



Management of Hemorrhoid Complications in Persian Medicine

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Abstract

Objectives: Hemorrhoid disease has been a common medical problem since ancient times. About 5%-10% of patients do not respond to conservative treatment, and surgical procedures have a 20%-25% complication rate including pain, stenosis, infection, incontinence, and the like. Thus, most patients and physicians seek alternative and complementary medicines. Persian medicine (PM) is one of the oldest traditional medicines that present different treatment methods for managing hemorrhoid complications. Accordingly, the present study reviewed these methods and their applications.

Methods: This historical review surveyed the principle of management and different medicinal and non-medicinal treatments for each complication of hemorrhoid based on the main textbooks of disease-treatment and famous pharmacopoeias of PM from 10th to 18th century AD. Recent findings about their pharmaceutical properties and mechanisms of action were searched in Google Scholar, Science Direct, and PubMed databases.

Results: In PM, it is believed that hemorrhoid disease is because of melancholic or sanguineous distemperament. Cleansing the body and then strengthening the gastrointestinal and the liver for more effective treatment and prevention of relapse are the first therapeutic approaches in this regard. They use herbal and non-herbal medicines with anti-oxidant and anti-inflammatory, analgesic, and phlebotonic properties. In addition, different methods of bloodletting are used for body cleansing, reducing pain, and treating bleeding or thrombotic hemorrhoids.

Conclusions: In general, the proposed herbal and non-herbal medicines could be formulated for generating different pharmaceutical products. Finally, non-pharmaceutical methods could be used for postponing the need for surgical interventions.

Keywords: Hemorrhoid, Persian Medicine, Phlebotomy, Leech

Introduction

Hemorrhoid disease is considered a common medical and socioeconomic problem (1,2). In addition, hemorrhoids are symptomatic dilatation and downward sliding of anal vascular cushions due to destructive changes in their supporting connective tissues and increased resting anal pressure (3). The risk factors of hemorrhoid development are pregnancy, depressive mood, diarrhea, constipation, and an increase in straining for defecation. Further, low fiber diet, alcohol intake, and spicy foods may have a role in the development and the aggravation of acute hemorrhoid symptoms (1,3,4). Furthermore, the common complications of hemorrhoids are painless bleeding, itching, prolapse, and pain due to swelling and thrombosis. Treatment is often conservative and consists of increasing fiber consumption, drinking more oral fluids, having regular exercise, and avoiding constipation or diarrhea and straining. Medicinal products are used to control acute symptoms, including warm sits baths, topical cream, and suppositories that contain steroids or anti-inflammatory substances. Recently, flavonoids that are

phlebotonic agents are used as oral preparations as well. In refractory cases, non-surgical treatments such as rubber band ligation and infrared coagulation are applied to affix internal hemorrhoid veins to the underlying sphincter. Surgical treatment is reserved for about 5%-10% of patients who fail to respond to conservative measures, along with the thrombosis of grade 3 or 4, internal hemorrhoids with severe pain, and external hemorrhoid thrombosis without any response to conservative management (5,6). Surgical procedures have a 20%-25% complication rate, including post-operative pain, urinary retention, bleeding, anal stenosis, infection, and incontinence (5,7). Thus, most patients and physicians seek alternative and complementary treatment. Hemorrhoid disease has been discussed in Persian medicine (PM, Iranian Traditional Medicine). Although the base of management is the same, some effective treatment methods with the least side effects have been proposed as well. According to PM, the base of treatment is cleansing the body from causative humor and returning the humeral balance of the body. Some herbal medicines can be used for this purpose. For

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instance, bloodletting is one of the cleansing methods and plays an important role in the management of hemorrhoid complications. Therefore, the present study reviewed the PM scholars' viewpoints on hemorrhoid management, especially the role of bloodletting methods such as *Fasd* (phlebotomy) and *Hijama* (wet cupping) in the treatment of different symptoms.

