

Ethnobotanical identification of medicinal plants effective on bloat in Lorestan province, west of Iran

Bahram Delfan¹, Mahmoud Bahmani², Hannaneh Golshahi³, Kouros Saki⁴,
Mahmoud Rafeian-Kopaei^{5*}, Babak Baharvand-Ahmadi¹

¹Razi Herbal Medicines Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran

²Food and Beverages Safety Research Center, Urmia University of Medical Sciences, Urmia, Iran

³Department of Pathology, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran

⁴Shahid Beheshti University of Medical Sciences, Tehran, Iran

⁵Medical Plants Research Center, Shahrekord University of Medical Sciences, Shahrekord, Iran

*Corresponding author: E-Mail: rafeian@yahoo.com

ABSTRACT

Objective: Bloating and gas accumulation is one of the most common gastrointestinal disorders. Since herbs are always one of the most important sources of medicines for many kinds of diseases, so we try to investigate and introduce Lorestan local anti-bloating herbs in this study.

Methods: The traditional treatment data of this study were collected from the indigenous peoples and through cooperation of Dorud Health and Treatment Network, Boroojerd, Khorramabad, Aleshtar, Poldokhtar, Aligudarz, Nurabad and Kouhdasht. Questionnaires were prepared before and the volunteers were trained. Trained volunteers by mentioned questionnaire recorded people's beliefs about alternative medicine in the treatment of flatulence.

Results: Eventually it was investigated that 13 remedial plants from 10 plant families were effective in the treatment of flatulence. In many parts of the world, especially in remote areas where there isn't any access to doctors and medicine, people use folk medicine and homemade treatments.

Conclusions: The awareness of these applications can be a policy for the achievement of new medicinal uses of these plants which hadn't been reported in the available literature as well.

KEY WORDS: Bloating, Traditional medicine, Medicinal plants, Lorestan, Iran.

1. INTRODUCTION

Stretching and abdominal distention, a feeling that is associated with excessive gas, and pushing the diaphragm upward reducing expansion of the lungs, called bloating. Bloating and gas accumulation is one of the most common gastrointestinal disorders (Oveysi, 1982). The incidence of bloating in Asian societies is 23-15% and 30-15% in America's population (Lacy, 2011). Studies show that approximately twenty percent of people aged 65- 93 have experienced abdominal distension due to intestinal gas (Clearfield, 1996). Another study was conducted on healthy people aged 21-59, found almost each person had to pass gas ten times a day (Furne, 1996; Bassotti, 1996).

The most common digestive problem that causes patients visit doctor, is intestinal gas. Gastrointestinal symptoms involve belching, bloating, abdominal distention, abdominal pain and bloating, which are generated in the digestive tract are common signs of gas accumulation (Chami, 1991; Aftab, 1999). Bloating have different degrees but severe bloating causes pain. To reduce the pain, medicines such as morphine sulfate, aspirin, codeine, meperidine hydrochloride and traditional analgesics and psychological drugs such as music, massage of abdomen, and surgical and clinical techniques, such as surgery and rectal tube are used. These drugs have side effects (Dewint, 1998; Farrell, 1980; Potter, 1999). Despite various treatments available for this condition, there is still debate over the best way to treat it. However, the use of the complementary and alternative medicine therapies overcomes some shortcomings of the current treatment (Kessler, 2001).

In many countries, cultures and nations medicinal plants have used to treat diseases and people believe in them strongly. Ethno botany studies provide valuable information for botanical science and these information creates basic clinical research to develop new drugs. The use of natural and herbal medicines are common in most countries of the world and increasingly expanding. Nowadays the known compounds of them are used as new drugs and can be used as a key for the low-cost and low side effects treatment in many diseases. The importance of Ethno botany researches is too high which using of traditional experiences increases the discovery of more effective medicine up to 40 percent, While this rate is only 1% in random researches. The herbs are always an important source of remedies to treat various human diseases (Bahmani, 2014; Rafeian-Kopaei, 2012; Amirmohammadi, 2014; Eftekhari, 2012; Bahmani, 2013; Bahmani, 2014; Bahmani, 2012). In this study, we tried to treat flatulence herb native to the people of the province, we are identified and reported.

