



An overview of the important analgesic herbs in Iran

Arash Momeni Safarabadi^{1,2}, Saber Abbaszadeh^{1,3},
Hamed Sepahvand^{1,2}, Farzad Ebrahimi⁴

ABSTRACT

Pain is an unpleasant feeling or emotional experience associated with actual or potential tissue damage. Even today, the control and treatment of pain remains one of the most challenging issues in medical world. An increased demand for phytotherapy and the availability of a variety of medicinal plants in Iran made it essential to study this subject. The challenges in the development of new analgesic drugs has also drawn attention towards this subject. To conduct this review, the terms medicinal plant, extracts, essential oils, traditional medicine, pain, acute pain, and chronic pain were used to retrieve relevant publications from the citation databases Magiran, SID, Google Scholar and Scopus. The subject related articles were retrieved and irrelevant articles were excluded. Based on the results, the medicinal plants such as *Lavandula officinalis*, *Scrophularia striata*, *Vitis vinifera*, *Matricaria recutita*, *Solanum melongena* L., *Hyoscyamus niger*, *Achillea millefolium*, *Propolis*, *Vitex agnus castus*, *Malva Parviflora*, *Cinnamomum zeylanicum*, *Artemisia herba alba*, *Elaeagnus angustifolia* L., *Anethum graveolens*, *Phoenix dactylifera*, *Hypericum perforatum* L., *Ziziphora clinopodiodes*, *Lactuca sativa longifolia* and *Tanacetum parthenium* etc. are among the most important analgesic plants. The medicinal plants and their active ingredients can be used to produce analgesic drugs and products. The anti-nociceptive effects of these herbs and their potential effects through inflammatory processes, inhibition of the release of arachidonic acid, synthesis of prostaglandins and its effect on the opioid system, with peripheral anti-nociceptive mechanism and cholinergic pathways, stimulation of GABA A receptors, COX-1 and 5- LO and central and environmental mechanisms. Key words: Pain; Medicinal plants; Iran

Citation: Safarabadi AM, Abbaszadeh SA, Sepahvand H, Ebrahim F. An overview of the most important analgesic herbs in Iran. *Anaesth Pain & Intensive Care* 2018; 22(4):522-528

¹Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran

²Student Research Committee, Health Nursing, Lorestan University of Medical Sciences, Khorramabad, Iran

³Razi Herbal Medicines Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran

⁴Biotechnology and Medicinal Plants Research Center, Ilam University of Medical Sciences, Ilam, Iran

Correspondence: Hamed Sepahvand, Student Research Committee, Health Nursing, Lorestan University of Medical Sciences, Anoshirvan Rezaei Square, Khorramabad, Postal code : 6813833946. Khorramabad Province, (Iran); E-mail: hamedsepahvand110@gmail.com

Received: 10 November 2018

Reviewed: 22 November 2018 3 December 2018

Corrected & Accepted: 9 Dec 2018

INTRODUCTION

Today, control and treatment of pain remains one of the most challenging issues in the medical world. IASP has defined pain as 'an unpleasant feeling or emotional experience associated with actual or potential tissue damage'.¹ In the pathophysiology of pain, there is a very complex relationship between the peripheral and central neurons from the surface of the skin to the cerebral cortex, so that it can be argued that pain is a response involving sensory, emotional and even psychological segments.²

Fifty million people at different ages suffer from pain for which over \$100 million is spent.³ Researchers have always sought to find an approach to eliminate or reduce pain, and many effective efforts have so far been made to identify the mechanisms and treatment of pain.^{4,5} Nowadays, drugs used to relieve pain and reduce inflammation are either narcotics, such as opioids, or non-narcotics; both groups have known toxic and side effects.⁶ They can lead to gastrointestinal disorders, renal lesions, respiratory failure and even dependence.^{7,8} Traditional medicine and the medicinal plants are a good source of analgesic

drugs. Due to confirmed side-effects and adverse effects of chemical drugs, a shift to natural and herbal drugs has become more evident in the recent years. Many herbal sedatives are medicinal plants, that are always available and easy to use, but many people are unaware of their amazing properties. Increased demand for phytotherapy and the availability of rich sources of medicinal plants in Iran prompted us to study this phytotherapy subject. Phytotherapy is a science-based medical practice. It is distinguished from other, more traditional approaches, such as medical herbalism, which relies on an empirical appreciation of medicinal herbs and which is often linked to traditional knowledge.

METHODOLOGY

To conduct this review, the terms *medicinal plant*, *extracts*, *essential oils*, *traditional medicine*, *pain*, *acute pain*, and *chronic pain* were used to retrieve relevant publications from the citation databases *Magiran*, *SID*, *Google Scholar* and *Scopus*. In this study, a total of 28 articles were retrieved from databases. After analysis, 7 articles were removed due to repeatability, very old publication and lack of access to their full text. In the end, 21 articles were selected, which described the effects of herbs and their derivatives on pain.