Methods

In this review study, the pathophysiology, risk factors, and management of hemorrhoid complications were extracted from some of the main textbooks of PM regarding the treatment of diseases and pharmacopeias. Such references included *Al-Havi fi-Teb (Liber Continent)* by Rhazes, 854-925 AD (8), *Qanoon fi-Teb (Canon of Medicine)* by Avicenna, 980-1037 AD (9), *Zakhireye Kharazmshahi (Treasure of Khwarazm)* by Jorjani, 1041-1136 AD (10), and *Teb-e-Akbari* by Akbar Arzani, 17-18th Century AD (11). In addition, other textbooks were *Exir-e Azam (Great Elixir)* by Mohammad Azam Khan Chasti, 19th century AD (12) and *Makhzan-ul-Adwiah (Storehouse of Medicaments)* by Mohammad Hossein Aghili Khorasani, 18th century AD (13). First, notes were taken from different review sections (e.g., management principle in general, the treatment of each complication, different methods of non-medicinal treatment, and their proper location) of different books and about their common opinions about each section. Data about herbal and non-herbal medicines were searched from pharmacopeia books.

Recent findings about herbal and non-herbal treatments were searched in current literature by Google Scholar, Science Direct, and PubMed search engines and databases.

Results

In PM which is based on the humoral theory, diseases are classified into three forms as distemperaments, disfigurements, and disconnections. In the first form, the diagnosis and treatment are based on changes in four humors of blood, phlegm, black bile, and yellow bile (14). According to the Iranian traditional medicine (ITM) viewpoint, the important mechanism of most types of hemorrhoids is the accumulation of black bile or blood humor that is mixed with excess amounts of black bile in hemorrhoid vessels (9). Black bile (*soda*) is a variety of high molecular weight components of blood, which tends to precipitate in dependent vessels in proper conditions such as excess production, changes in their molecular properties, and blood stasis (15).

Predisposing Factors of Hemorrhoid According to Included PM (8-12)

1. Increased production of burned yellow bile because of excess consumption of warm tempered or spicy foods and drinks such as peppers, garlic, mustard, and the like, especially in patients with warm and dry distemperament of the liver;
2. Excess production of concentrated and thick blood (black bile) due to excess consumption of foods such as cabbage, lentil, dried, and salty meat, especially when not chewed well, along with excess and uncontrolled stress, fear, and depression;
3. Weakness of the spleen to absorb excess black bile;
4. Seasonal conditions and weather. For example, cold and dry weather or season such as fall predisposes people to hemorrhoid complications. In addition, the consumption of excessive amounts of milk, palm, and fruits in warm and wet weather is a risk factor in this regard;
5. Accumulation and stasis of excess blood in patients who produce more blood humors or have recently had a decrease in usual or addicted blood loss (e.g., because of secondary amenorrhea). Avicenna and other scholars in the ITM believe that hemorrhoid bleeding is one of the natural cleansing ways for the body;
6. Stasis of the blood in hemorrhoid vessels because of prolonged sitting on the chair or straining for defecation;
7. Excess and prolonged consumption of laxatives such as mineral oils and *Aloe barbadensis* and the like.

Principles of Hemorrhoid Management in PM (8-12)

1. The first medical step in the treatment of hemorrhoids is cleansing the body, especially hemorrhoid vessels from causative pathologic substances (abnormal and excess humor). The symptoms of body distemperament due to excessive amounts of cold and dry humor (black bile) are dark and dry skin, pyrosis, increased appetite, fatigue, dark urine, and the distorted sleep pattern. These patients are prone to obsession and depression. This purpose is achieved by physical therapy (e.g., bloodletting by *Fasd* or *Hijama*, which are further discussed in the following section) or medications that purify the blood, including *Phyllanthus emblica* and *Terminalia chebula*, *Terminalia bellerica*, and *Cuscuta epithimum* in companion with proper laxatives. Avicenna believed that phlebotomy is the first step and occasionally the only necessary treatment. Sometimes the causative abnormal humor accumulates in hemorrhoid vessels and local cleansing with local physical therapy and topical ointment and laxatives is sufficient.
2. *Dietary and lifestyle modifications*: Patients are recommended to avoid predisposing foods and drinks such as spicy foods, alcohol drinking, fatty, sour, sweet and salty foods, dried meats, cabbage, lentil, beef and veal, game, date, onion, garlic, pepper, milk, dairies, and eggplant. On the other hand, they should have foods that facilitate their digestion and produce blood with good quality (e.g., egg yolk, dishes containing bird meat, and chickpea). In case of weakness due to bleeding, meat extracts, rice, and

