types of menorrhagia is a method in which hands from shoulder to wrist and legs from inguinal region to ankle are fastened. This process causes the blood to remain in the limb and decrease blood entrance to uterine vessels. This method results in blood deprivation, which is an important treatment technique in Iranian traditional medicine approaches.<sup>15</sup> After that, a warm cupping (vacuum is prepared using fire) without bloodletting (*Hejamate belasharat*) of the breast is performed on the area between chest and mammary glands.<sup>11,16</sup> Also, phlebotomy (*Fasd*) is applied for special vessels as an appropriate plan in some cases.<sup>15,17,18</sup>

### Medical Treatment

**Simple medicines.** Simple medicines are single botanical, mineral, or animal agents and are usually preferred to multi-component medicines in Iranian traditional medicine because they usually cause fewer side effects, which lead to improved patient compliance.<sup>19</sup>

Simple medicines are administrated in 2 ways: oral and topical. Topical preparations include suppository, *sitz* bath, lotion, balm, and cleansing.<sup>12,14</sup> *Ferzajeh* and *Homoul* are 2 kinds of vaginal suppositories that are made of components that are kneaded and get dried in shade. *Abzan* is a traditional remedial *sitz* bath that is effective to treat menorrhagia. In this procedure, the patient should sit in a tub filled with water in which a special plant is boiled before. *Tela* is a kind of lotion that is used topically. It is used on lower abdominal surface on uterine, pubic, external genitalia, and lumbosacral regions. The other form of drug application is balm, which is used topically and named *Zemad* in Iranian traditional medicine, containing some components and suitable fluid, which makes it pasty. This form needs to be dressed with a soft cloth. Cleansing with watery topical preparations is named *Estenja*.<sup>20</sup>

Plantain is one of the best medicinal plants for menorrhagia treatment that is used by some of Iranian traditional medicine practitioners. This plant is used either orally or vaginally. The other plant that is still used frequently by Iranian traditional medicine practitioners is Persian Gulnar, which grows wild in Iran, and it can be used either orally or topically. Other

**Table 1.** Suggested Simple Medicines for Menorrhagia Treatment.

Application	Common Name	Scientific Name	Traditional Name
Oral	Sumac	<i>Rhus coriaria</i> L	Somaq
	Carob	<i>Ceratonia siliqua</i>	Kharnoub-e-shami
	Cedar	<i>Zizyphus spina christii</i> L	Konar
	Oak	<i>Quercus infectoria</i>	Baloutesabz
	Quince	<i>Cydonia oblongata</i> Mill	Safarjal
	Amaranth wide	<i>Amaranthus blitum</i>	Baqaleyamanieh
Topical Vaginal suppository ( <i>Ferzajeh, Homoul</i> )	Plantain	<i>Plantago major</i> L	Lesan-ol-hamal
	Water lily flower	<i>Nymphaea alba</i> L	Niloufar
	Coral	<i>Corallium rubraum</i>	Bossad
	Jasmine	<i>Jasminum officinale</i> L	Yasamin
	Plantain	<i>Plantago major</i> L	Lesan-ol-hamal
	Camphor	<i>Cinnamomum camphora</i> L	Kafor
	Pomegranate	<i>Punica granatum</i> L	Romman
	Dracaena	<i>Dracaena cinnabari</i>	Dam-ol-akhavein
	Frankincense	<i>Boswellia carterii</i>	Kondor
	Coriander	<i>Coriandrum sativum</i> L	Kozbore
	Tamarix	<i>Tamarix gallica</i> L	Tarfa
	Tamarisk	<i>Tamarix articulate</i> L	Hab-ol-asl
	Cypress	<i>Cupressus sempervirens</i>	Jozossarv
	Wolf berry	<i>Lyceum afrum</i>	Ousaj
Lotion ( <i>Tela</i> )	Millet	<i>Panicum miliaceum</i>	Javars
	Pomegranate	<i>Punica granatum</i> L	Romman
	Acacia	<i>Acacia arabica</i>	Aqaqia
	Sheng	<i>Tragopogon pratensis</i>	Lehyatotttis
	Sandal wood	<i>Santalum album</i> L	Sandal
	Rose	<i>Rosa damascena</i> L	Vard
Balm ( <i>Marham</i> )	Myrtle	<i>Myrtus communis</i> L	Mourd (Aass)
	Lentil	<i>Lens esculenta</i>	Adas
	Knotweed	<i>Polygonum aviculare</i>	Assarraai
	Black nightshade	<i>Solanum nigrum</i>	Enabossalab
	Persian Gulnar	<i>Punica granatum</i> L	Jolnar
	Oak apple	<i>Quercus lusitanica</i>	Afs (mazo)
Purification ( <i>Estenja</i> )	Persian Gulnar	<i>Punica granatum</i> L var <i>plentiflora</i>	Jolnar
	Spanish chestnut	<i>Castanea sativa</i>	Shah ballout
	Myrtle	<i>Myrtus communis</i> L	Mourd (Aass)