RESULTS

Based on the results, the medicinal plants such as *Lavandula officinalis*, *Scrophularia striata*, *Vitis vinifera*, *Matricaria recutita*, *Solanum melongena* L., *Hyoscyamus niger*, *Achillea millefolium*, Propolis, *Vitex agnus castus*, *Malva Parviflora*, *Cinnamomum zeylanicum*, *Artemisia herba alba*, *Elaeagnus angustifolia* L., *Anethum graveolens*, *Phoenix dactylifera*, *Hypericum perforatum* L., *Ziziphora clinopodioides*, *Lactuca sativa longifolia* and *Tanacetum parthenium* etc are among the most important analgesic plants. The full list of medicinal plants along with their botanical names, family names, Persian names, doses and certain explanations are given in Table 1.

DISCUSSION

Most of the people use strong painkillers when they are in pain. Some pain relief can be achieved by using anti-inflammatory drugs, but these can also produce certain side effects. The usual complications include gastritis and stomach bleeding, heart attack, kidney damage, stroke, and hormonal imbalance. Fortunately, herbal drugs have come to our aid to reduce inflammation and pain. These methods are relatively safe and very effective to reduce pain and inflammation. Medicinal plants are always available

and can be conveniently used, but many people are unaware of their amazing properties. Serotonin is one of the mediators of pain and its importance in controlling pain has been frequently addressed. 5HT₁, 5HT₂ and 5HT₃ receptors have been identified in the spinal cord and there are different and sometimes conflicting reports about the role of these receptors in the transmission and control of pain in various pain tests. An increase in the descending activity of the serotonergic pathway is associated with analgesic effect, and decreased activity of these neurons increases the sensitivity to the agents that cause pain. One of the important factors in pain control is present in the opioid system, and opioid-induced analgesia is due to the pre-synaptic effects of C-fibers and second-degree neurons, as well as the effect on spinal interneurons. The repeated use of opioids leads to three conditions, namely, tolerance, psychological dependence and physical dependence. Medicinal plants have effects on infectious and noninfectious diseases due to active phytochemicals in them.²⁶⁻³¹ Medicinal plants produce specific medicinal effects due to active ingredients such as flavones, flavonoids, anthocyanins, tannins and other antioxidants. It is also likely that medicinal plants addressed in this study reduce pain due to these active ingredients.

For example, a lavender plant with an effect on inflammatory processes has reduced pain in the formalin test.³² The cocute plant inhibits the release of arachidonic acid and the synthesis of prostaglandins, and its effect on the opioid system causes pain.³³ Chamomile produces analgesia with cholinergic mechanisms in the formalin test.³⁴ *Tanacetum parthenium* plant has been anesthetized in the plate test by affecting the inflammatory processes.³⁵ Eggplant has an analgesic and cholinergic pathway.³⁶ The bang grain plant has an analgesic effect with cholinergic and opioid mechanisms.³⁷ The five-seeded plant has an analgesic effect by inhibiting the synthesis of prostaglandins and other inflammatory mediators.³⁸ *Artemisia* has an analgesic effect by stimulating GABA receptors.³⁹ The herb tea also has analgesia by inhibiting the COX-1 and 5-LO enzymes.⁴⁰ Iranian lettuce causes central nervous and environmental mechanisms.⁴¹ In sum, it can be said that medicinal plants have substances that can have a medicinal effect to treat a variety of diseases⁴².

The anti-nociceptive effects of these herbs and their potentials through inflammatory processes, inhibition of the release of arachidonic acid, synthesis of prostaglandins and its effect on the opioid system, with peripheral anti-nociceptive mechanism and cholinergic pathways, stimulation of GABA A receptors, COX-1 and 5-LO and central and environmental mechanisms.

Table 2: Local, herbal and scientific names of analgesic plants and their effects