dishes containing pomegranate or sumac are useful. In addition, Chives and fig are beneficial for stopping bleeding and relieving constipation and weakness, respectively. Almond and coconut oils are useful as well.

3. *Avoiding straining due to constipation or diarrhea:* In case of constipation, medicinal products that contain *Phyllanthus emblica* and *Terminalia chebula* and *Commiphora mukul* (e.g., *Etriphele* and *Etriphelmukul*) are useful. In addition to having laxative properties, they excrete excess soda and purify the blood. Further, they have flavonoids which are useful for treating hemorrhoids.
4. *Pain reduction:* Different methods of topical therapy are used for reducing pain, including ointments, suppositories, sits bath, and the like. Herbal medicines such as *Matricaria chamomilla*, *Althaea officinalis*, *Malva rotundifolia*, *Trigonella foenum*, *Commiphora mukul*, *Melilotus officinalis*, *Astragalus hamosus*, duck fat, camel hump, rose oil, and egg yolk are applied to reduce pain and inflammation. Phlebotomy, which will be discussed later, is useful for pain reduction.
5. Improvement of the function of the liver, spleen, and gastrointestinal (GI) system is important because they have an important role in producing causative humor, and hemorrhoid disease is mainly due to the distemperament of these organs. In addition, these patients often suffer from the weakness of these organs. Therefore, after the treatment of their distemperament, patients should have digestive products (jovareh) after the meal since they facilitate food digestion and strengthen the GI system.
6. *Bleeding control:* Patients' extensive loss of fresh red blood causing anemia and weakness should be controlled with herbs that are astringent and have hemostatic properties, including *Commiphora mukul*, *Phyllanthus emblica*, pomegranate flowers, Olibanum, Oak apple, and *Terminalia chebula* (myrobalan). They are used in forms of oral or topical products. Bleeding must not be stopped if the patient loses intermittent dark blood and has no weakness because, as mentioned earlier, it is a natural cleansing way for the body. Otherwise, the patient is prone to other diseases such as depression, psychosis, epilepsy, arthralgia, skin rash and eczema, and the like because of the excessive amount of black bile in the body. Phlebotomy and other physical therapies are also used to control bleeding, which will be discussed later.
7. If the patient has pain and feels the swelling of hemorrhoids without bleeding and in the case of thrombosis, vessels will be emptied by topical drugs, which cause bleeding, or bloodletting methods (i.e., *Fasd* or *Hijama*). First, topical drugs, which were explained in the fourth principle, are used to soften hemorrhoid packets and reduce pain and inflammation. Bloodletting methods or topical

medications causing bleeding (e.g., onion and aloe) could be used if the above-mentioned drugs were not enough for spontaneous bleeding.