simple medicinal plants and their roots of administration are listed in Table 1.

**Compound medicines.** The second line of medical treatment in Iranian traditional medicine for menorrhagia is administration of multicomponent medicines containing 2 or more bioactive pharmaceutical substances.<sup>19</sup> Many such multicomponent preparations were prescribed by Iranian physicians when the menorrhagia was severe and intractable to other forms of treatment. Management classification in this part is similar to simple medical therapy. Examples are described in Table 2.

## Discussion

Menorrhagia is currently a major gynecological complaint in women. Present therapies have many adverse effects and are sometimes not efficient and therefore leads to hysterectomy and its complications.<sup>6,8,21</sup> Iranian traditional medicine physicians knew the multiple forms of menorrhagia and relied on a structured system of etiology and treatment. They described functional and anatomical etiologies. Some forms of

menorrhagia, such as bleeding due to trauma,<sup>22</sup> drug, polyp, and fibroma<sup>23</sup> (*bavasir*), are still the main menorrhagia etiologies. Other etiologies such as dis-temperaments that are functional causes may not be related to current categories.

Menorrhagia (*Efrat-e-tams*) has 2 major treatment approaches in Iranian traditional medicine: nonmedical and medical. Iranian traditional medicine scholars used even diet recommendations for menorrhagia treatment, and they were not content with drug only.

In the medical approach, Iranian traditional medicine physicians apply multiple drug dosage forms such as oral, vaginal suppository (*Ferzajeh/Homoul*), sitz bath (*Abzan*), lotion (*Tela*), cleansing (*Estenja*), and balm (*Marham*). These varieties of drug forms increase physician options to management of menorrhagia and improve the compliance of patients.

In current herbal medicine, tannin-containing herbs are known to be effective for hemorrhage.<sup>24</sup> Tannins have an astringent function and can contract capillary endothelium, and it results in decreased exudation and menstrual blood loss.<sup>8</sup> It should be noted that many medicinal herbs