2. MATERIALS AND METHODS

2.1. Studied region: Lorestan province is located in the west of Iran between 66° 51' - 50° 3' east longitude from the Greenwich meridian and 32° 37' - 34° 22' north latitude from the equator.

This province has 4 different climates (semiarid, mild semi-humid, cold semi-humid and heights climate). Area of the province is about 28300h. Its minimum altitude is 330m in the Zal Bridge and the maximum altitude is 4050m in the Oshtorankoo. This province has variable climate and this variety is completely obvious from north

east to south west. Lorestan *neighbors* Hamedan and Markazi provinces in the north, to Isfahan in the east, to Khuzestan in the south and to Kermanshah and Ilam provinces in the west.

2.2. Methodology and plant collection: Traditional remedial information of this study were obtained through interview and questionnaire and in cooperation with the Lorestan planning and management organization, Technology and Research Assistance of Lorestan Medical Sciences and benefiting indigenous information of people in province cities and also through cooperation of the treatment and health network in Doroud, Boroujerd, Khoramabad, Alshotor, Pole Dokhtar, Aligudarz, Nourabad, and Kouhdasht cities in Lorestan province.

Questionnaire that was prepared in advance have been given to well trained volunteers by the heads of the health networks. The questionnaires included information about the location, and identification of the interviewer, the name of plants, the reason of using, usable parts of plants, mode of administration, the growing season and the types of plants that had been kept at home. The trained volunteers attended the villages and the questionnaires were filled out by 70 villagers who were informed about the traditional medicinal plants of this area. The average age range of the studied people was 50-85 years old and they included 21 women and 49 men. The trained volunteers gathered in village and recorded the information in questionnaires about botanical therapy's belief of old people. The results exactly were recorded in charts.

3. RESULTS

Table.1. Ethno botany information about carminative herbs of Lorestan province

Scientific name	Family	Local or traditional name	Persian names	Usable Part of plant	How to use	Collection season	Traditional Therapeutic effect
<i>Altaea officinalis</i>	Malvaceae	Gole Hiro	Althaea	Flowers and Seeds	herbal tea	Spring and Summer	Abdominal bloating
<i>Anethum graveolens</i>	Umbelliferae	Shevit	Dill	All organs	Consumption of plant powder with food	Summer	Carminative
<i>Berberis integrima</i>	Berberidaceae	Zereshk	Barberry	Leaves and stems	Herbal tea	Spring	Carminative
<i>Cichorium intybus</i>	Asteraceae	Cheghcheqhe	Chicory	Roots and Leaves	Plant roots are harvested, washed and boiled from morning till night, then it is used	All Seasons	Carminative
<i>Cuminum Cyminum</i>	Apiaceae	Zireye sabz	Cumin	Seeds	(herbal tea) Melissa	Spring	Carminative
<i>Elettaria cardamumom</i>	Zingiberraceae	Hel	Cardamom	Seeds	Boiled Along with the tea and drink	Autumn	Carminative
<i>Foeniculum vulgare</i>	Apiaceae	Razianeh	Fennel	Seeds	Herbal tea is drunk. The seeds are cooked and eaten with milk and rice. powder of Seeds are eaten also with meal	Spring	Abdominal bloating
<i>Fumaria parviflora</i>	Fumariaceae	Shatareh	Fumaria parviflora	Leaf	Leaf powder mixed with yogurt and used	Spring	Carminative
<i>Heracleum persicum</i>	Apiaceae	Golpar	Angelica	Flowers and Leaves	(herbal tea) Melissa	Spring	Distention
<i>Matricaria recutita</i>	Compositae	Gole Bayneh	Chamomile	Petals	herbal tea or powder consumed by food	Spring	Carminative
<i>Mentha longifolia</i>	Lamiaceae	Pineh	Oregano	Shoot	Dried plant with yogurt or buttermilk mixture and eat 3 times a day	Spring and Summer	Abdominal bloating
<i>Plantago major</i>	Plantaginaceae	Khorchang	Ispaghula	All organs	(herbal tea) Melissa	Spring and Summer	Carminative and laxative
<i>Teucrium polium</i>	Lamiaceae	Maryam nokhodi	Mary pea	Flowers and Seeds	(herbal tea) Melissa	Spring	Carminative