8. The hemorrhoid is eradicated or burnt with drugs or metal devices, respectively, if the patient's pain and bleeding are refractory to previous conservative management. Then, topical medicine is used for repairing and improving the wound. In addition, the phlebotomy of the right basilic vein is recommended for cleansing the body before eradication. Nonetheless, these methods are rarely used (e.g., in patients who can tolerate the procedure-related pain). The important recommendation is not to eradicate all hemorrhoid packets in one session and skip one of them.
9. Some topical and oral medicinal products are used to eradicate hemorrhoids in the long term. For instance, the long-term consumption of medicinal products that contain *Terminalia chebula* and *Commiphora mukul* is useful in this regard. Digestives that encompass *Terminalia bellerica*, mastic, and yellow myrobalan are beneficial as well. Other useful products for hemorrhoid eradication include topical creams or suppositories that contain pomegranate flowers, Olibanum (*Boswellia*), Myrtus, Oak gall, cypress fruit, and Oak pair, as well as the long-term contact of hemorrhoids with the smoke of *Commiphora mukul*, Olibanum, pomegranate flowers, Myrtus leaf, cypress fruit, cap eggplant, herb-Sophia (*Descurainia sophia*), Espand (*Peganum harmala*), and onion.

The Role of Bloodletting in the Management of Hemorrhoid Complications (8-12)

Bloodletting methods such as wet cupping (*Hijama*), phlebotomy, and leech therapy are used for different purposes in PM. During *Hijama*, the skin is scratched by a sterile lancet after cupping the selected areas for several minutes, and then the cups are replaced to cause non-specific blood infiltration and excrete pathologic substances through skin capillaries by the negative pressure of the suction. In some conditions, it is performed only by cupping without bloodletting (dry cupping). It should be noted that phlebotomy is a potent cleansing method although it is used in special conditions. In some conditions, bloodletting by means of leeches is applied as an alternative to phlebotomy. Generally, leeches are used for facilitation or stanch bleeding (by the deviation of blood flow from the bleeding site or the inflamed area), body cleansing, and pain relief. Their locations differ according to their purpose.

1. *For body cleansing purposes:* Avicenna believes that phlebotomy is the first step in treatment. It is a major body cleansing way that improves the liver and spleen function. First, the phlebotomy of the right basilic vein is performed for cleansing all the body and the liver except for the head, and then the next

week phlebotomy of the popliteal or saphenous vein and the phlebotomy of left Osaylem (the vein that is located between the fourth and fifth metatarsal bones) are recommended for cleansing and improving the function of the spleen. He further claims that the phlebotomy of the popliteal vein is more powerful compared to the others in hemorrhoid management. In addition, only local cleansing methods would be done if the patient needs not to cleanse all his/her body. The sign of all body distemperament was explained above. Furthermore, “Antaki” believes that there is no need to perform phlebotomy or other bloodletting therapies if the patient has bleeding. The wet cupping of the sacrum or coccyx or around the anus is also useful for patients who cannot tolerate phlebotomy. Nevertheless, this method can only cleanse local hemorrhoids and around the anal canal (Table 1).

2. In the case of swollen hemorrhoids with severe pain and thrombosis, it is recommended to perform the phlebotomy of the basilic vein and then the saphenous or popliteal vein. The wet cupping of the sacrum or coccyx and leech therapy around the anus or on hemorrhoid packets is recommended as well. It is important to emphasize that wet cupping or leech therapy should be used after the phlebotomy of the right basilic vein or body cleansing.
3. Phlebotomy or wet cupping (*Hijama*) is useful in reducing pain.
4. The phlebotomy of the right cephalic vein and taking some amounts of blood or the dry cupping of the sacrum or the distal of the left breast are recommended for controlling severe bleeding. The deviation of blood flow helps stop bleeding by using these methods.

Discussion

The basis for hemorrhoid complication treatment has not changed after thousand years. Topical ointments, laxatives, sits bath, and conservative management are the principles of treatment although the substances that are used are different. In addition to common dietary recommendations such as consuming high fiber diets, decreasing spicy food intake and alcohol abstinence, other dietary restrictions and recommendations are suggested in PM based on the patient’s symptoms and the disease condition. The body cleansing methods are important in treating hemorrhoids according to ITM for effective treatment and prevention of relapse. Hemorrhoid bleeding is considered as a cleansing method for the body and must not be stopped except for the case of weakness and anemia. In addition, the complete eradication of hemorrhoids is not recommended. The body cleansing should be used before topical cleansing therapy (e.g., local wet cupping or leech therapy) and even before hemorrhoid eradication. The other important point in PM is strengthening the GI system and the liver after body cleansing. It was believed that the weak GI system produces bad humors in the body and these harmful substances weaken the liver, the GI system, and other body organs and continue a vicious cycle.