**Table 2.** Suggested Compound Medicines for Menorrhagia Treatment.

Application	Formulation
Oral	<ol style="list-style-type: none"> <li>1. A decoction containing of yellow myrobalan (<i>Terminalia chebula</i> Retz) and fumitory (<i>Fumaria parviflora</i>) should be drunk.<sup>14</sup></li> <li>2. 1.06-2.12 g of pounded henban seed (<i>Hyoscyamus niger</i>) and sugar (<i>Saccharum officinarum</i>) should be eaten every morning for 3 days.<sup>13</sup></li> <li>3. 4.5 g of each of succinum and sigillated earth should be ground and eaten with purslane (<i>Portulaca oleracea</i>) juice twice a day for some consecutive days.<sup>13</sup></li> <li>4. A julep containing of 4.5 g of each of plantain seed (<i>Plantago major</i>) and basil seed (<i>Ocimum basilicum</i> L) lubricated with rose oil (<i>Rosa gallica</i> or <i>Rosa centifolia</i> L macerated in sesame or olive oil) should be swallowed with or without purslane seed juice or plantain.<sup>15</sup></li> <li>5. A julep including 9.3 g of each of liquorice root (<i>Glycyrrhiza glabra</i>) and lemon balm (<i>Mellisa officinalis</i> L) with 31 g of sugar should be used every morning.<sup>15</sup></li> <li>6. Kahroba pill: 9.3 g of each of gum tragacanth (<i>Astragalus tragacantha</i>), starch, gum Arabic (<i>Acacia arabic</i>), and cucumber (<i>Cucumis favis</i>), 6.2 g of Persian Gulnar, 3.1 g of each of acacia (<i>Acacia arabic</i>) and succinum were pounded, sifted, and mixed with plantain juice. Prepared pills with their mass of 4.5 g, should be used once a day with purslane juice.<sup>16</sup></li> </ol>
Topical	
Vaginal suppository (Ferzajeh, Homoul)	<ol style="list-style-type: none"> <li>1. 3.1 g of each of gum arabic and camphor (<i>Laurus camphora</i>), 9.3 g of Persian Gulnar, and 21.7 g of coriander (<i>Coriandrum sativum</i>) should be mixed and used as vaginal suppository.<sup>12</sup></li> <li>2. A mixture of litharge (Lead oxide), vitrol (<i>Vitrolium-ferrus</i> sulfate), Persian Gulnar, sigillated earth, Armenian earthm and collyrium (<i>Sulphuretum antimonii</i> nativum) could be used as vaginal suppository.<sup>12</sup></li> <li>3. Equal amounts of Aloe (<i>Aloe barbadensis</i>), myrrh (<i>Commiphora myrrha</i>), frankincense (<i>Boswellia carterii</i>), sarcocolla (<i>Penaea mucronata</i>), and dracaena (<i>Dracaena cinnabari</i>) should be ground, mixed, and used as vaginal suppository.<sup>14</sup></li> <li>4. Momseke Heyz suppository: Equal amounts of collyrium, Persian Gulnar, vitrol, Tankar, frankincense, oak apple (<i>Quercus lusitanica</i>), and acacia should be pounded and sifted to make suppositories; one suppository should be located in the cervix, and after dissolving another one should be used until the bleeding stops.<sup>16</sup></li> </ol>
Sitz bath (Abzan)	<ol style="list-style-type: none"> <li>1. 9.3 g of each of Tarfa fruit (<i>Tamarix gallica</i>), cypress (<i>Cupressus sempervirens</i>), and pomegranate peel; 15.5 g of each of vitrol, oak apple, and Persian Gulnar; 31 g of each of rose and myrtle leaf were boiled with 30 liters of water and concentrated up to 15 liters. After filtering, the patient should sit in the container of filtrate.<sup>16</sup></li> <li>2. Patient should sit in a container of a decoction including wild mint (<i>Mentha longifolia</i>) leaf and root, myrtle, rose, pomegranate peel, Persian Gulnar, carob (<i>Ceratonia siliqua</i>), sheng (<i>Tragopogon pratensis</i>), oak apple, and tarfa.<sup>12</sup></li> </ol>
Lotion (Tela)	<ol style="list-style-type: none"> <li>1. Equal amounts of vinegar (<i>oxymol</i>), acacia, oak apple, frankincense, sedge (<i>Cyperus longus</i>), and arcea nut (<i>Areca catechu</i>) should be ground and mixed with myrtle juice and then used topically.<sup>14</sup></li> </ol>
Balm (Marham)	<ol style="list-style-type: none"> <li>1. Equal amounts of balm (<i>Gentiana lutea</i>) and henna (<i>Lowsonia inermis</i> L) should be ground and mixed with enough water and then applied on palms and soles associated with exposure to the sunlight for an hour.<sup>13</sup></li> <li>2. Balm of aloe, frankincense, dracaena, gum arabic, litharge, succinum, acacia, sigillated earth, and Armenian earth should be mixed with egg and plantain leaf juice and used topically.<sup>14</sup></li> </ol>
Purification (Estenja)	<ol style="list-style-type: none"> <li>1. Roasted hulled barley (<i>Hordeum vulgare</i> L), roasted hulled rice (<i>Oryza sativa</i> L), and pomegranate peel should be cooked with enough water, and then the filtrate could be used for cleansing.<sup>12</sup></li> </ol>