Discussion: Forests and mountainous areas of the Lorestan province due to suitable physiogeographical and continental condition have the high species richness of medicinal plants and native flora and these plants have attracted the attention of the residents since thousand years ago. In this context, the indigenous inhabitants of the Lorestan use these herbs to prevent and treatment of diseases as per predecessors' experience. In general, traditional medicine and folk beliefs about medicinal plants in the study area have special effect and documentation of these information has special importance.

In our study, at least 13 medicinal plants from 10 plant families were effective in the treatment of flatulence. By comparing the mentioned plants in this study and other herbs in other ethno botany studies in different provinces of Iran, similar and different effects have been reported, mentioning below.

In The traditional knowledge of Kerman, *L. Cuminum cyminum* is used to treat flatulence. Althea (*Malva microcarpa*) is used to treat skin infections, antifungal, antiparasitic and to treat colitis (Sharififar, 2010). In Arasbaran area in IRAN, the barberry (*Berberis vulgaris* L.) is utilized for gastrointestinal problems and liver damage induced by bile. The chicory (*Cichorium intybus*) as a laxative, chamomile (*Anthemis nobilis*) for the treatment of emphysema, the pennyroyal (*Mentha longifolia*) as a carminative, of Oregano (*Origanum vulgare*) as a stomach tonic and Angelica (*persicum Heracleum*) as carminative and digestive problems resolver were used (Zolfaghari, 2013). In Sistan's ethno botany, cumin plant (*Cuminum cyminum* L.) is used as a carminative and tonic for the stomach and food digestion. Plantain (*Plantago lanceolata*) is used as a laxative and to relieve colds and skin irritations or anti-hemorrhoids (Iranmanesh, 2010). The traditional knowledge of Shiraz uses Armenian marshmallow (*Althea aucheri* Boiss) to treat digestive disorders. In Kazeroon, these herbs are used: the Dill (*Anethum graveolens* L.) and chamomile (*Anthemis austro-iranica*) to overcome the coldness of temperament, the chicory (*Cichorium intybus* L.) to strengthen the stomach, the pennyroyal (*Mentha longifolia*) to reduce bloating and stomach acid reduction, the Mary pea (*Teucrium polium* L.) to eliminate bloating and the althaea (*Alcea aucheri*) as a laxative (Sadeghi and Borjian, 2013). In Kashan, chamomile (*Anthemis gayana* Boiss.) is used to unblock arteries, chicory (*Cichorium intybus* L.) as a coolant, Fumaria parviflora (*Fumaria parriflora* Lam.) to Remove the body eczema (Abbasi, 1991). In Mobarakeh of Esfahan, the chamomile (*Chamomilla recutita* L.), cumin (*Cuminum cyminum* L. and pennyroyal (*Mentha pulegium* L) are used to treat diarrhea and stomach strengthening. the chicory (*Cichorium intybus* L) is used to treat constipation. In The traditional knowledge of Ilam, the althaea (*Alcea angulata*) is used for wound healing; chamomile (*Anthemis altissima*) as a digester and chicory (*Cichorium intybus* L.) as laxatives and stomach pain (Ghasemi Pirbalouti, 2013).