The vascular cushions of the anal canal are composed of vascular plexuses, fibroelastic tissues, and muscle fibers (5). The increased destructive enzymes such as matrix metalloproteinase-9, proteinases, and transforming growth factor β in hemorrhoid cushions indicate a severe inflammatory reaction resulting in the degeneration of the vascular wall, thrombosis and secondary angioproliferation, and vascular hyperplasia (16,17). Additionally, the smooth muscle sphincter in the arteriovenous plexus reduces the arterial inflow, thus

Table 1. Non-medicinal Therapy According to Hemorrhoid Complications

Purpose	<i>Fasd</i> (Phlebotomy)	<i>Hijama</i> (Wet Cupping)	Other Methods of Treatment
Cleansing body from causative substances	1. Right Basilic V. (right elbow) 2. L. Osaylemvenule 3. The next week: Popliteal V. or Saphenous V.	1. Between two scapula (instead of the right Basilic V. phlebotomy) 2. The next week Wet cupping of the coccyx or sacrum or wet cupping of the posterior of the thigh.	For local treatment: 1. Dry cupping of the coccyx or sacrum or 2. Leech therapy on the coccyx or sacrum.
Bleeding	1. Small amounts of intermittent bleeding: As mentioned above 2. Bleeding of dark blood without weakness: No physical intervention; 3. Severe bleeding with weakness: Bleeding should be stopped. R. cephalic vein (small amount of blood taking for the deviation of blood) if the patient is powerful and can tolerate.	Small amounts of intermittent bleeding: As mentioned above.	1. Small amounts of intermittent bleeding: As explained above; 2. Severe bleeding with weakness: Bleeding should be stopped with dry cupping of the distal of the left breast and the coccyx or sacrum.
Thrombosis or swelling without bleeding (pain reduction)	1. Right Basilic V.(right elbow) 2. Popliteal V. or Saphenous V.	1. Between two scapula (instead of the right Basilic V. phlebotomy) 2. Wet cupping of the coccyx or Sacrum or the posterior of the thigh.	1. <i>Fasd</i> of the right Basilic V. (right elbow) or other body cleansing methods, then 2. Leech therapy on the coccyx or on hemorrhoid packets or around them.

facilitates effective venous drainage. The destruction of the sphincter-like structure due to inflammation and the increased nitric oxide synthase lead to the dysregulation of the vascular tone and remarkably dilated, thin-walled vessels within the arteriovenous plexus of cushions. All the above-mentioned changes demonstrate that inflammation and angiogenesis are important in the pathogenesis of hemorrhoids (18,19). A clinical trial confirmed the role of oxidative stress in hemorrhoid diseases. In this trial, the serum level of antioxidants such as vitamins E and C in patients with hemorrhoids was less than that of the control and increased after band ligation. On the other hand, the level of peroxynitrite and malondialdehyde as the indicators of peroxidative stress was more than the control group and failed to decrease after the band ligation of hemorrhoid (20). Table 2 lists the most frequently used herbs for the treatment of hemorrhoid complications in PM. Notice their antioxidant, anti-inflammatory, and phlebotonic properties.

Flavonoids are plant-extracted substances with phlebotonic properties and can improve venous tone, decrease capillary hyperpermeability, and increase lymphatic drainage. In addition, they are used as oral drugs in treating the symptoms of hemorrhoid disease (for controlling bleeding and re-bleeding), lymphedema, and chronic venous insufficiency (21, 22). These substances have anti-inflammatory effects as well (23). Most applied medicinal plants in ITM for the treatment of hemorrhoids (e.g., *Commiphora mukul*, *Terminalia chebula*, *Cuscuta epithymum*, *Melilotus officinalis*, *Juniperus sabina*, and the like) contain flavonoids, are phlebotonics, and are used in oral and topical forms as mentioned earlier (24, 25).