mentioned for menorrhagia management in Iranian traditional medicine are rich in tannins, for example, carob,<sup>25-28</sup> quince,<sup>29</sup> Amaranth wide,<sup>30</sup> water lily flower,<sup>31</sup> coral,<sup>32</sup> jasmine,<sup>33</sup> acacia,<sup>34</sup> dracaena,<sup>35</sup> coriander,<sup>36</sup> tamarix,<sup>37</sup> cypress,<sup>38</sup> millet,<sup>39</sup> sheng,<sup>40</sup> sandal wood,<sup>41</sup> rose,<sup>42</sup> lentil,<sup>43</sup> knotweed,<sup>44,45</sup> cedar,<sup>45,46</sup> Spanish chestnut,<sup>45</sup> myrtle,<sup>47</sup> sumac,<sup>48</sup> and oak apple.<sup>49</sup> Therefore, antihemorrhage effects of these herbs are to be anticipated. Nowadays, plantain shows not only hemostatic activity but also possesses hematopoietic property.<sup>50</sup> However, clinical studies need to be done on these (Iranian traditional medicine) recommended menorrhagia treatments to prove their efficiency and safety.

## Conclusion

Menorrhagia's current medical treatment shows many side effects, and hence traditional remedies have found empiric

support over the past centuries. Some of these approaches may still be helpful to conventional medicine. These remedies may be able to convince many women to preserve their uterus and avoid hormonal therapy.

This study may provide clues to new researches for the control of menorrhagia with natural remedies.

## Authors' Note

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## Author Contributions

Study concept and design: HMZ, MQ, MT. Acquisition of data: HMZ, MQ, MT. Analysis and interpretation of data: HMZ, MQ, MT. Drafting of the manuscript: HMZ, MQ, MT. Critical revision of the manuscript for important intellectual content: MK, TE, MT. Study supervision: MT.

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## Ethical Approval

This study did not warrant institutional review board review as no human subjects were involved.