The processed drugs from medicinal plants are as biological innovations in the field of medicine and are suitable alternative for chemical agents (Delnavaz Hashemlouian, 2008). Medicinal plants and herbal drugs have contained bioactive substances and antioxidant compounds which are recommended and used as one of the most popular traditional and ethnopharmacology any parts of the world, especially in remote areas where access to doctors and medicine is limited, people often utilize home-made medicine and traditional folk treatments. Awareness of These applications can be policy for the achievement of new medicinal uses of these plants which haven't been reported in the available literature. Also using of these mentioned herbs in clinical researches is necessary to identify the therapeutic and toxic effects. On the other hand it can be transferred wrongly to next generations as result of unknown side effects, so it requires more studies and researches.

REFERENCES

- Abbasi SH, Afsharzadeh S, Mohajeri ER, Introduced plant species with medicinal properties in Natanz (Kashan), Journal of Herbal Drugs, 3 (3), 1991, 156-147.
- Aftab J Ahmed, Intestinal gas: Not entirely a laughing matter, Total Health, 21(3), 1999, 50-51.
- Amirmohammadi M, Khajoenia SH, Bahmani M, Rafieian-Kopaei M, Eftekhari Z, Qorbani M, *In vivo* evaluation of antiparasitic effects of *Artemisia abrotanum* and *Salvia officinalis* extracts on *Syphacia obvelata*, *Aspiculoris tetrapetra* and *Hymenolepis nana* parasites, Asian Pac.J.Trop.Dis., 4(1), 2014, 250-254.
- Asadbeigi M, Mohammadi T, Rafieian-Kopaei M, Saki K, Bahmani M, Delfan B, Traditional effects of medicinal plants in the treatment of respiratory diseases and disorders: an ethnobotanical study in the Urmia, Asian Pac.J.Trop. Med., 7(1), 2014, 364-368.
- Bahmani M, Karamati SA, Banihabib EKH, Saki K, Comparison of effect of nicotine and levamisole and ivermectin on mortality of leech, Asian Pac.J.Trop.Dis., 4(1), 2014, 477-480.
- Bahmani M, Abbasi J, Mohsenzadegan A, Sadeghian S, Gholami- Ahangaran M, *Allium sativum* L.: the anti-mature leech (*Limnatis nilotica*) activity compared to Niclosomide, Comp.Clin.Pathol., 22, 2013, 165-168.
- Bahmani M, Banihabib EKH, rafieian-Kopaei M, Comparison of Disinfection Activities of Nicotine with Copper Sulphate in water Containing *Limnatis nilotica*, Kafkas Univ Vet Fak Derg., DOI: 10.9775/kvfd.2014.11223.
- Bahmani M, Rafieian-kopaei M, Parsaei P and Mohsenzadegan A, The anti-leech effect of *Peganum harmala* L. extract and some anti-parasite drugs on *Limnatis nilotica*, Afri.J.Microbiol.Res., 6(10), 2012, 2586-2590.

Bahmani M, Forouzan Sh, Rafieian-Kopaei M, Eftekhari Z, Evaluating the Anti-Leech Effects of Methanolic Extracts of *Peganum harmala* L. and *Olea europaea* L. on immature worm *Limnatis nilotica*, Asian Pac.J.Trop.Dis., 2012, 1-6.

Bahmani M and Rafieian-Kopaei M, Medicinal plants and secondary metabolites for leech control, Asian Pac. J. Trop.Dis., 4(4), 2014, 315-316.

Bahmani M, Eftekhari Z, An ethnoveterinary study of medicinal plants in treatment of diseases and syndromes of herd dog in southern regions of Ilam province, Iran Comp.Clin.Path, 22, 2012, 403-407.

Bahmani M, Golshahi H, Mohsenzadegan A, Ghollami- Ahangarani M, Ghasemi E, Comparative assessment of the anti- *Limnatis nilotica* activities of *Zingiber officinale* methanolic extract with levamisole, Comp.Clin.Pathol., 22(4), 2013, 667-670.