Another point in their treatment is to use topical medicinal products with herbal or zoological sources such as Rose oil, duck fat, camel hump fat, and egg yolk. They contain natural anti-inflammatory and repairing substances without any side effects including nonsteroidal anti-inflammatory drugs and steroids. Oral Rose oil with the base of the olive or sesame oil has laxative and body purifying effects and is useful for GI ulcers and inflammatory bowel disease. It also strengthens the GI system and other body organs. The topical use of the rose oil heals the wounds, reduces pain, and has anti-inflammatory properties. The duck fat also has anti-inflammatory and analgesic effects and has been recommended for joint pain. Further, eating the camel hump fat with foods could clean the uterus and hemorrhoids and stop bleedings and is beneficial for fissures. Furthermore, the topical use of hump fat is useful for reducing pain and healing hemorrhoids and fissures. Moreover, egg yolk is used with the Rose oil as topical preparation for reducing hemorrhoid pain and its swelling and inflammation (13).

Wet cupping (*Hijama*) can purify the blood, lymph, and intercellular fluids from noxious substances such as triglycerides, total cholesterol, low-density lipoprotein-

cholesterol, uric acid, autoantibodies, cytokine receptors, and the like. It also enhances immunity and potentiates the pharmacological effects of drugs by removing pathologic substances from the site of pathology. These therapeutic benefits may treat some diseases such as hyperlipidemia, hypertension, atherosclerosis, gout, *rheumatoid arthritis*, headache, and asthma and reduce serum iron and ferritin in healthy subjects and iron overload conditions (e.g., thalassemia). *Hijama* is helpful in treating coronary artery ischemia and severe hypertension by producing endogenous nitric oxide. Neurological and musculoskeletal pain conditions could be effectively treated by cupping therapy (26-33). Pure blood loss occurs in phlebotomy by using the lancet. Current indications for therapeutic phlebotomy are polycythemia vera, hemochromatosis, porphyria cutanea tarda, and sickle cell disease. A decrease in the iron and ferritin level in nonalcoholic fatty liver disease with hyperferritinemia reduces the risk of hepatocellular carcinoma. Additionally, it reduces cardiovascular risk in patients with metabolic syndrome while improving response to therapy in those with chronic hepatitis C. Phlebotomy is an essential part of the treatment in patients with relative polycythemia (hematocrit value greater than 54%), especially in those who have thrombotic risk factors (34,35). ITM scholars believe that phlebotomy has different therapeutic effects and can enhance the treatment process thus they have used the phlebotomy of different regions of the body for different purposes (36). Its application is shown in Table 1.

In some conditions, leeches are used as the bloodletting method for body cleansing. They have their own special application in treating some diseases such as stroke or myocardial infarction although they are occasionally used as an alternative to phlebotomy (37). In addition, leeches are applied for cleansing local hemorrhoids and treating external hemorrhoid thrombosis. According to recent studies, leech saliva contains natural blood thinners which are useful for cardiovascular disorders, improve blood flow while reducing pain and leg swelling in deep vein thrombosis. Leech therapy could prevent diabetic foot from amputation. It also reduces the risk of venous congestion in traumatic injuries and reconstructive surgery. Hirudin has anticoagulant properties and is useful in the treatment of coronary atherosclerosis, hyperglycemia, hyperlipidemia, hypertension, platelet adhesion disorders, and hypercoagulable states (38).