## References

- Eder S, Baker J, Gersten J, Mabey RG, Adomako TL. Efficacy and safety of oral tranexamic acid in women with heavy menstrual bleeding and fibroids. *Women's Health*. 2013;9:397-403.
- Gupta J, Kai J, Middleton L, Pattison H, Gray R, Daniels J; ECLIPSE Trial Collaborative Group. Levonorgestrel intrauterine system versus medical therapy for menorrhagia. *N Engl J Med*. 2013;368:128-137.
- Apgar BS, Kaufman AH, George-Nwogu U, Kittendorf A. Treatment of menorrhagia. *Am Fam Physician*. 2007;75:1813-1819.
- Lukes AS, Moore KA, Muse KN, et al. Tranexamic acid treatment for heavy menstrual bleeding: a randomized controlled trial. *Obstet Gynecol*. 2010;116:865-875.
- Gorgen H, Api M, Akça A, Cetin A. Use of the Levonorgestrel-IUS in the treatment of menorrhagia: assessment of quality of life in Turkish users. *Arch Gynecol Obstet*. 2009;279:835-840.
- Livingstone M, Fraser IS. Mechanisms of abnormal uterine bleeding. *Hum Reprod Update*. 2002;8:60-67.
- Protheroe J. Modern management of menorrhagia. *J Fam Plann Reprod Health Care*. 2004;30:118-122.
- Fathima A, Sultana A. Clinical efficacy of a *Unani* formulation "Safoof Habis" in menorrhagia: a randomized controlled trial. *Eur J Integr Med*. 2012;4:e315-e322.
- Zargaran A, Zarshenas MM, Mehdizadeh A, Mohagheghzadeh A. Management of tremor in medieval Persia. *J History Neurosci*. 2013;22:53-61.
- Modabberi M, Aghili Alavi Khorasani, Makhzan al-advieh. *J Faculty Letters Humanities*. 2002;8-9(7):6.
- Arzani MA. *Tebb-E-Akbari*. Vol. 2. Tehran, Iran: Institute of Medical History, Islamic and Complementary Medicine, Iran University of Medical Sciences; 2005:961-964.
- Ibn-e-sina AH. *Al-Qanun fit-tib [The Canon of Medicine]*. Beirut, Lebanon: Alaalami Beirut Library Press; 2005:442-443.
- AzamKhan M. *Exir Azam* (lithograph in Persian) [*Great Elixir*]. Lucknow, India: Monshi Nou. (Original work published 1810)
- Jorjani SE. *Zakhireh Kharazmshahi [Treasure of Kharazmshahi]*. Tehran, Iran: Iranian Culture Foundation; 1976. (Original work published 1206 AD Tehran)
- Aqili khorasani SMHIMH. *Moalejate Aqili (Medicine)*. Qom, Iran: Jalaaleddin; 2008:771-773.
- Kermani N. *Sharhe asbab 2*. Qom, Iran: Jalaaleddin; 2008. (Original work published Thirteenth century)
- Baghdadi S. *Al-moghni fi tadbirelamraz va marefatol ellal valaraz*. Beirut, Lebanon: Darolmenhaj; 2011. (Original work published 12th century)
- Arzani M. *Mizan al-teb*. 1st ed. Oom, Iran: Nour; 2010. (Original work published 18th century)
- Rhazes M. *Al-havi*. Tehran, Iran: International Academy of Medical Sciences; 2005. (Original work published 10th century)
- Heravi MY. *Bahroljavaaher*. Qom, Iran: Ehyaye Tebbe Tabie; 2008.
- Silanikove N, Nitsan Z, Perevolotsky A. Effect of a daily supplementation of poly (ethylene glycol) on intake and digestion of tannin-containing leaves (*Ceratonía siliqua*) by sheep. *J Agric Food Chem*. 1994;42:2844-2847.
- Gibbs R, Karlan B, Haney A, Nygaard I. *Danforth's Obstetrics and Gynecology*. 10th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2008:664-671.
- Speroff L, Glass R, Kase N. *Clinical Gynecology, Endocrinology and Infertility*. 8th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2011:592-617.
- Dandjesso C, Klotoé J, Dougnon T, et al. Phytochemistry and hemostatic properties of some medicinal plants sold as anti-hemorrhagic in Cotonou markets (Benin). *Indian J Sci Technol*. 2012;5:3105-3109.
- Soltani F, Artimani T. Evaluation of the relationship between menarch age & menstrual disorders. *Sci J Hamadan Nurs Midwifery Faculty*. 3.0;17(12):46-56.
- Avallone R, Plessi M, Baraldi M, Monzani A. Determination of chemical composition of carob (*Ceratonía siliqua*): protein, fat, carbohydrates, and tannins. *J Food Composition Anal*. 1997;10:166-172.
- Tamir M, Alumot E. Inhibition of digestive enzymes by condensed tannins from green and ripe carobs. *J Sci Food Agric*. 1969;20:199-202.
- Tamir M, Nachtomi E, Alumot E. Degradation of tannins from carob pods (*Ceratonía siliqua*) by thioglycolic acid. *Phytochemistry*. 1971;10:2769-2774.
- Sharma R, Joshi V, Rana J. Nutritional composition and processed products of quince (*Cydonia oblonga* Mill.). *Indian J Nat Prod Resources*. 2011;2:354-357.
- Hilou A, Nacoulma O, Guiguemde T. In vivo antimalarial activities of extracts from *Amaranthus spinosus* L. and *Boerhaavia erecta* L. in mice. *J Ethnopharmacol*. 2006;103:236-240.
- Thippeswamy B, Mishra B, Veerapur V, Gupta G. Anxiolytic activity of *Nymphaea alba* Linn. in mice as experimental models of anxiety. *Indian J Pharmacol*. 2011;43:50-55.
- Ying X, Liu M, Liang Q, et al. Identification and analysis of absorbed components and their metabolites in rat plasma and tissues after oral administration of "Ershiwuwei Shanhu" pill