Bahmani M, Saki K, Rafieian-Kopaei M, Karamati SA, Eftekhari Z, Jelodari M, The most common herbal medicines affecting *Sarcomastigophora* branches: a review study, Asian Pac.J.Trop.Med., 7(1), 2014, 14-21.

Bahmani M, Rafieian-Kopaei M, Hassanzadazar H, Saki K, Karamati SA, Delfan B, A review on most important herbal and synthetic antihelmintic drugs, Asian Pac.J.Trop.Med., 7(1), 2014, 29-33.

Bahmani M, Banihabib EKH M, Rafieian-Kopaei M and Gholami-Ahangaran M, Comparison of Disinfection Activities of Nicotine with Copper Sulphate in water Containing *Limnatis nilotica*, Kafkas Univ.Vet.Fak.Derg., 21(1), 2015, 9-11.

Bahmani M, Shirzad HA, Majlesi M, Shahinfard N, Rafieian-Kopaei M, A review study on analgesic applications of Iranian medicinal plants, Asian Pac.J.Trop.Med., 7(1), 2014, 43-53.

Bahmani M, Zargaran A, Rafieian-Kopaei M, Identification of medicinal plants of Urmia for treatment of gastrointestinal disorders, Rev.Bras.Farmacogn, 24, 2014, 468-480.

Bahmani M, Zargaran A, Rafieian-Kopaei M, Saki M, Ethnobotanical study of medicinal plants used in the management of diabetes mellitus in the Urmia, Northwest Iran, Asian Pac.J.Trop.Med., 7(1), 2014, 348-354.

Bahmani M, Mirhosseini M, Sirzad HA, Sedighi M, Shahinfard N, Rafieian-Kopaei M, A Review on Promising Natural Agents Effective on Hyperlipidemia, Journal of Evidence-Based Complementary & Alternative Medicine, 2015, 1-10, DOI: 10.1177/2156587214568457.

Bassotti G, Germani U, Morelli A, Flatus-related colorectal and anal motor events, Dig.Dis.Sci., 41, 1996, 335- 8.

Chami TN, Schuster MM, Bohlman ME, Pulliam TJ, Kamal N, Whitehead WE, A Simple Radiologic method to estimate the quantity of bowel gas, Am.J.Gastroentrol., 86, 1991, 599-602.

Clearfield HR, Clinical intestinal gas syndromes, Prim.care, 23, 1996, 621-8.

Delfan B, Bahmani M, Hassanzadazar H, Saki K, Rafieian-Kopaei M, Identification of medicinal plants affecting on headaches and migraines in Lorestan Province, West of Iran, Asian Pac.J.Trop.Med., 7(1), 2014, 376-379.

Delfan B, Bahmani M, Rafieian-Kopaei M, Delfan M, Saki K, A review study on ethnobotanical study of medicinal plants used in relief of toothache in Lorestan Province, Iran, Asian Pac.J.Trop.Dis., 4(2), 2014, 879-884.

Delfan B, Kazemeini HR, Bahmani M, Identifying Effective Medicinal Plants for Cold in Lorestan Province, West of Iran, Journal of Evidence-Based Complementary & Alternative Medicine 2015, 1-7, DOI: 10.1177/2156587214568458.

Delnavaz Hashemlouian B and Ataii Azimi A, Medicinal and Edible Attributes in Plants, (In Persian) Islamic Azad University Press, Saveh, 2008, 180.

Dewint SC, Essential of medical surgical nursing, 4th ed., Toronto, W B Saunders, 1998, 93.

Eftekhari Z, Bahmani M, Mohsenzadegan A, Gholami-Ahangaran M, Abbasi J, Alighazi N, Evaluating the anti-leech (*Limnatis nilotica*) activity of methanolic extract of *Allium sativum* L. compared with levamisole and metronidazole, *Comp.Clin.Path.*, 21, 2012, 1219-1222.