Conclusions

It seems that PM offers a variety of different effective medicinal and non-medicinal treatment methods with prolonged efficacy and the least side effects compared to common topical medications. Accordingly, the previous experience could be used for introducing new potential drugs and considering different methods for decreasing surgical manipulations for further investigations. Although topical products containing useful herbs such

Table 2. Herbs for the Treatment of Hemorrhoid Complications in Persian Medicine (13)

Medicinal Plants	Common Names	Persian Medicinal Name	Used Part	Active Phytochemical Composition	A	B	C	D	E	G	H	Pharmacological and Medical Effects
<i>Cuscuta epithymum</i> L.	Alfalfa dodder	Aftmoon	Stem and fruit (seed)	Flavonoid, glycoside, quercetin, alkaloids, saponins, tannins, triterpenoids, and steroids	+	+	+			+		Anti-inflammatory, analgesic, antioxidant, and mild laxative effect (39).
<i>Phyllanthus emblica</i> L.	Indian gooseberry, Amla	Amelej (amoleh)	Fruit	Tannins, gallic acid, phyllembelic acid, curcuminoids, emblicol, phenols, flavonoids, and quercetin	+	+	+	+	+		+	Anti-inflammatory, analgesic, antitumorogenic, antidiarrheal, antioxidant, (40) immunomodulatory properties (41, 42), and hepatoprotective effect (43)
<i>Terminalia chebula</i>	Myrobalan	Ehlijaj-e-asvad (Halile- siah)	Fruit	Phenols (tannins), steroids, saponins, saponins, anthraquinone derivatives, and flavonoids (quercetin, and catechin)	+	+	+	+	+		+	Healing wounds, antitumorative and gastroprotective, antioxidant decrease gingival bleeding, aphthous, and other inflammatory mouth diseases, anti-inflammatory, hepatoprotective, antinociceptive, and ↓inducible nitric oxide synthesis (44)
<i>Terminalia bellerica</i>	Beleric/Myrobalan, Baheda	Balilaj (Balileh)	Fruit	Glucoside (bellericanin), tannins, gallic acid, ethyl gallate, chebulinic acid, and phyllembin	+	+	+		+		+	Analgesic, anti-diarrheal, anti-spasmodic, antioxidant, wound healing, antiulcer, antithrombotic and thrombolytic, hepatoprotective, antipyretic, and antihypertensive effects (45)
<i>Commiphora mukul</i>	Indian bdellium-tree, guggul	Moghl	Oleogum resin	(Phytosterols, guggulipids, and guggulsterones), lignans , diterpenoids, and rich of steroids	+	+	+	+	+	+	+	Anti-inflammatory, lipid peroxidation and Cox inhibitory activities, ↓NO production from activated macrophages, and liver tonic (46-48)
<i>Allium cepa</i> L.	Onion	Basal (Piaz)	Bulb	Alliins (alkylcysteinesulphoxides), flavonols and anthocyanins. Quercetin, steroid, and saponins	+	+	+		+	+	+	Anti-inflammatory, antioxidant effects (49) hypocholesterolaemic, and fibrinolytic function (50)
<i>Matricaria chamomilla</i> L.	German Chamomile, Mayweed	Baboonaj (Babuneh)	Flower	Caffeic acid, terpenbisabolol, farnesene, chamazulene, flavonoids (apigenin, quercetin.), phenolic acids, and coumarin	+	+	+				+	Antioxidant, anti-inflammatory, hepatoprotective, antidiarrheal activities, angiogenesis activity, useful for ulcerative colitis (51, 52) antidepressant, and anxiolytic activity (53)
<i>Althaea officinalis</i> L.	Common Marsh-Mallow	Khatmi	Flower	Flavonoids, mucilage polysaccharides, coumarins, phenolic acid and sterols	+	+	+			+	+	Anti-inflammatory effects, wound healing, and antioxidant properties, (54, 55)