- extracts by UPLC-DAD/Q-TOF-MS. *J Ethnopharmacol.* 2013; 150:324-338.
33. Patil K, Patil V, Patil S, Bhuktar A. Comparative preliminary phytochemical studies of *Jasminum multiflorum* and *Jasminum officinale*. *Trends Life Sci.* 2012;1(3). [http://sciencejournal.in/data/documents/TLS-3-9\\_1.pdf](http://sciencejournal.in/data/documents/TLS-3-9_1.pdf). Accessed May 22, 2015.
  34. Mikaili P, Sharifi M, Sarahroodi S, Shayegh J. Pharmacological review of medicinal trees spontaneous in Iran: a historical and modern study. *Adv Environ Biol.* 2012;6:165-175.
  35. Mothanal RA, Mentelz R, Reiss C, Lindequist U. Phytochemical screening and antiviral activity. *Phytother Res.* 2006;20: 298-302.
  36. Eguale T, Tilahun G, Debella A, Feleke A, Makonnen E. In vitro and in vivo anthelmintic activity of crude extracts of *Coriandrum sativum* against *Haemonchus contortus*. *J Ethnopharmacol.* 2007; 110:428-433.
  37. DeLoach CJ, Lewis PA, Herr JC, et al. Host specificity of the leaf beetle, *Diorhabda elongata deserticola* (Coleoptera: Chrysomelidae) from Asia, a biological control agent for saltcedars (Tamarix: Tamaricaceae) in the Western United States. *Biol Control.* 2003; 27:117-147.
  38. Emami S, Asili J, Rahimizadeh M, et al. Chemical and antimicrobial studies of *Cupressus sempervirens* L. and *C. horizontalis* Mill. essential oils. *Iranian J Pharm Sci.* 2006;2:103-108.
  39. Lorenz K. Tannins and phytate content in proso millets (*Panicum miliaceum*). *Cereal Chem.* 1983;60:424-426.
  40. Kucekova Z, Mlcek J, Humpolicek P, Rop O, Valasek P, Saha P. Phenolic compounds from *Allium schoenoprasum*, *Tragopogon pratensis* and *Rumex acetosa* and their antiproliferative effects. *Molecules.* 2011;16:9207-9217.
  41. Sindhu RK, Kumar A, Arora S. *Santalum album* Linn: a review on morphology, phytochemistry and pharmacological aspects. *Int J PharmTech Res.* 2010;2:914.
  42. Cai YZ, Xing J, Sun M, Zhan ZQ, Corke H. Phenolic antioxidants (hydrolyzable tannins, flavonols, and anthocyanins) identified by LC-ESI-MS and MALDI-QIT-TOF MS from *Rosa chinensis* flowers. *J Agric Food Chem.* 2005;3:9940-9948.
  43. Ayet G, Burbano C, Cuadrado C, et al. Effect of germination, under different environmental conditions, on saponins, phytic acid and tannins in lentils (*Lens culinaris*). *J Sci Food Agric.* 1997;74:273-279.
  44. Mojab F, Kamalinejad M, Ghaderi N, Vahidipour HR. Phytochemical screening of some species of Iranian plants. *Iranian J Pharm Res.* 2010;2:77-82.
  45. Thomson Reuters. *PDR for Herbal Medicine*. 4th ed. New York, NY: Thomson Reuters; 2007:596-597.
  46. Adzu B, Amos S, Amizan M, Gamaniel K. Evaluation of the antidiarrhoeal effects of *Zizyphus spina-christi* stem bark in rats. *Acta Trop.* 2003;87:245-250.
  47. Sumbul S, Aftab Ahmad M, Asif M, Akhtar M. *Myrtus communis* Linn.—a review. *Indian J Nat Prod Resources.* 2011;2:395-402.
  48. Shabbir A. *Rhus coriaria* Linn, a plant of medicinal, nutritional and industrial importance: a review. *J Anim Plant Sci.* 2012;22: 505-512.
  49. Mohammadabadi T, Chaji M, Eslami M, Bojarpour M. The evaluation of the effect of tannin of oak leave on in vitro rumen fermentation of soybean meal. *Res J Biol Sci.* 2009;4:1190-1192.
  50. Samuelsen AB. The traditional uses, chemical constituents and biological activities of *Plantago major* L. A review. *J Ethnopharmacol.* 2000;71:1-21.