Farrell SJ, Andersen HF, Cesarean section: Indication and postoperative morbidity, *Obstet.Gynecol.*, 56(6), 1980, 696-700.

Forouzan S, Bahmani M, Parsaei P, Mohsenzadegan A, Gholami- Ahangaran M, Anti-parasitic activities of *Zingiber officinale* methanolic extract on *Limnatis nilotica*, *Glob.Vet.*, 9(2), 2012, 144-148.

Furne JK, Levitt MD, Factor influencing frequency of flatus emission by healthy subjects, *Dig.Dis.Sci.*, 41, 1996, 1631-5.

Ghasemi Pirbalouti A, Momeni M and Bahmani M, Ethnobotanical study of medicinal plants used by kurd tribe in dehloran and abdanan districts, ilam province, iran, *Afr.J.Tradit.Complement Altern.Med.*, 10(2), 2013, 368.

Gholami-Ahangaran M, Bahmani M, Zia-Jahromi N, Comparative and evaluation of anti-leech (*Limnatis Nilotica*) effect of Olive (*Olea Europaea* L.) with levamisole and tiabendazole, *Asian Pac.J.Trop.Dis.*, 2(1), 2012, S101-S103.

Gholami-Ahangaran M, Bahmani M, Zia-Jahrom N, *In vitro* antileech effects of *Vitis vinifera* L., niclosamide and ivermectin on mature and immature forms of leech *Limnatis nilotica*, *Glob.Vet.*, 8, 2012, 229-232.

Iranmanesh M, Najafi SH, Yousefi M, Ethnobotanical study of Medicinal Plants of Sistan region, *J.Herbal Drugs*, 2, 2010, 61-68.

Kessler RC, Davis RB, Foster DF, Van Rompay MI, Walters EE, Wilkey SA, Long-term trends in the use of complementary and alternative medical therapies in the United States, *Ann.Intern.Med.*, 135, 2001, 262-8.

Lacy BE, Gabbard SL, Crowell MD, Pathophysiology, evaluation, and treatment of bloating: hope, hype, or hot air, *Gastroenterol.Hepatol.*, 7(11), 2011, 729-39.

Oveysi S, The translation of Nursing and Technology of Patricia Ann Patr.Griffin Perry, First published in Tehran, healthy Publication, 1982, 606-589.

Potter P, Basic Nursing, A critical thinking approach, 4th ed., Philadelphia, Mosby, 1999, 1014-90.

Rafieian-Kopaei M, Medicinal plants and the human needs, *J.Herb.Med. Pharmacol.*, 1(1), 2012, 1-2.

Sadeghi E and Borjjan A, Medicinal Plants of Cheshme anger region(Shiraz), *J.Res.Plants Sci.*, 1(7), 2013, 25, 42-59.

Saki K, Bahmani M, Rafieian-Kopaei M, The effect of most important medicinal plants on two important psychiatric disorders (anxiety and depression)-a review, *Asian Pac.J.Trop.Med.*, 7(1), 2014, 34-42.

Saki K, Bahmani M, Rafieian-Kopaei M, Hassanzadazar H, Dehghan K, Bahmani F, Asadzadeh J, The most common native medicinal plants used for psychiatric and neurological disorders in Urmia city, northwest of Iran, *Asian Pac.J.Trop.Dis.*, 4(2), 2014, 895-901.

Sharififar F, Kouhpayeh A, Motaghi MM, Amir-Khosravi A, Pou-Mohseninasab A, The reviews ethnobotany of medicinal plants city of Sirjan, Kerman Province, *J.Herbal Drugs*, 3, 2010, 19-28.

Zolfaghari A, Adeli A, Mozafarian V, Babaei S, Habibi-Bibalan Gh, Identification of medicinal plants and indigenous knowledge of local people Arasbaran, *J.Med.Arums.Plants*, 28(3), 2013, 534-550.