Table 2. Continued

Medicinal Plants	Common Names	Persian Medicinal Name	Used Part	Active Phytochemical Composition	A	B	C	D	E	G	H	Pharmacological and Medical Effects
<i>Malva sylvestris</i> L.	High Mallow	Khobbazi (Panirak)	Flower	Flavonoids, phenol derivatives, terpenoids, mucilages, polysaccharides, and coumarins, beta-carotene, and enzymes (sulfite oxidase and catalase)	+	+	+	+	+	+	+	Anti-inflammatory, healing wound, antioxidant abilities (56) useful for functional constipation (57) and ulcerative colitis (58)
<i>Trigonella foenum-graecum</i> L.	Sickle fruit Fenugreek	Holbah, shanbellieh	Leaves/seed	Saponins, mucilaginous fibers, flavonoids, and alkaloids (trigonelline and choline)	+	+	+	+	+	+	+	Anti-inflammatory, anti-ulcer, gastric stimulant, antidiabetic and antilipidemic, antioxidant, and hepatoprotective (59)
<i>Astragalus hamosus</i> L.	European Milk vetch	Ekiil-olmalek	Seed pod	Flavonols (isoquercitrin, astragalol), terpenes, and esters	+	+	+	+	+	+	+	Anti-inflammatory and analgesic effects in animal models (60), improve neuro-inflammation, and memory (61)
<i>Rosa damascena</i> mill L.	Damask Rose	Vard-e-ahmar	Flower	Terpenes, glycosides, flavonoids, and anthocyanins, myrcene, quercetin,	+	+	+	+	+	+	+	Analgesic, antioxidant, anti-inflammatory, laxative and prokinetic effect, increase heart rate and contractility, hypnotic and anxiolytic and/or antidepressant effect, and anti-aging effects (62)
<i>Punica granatum</i> L. var <i>pleniflora</i> flower	Pomegranate tree	Colnar	Peels unfertilized flowers	Flavonoid, phenolic content (such as tannins)	+	+	+	+	+	+	+	Astringent, hemostatic, for diarrhea, digestive problems, infected wounds (63) antioxidant activity (64)
<i>Boswelliasacra</i> Flueck.	Olibanum, Frankincense	Kondor	Oleogum-resin	Resin (terpenes, β-boswellic acid, and the like) and quercetin	+	+	+	+	+	+	+	Antioxidant properties, anti-inflammatory (65) analgesic, hepatoprotective, and useful in IBD (66)
<i>Myrtus communis</i> L.	Myrtle	Aas (Moord)	Leaves fruit	Phenolic acids, tannins, flavonoides, terpenes, and terpenoids	+	+	+	+	+	+	+	Antioxidant, anti-inflammatory, antithrombotic, anti-atherogenicity, hepatoprotective (67)
<i>Allium schoenoprasum</i> L.	Chives	Koras (Tareh)	Leaves	Disulfide and trisulfide components, and phenolic contents	+	+	+	+	+	+	+	Anti-inflammatory activities, and antioxidant, scavenging activity (68, 69)
<i>Cupressus sempervirens</i>	Mediterranean Cypress	Sarv	Leaves fruit	α-pinene, δ-3-carene, limonene, α-terpinolene, and flavonoids (quercetin,..) phenolic acids	+	+	+	+	+	+	+	Antioxidant and anti-hepatotoxic properties (70), protective effect against gastric ulcer in rats (71)
<i>Pistacia lentiscus</i>	Mastic Arabic gum Lentisk	Mastaki	Resin	α-Pinene, β-myrcene, β-pinene, limonene, β-caryophyllene, α-terpineol, and linalool	+	+	+	+	+	+	+	Antioxidant and anti-inflammatory activity (72)

A, Body purifying; B, Soda excretion; C, Pain reduction; D, Stanch bleeding; E, Hemorrhoid eradication; G, Laxative; H, Wound healing.

as myrtle are now available, they are insufficient. The above-mentioned fats and medicinal plants could be applied to generate new topical ointments for their anti-inflammatory, analgesic, and phlebotonic properties.

Conflict of Interests

None declared.

Ethical Issues

Not applicable.

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