Scientific name	Herbal name	Local Name	Effects
<i>Lavandula officinalis</i>	<u>Lamiaceae</u>	Ostokhodous	Lavender extract at a dose of 400 mg/kg body weight significantly increased the delay in responding to the stimulant at 5 and 10 minutes after the start of the test and had an analgesic effect. ⁹
<i>Scrophularia striata</i>	<u>Scrophulariaceae</u>	Teshnedari	Administration of <i>Scrophularia striata</i> extract at doses of 100 and 200 in the acute phase reduced the pain sign compared to the control arm. ¹⁰
<i>Vitis vinifera</i>	<u>Vitaceae</u>	Angour	The results of a study showed that grape seed extract, on the first phase of pain, was more than aspirin and less than morphine. The analgesic effect of it was not significantly different in the second phase of pain, less than morphine and aspirin. ¹¹
<i>Matricaria recutita</i>	<u>Asteraceae</u>	Babouneh	Chamomile extract with a dose of 25 mg/kg has an acute analgesic effect. ¹²
<i>Solanum melongena L.</i>	<u>Solanaceae</u>	Bademjan	Eggplant with a dose of 1000 mg/kg reduced the acute and chronic pain of formalin test. ¹³
<i>Hyoscyamus niger</i>	<u>Solanaceae</u>	Bangdaneh	The bang grain extract with doses of 500, 1000 and 2000 mg. The statistical analysis of the data shows that injection of hydroalcoholic extract of bang-a-grain seed in the doses tested showed significant acute and chronic pain due to formalin test in comparison with The control group decreases ¹³ .
<i>Achillea millefolium</i>	<u>Compositae</u>	Boumadaran	Yarrow extract with doses of 25, 50, 75 and 100 mg / kg of mice increased morphine analgesic effect ¹³ .
<i>Propolis</i>	<u>propolis</u>	Propolis	Propolis with a dose of 200 mg/kg reduced symptoms of acute pain in the acute phase ¹⁴ .
<i>Vitex agnus castus</i>	<u>Lamiaceae</u>	Panjangosht	A dose of 565 mg / kg of hydroalcoholic extract of five-fingered plant significantly reduced chronic pain ¹⁵ .
<i>Malva Parviflora</i>	<u>Malvaceae</u>	Panirak	Pump extract of 600 mg dose has a significant relief effect on both acute and chronic pain induced by formalin method. In the acute phase of acute pain with opioid receptor blockage, its analgesic effect was eliminated by naloxone, but this effect was weaker in the phase of inflammation than aspirin ¹⁶ .
<i>Cinnamomum Zeylanicum</i>	<u>Lauraceae</u>	darchin	The extract of cinnamon at a dose of 500 mg/kg reduced the second stage of pain (chronic pain) significantly in formalin test compared to the control group ¹⁷ .
<i>Artemisia herba alba</i>	<u>Asteraceae</u>	Dermaneh	Artemisia extract with doses of 300, 500 and 1000 mg in the first and second stages of formalin test and control group test. The antinociceptive effect of the extract was dose dependent ¹⁸ .
<i>Elaeagnus angustifolia.L</i>	<u>Elaeagnaceae</u>	Senjed	The leaf extract of doses 25, 50 and 100 mg, depending on the dose, had a satisfying effect on the pain caused by formalin injection, and this effect was stronger than the diclofenac drug ¹⁹ .
<i>Anethum graveolens</i>	<u>Apiaceae</u>	Shevid	Hydroalcoholic extract of the dose of 500 mg / kg showed a significant difference with the saline group during the duration of analgesia ²⁰ .
<i>Phoenix dactylifera</i>	<u>Arecaceae</u>	Tarouneh	Various doses of <i>Garanthus</i> extract of 2, 20 and 200 mg / kg have been reduced in an antimicrobial-induced pain due to <i>Armore</i> formalin in mice ²¹ .
<i>Hypericum perforatum L</i>	<u>Hypericaceae</u>	Alafe chay	The antinociceptive effects of intraperitoneal injection of aqueous extract were compared to 200, 400 and 800 mg/kg of <i>Hypericum</i> extract with sodium salicylate as a positive control. The aqueous extract in all doses of analgesia increased in both phases of formalin test, but sodium salicylate was effective only on the second phase of formalin test ²² .
<i>Ziziphora cliniopodiodes</i>	<u>Lamiaceae</u>	Kakouti	The antinociceptive effects of 75 mg coccidiary plants in mice compared with indomethacin ²³ .
<i>Lactuca sativa longifolia</i>	<u>Compositae</u>	Kahouye irani	In one study, an effective analgesic effect of Iranian cucumber plant with a dose of 660 mg is demonstrated and used in traditional medicine. In addition, it seems that one of the possible mechanisms of action of the extract is opioid pathways ²⁴ .
<i>Tanacetum parthenium</i>	<u>Asteraceae</u>	Mokhalaseh	The results of one study showed that the extracts of ethanol extract in different doses of the extract, doses of 30 and 40 mg / kg had more analgesic effects ²⁵ .

Table 2: Herbal plants



Lavandula officinalis



Hyoscyamus niger



Cinnamomum Zeylanicum



Scrophularia striata



Achillea millefolium



Artemisia herba alba



Vitis vinifera



Propolis



Elaeagnus angustifolia.L



Matricaria recutita



Vitex agnus castus



Anethum graveolens



Solanum melongena L.



Malva Parviflora



Phoenix dactylifera



Hypericum perforatum L



Ziziphora clinopodioides



Lactuca sativa longifolia



Tanacetum parthenium

CONCLUSION

A variety of indigenous herbs in Iran have been used by traditional healers for the management of pain and/or sedation. Although some scientific studies have been done, but the subject remains largely

unexplored. Multinational studies with high-tech, and big investment might lead to discovery of safer and more effective analgesic drugs.

Conflict of interest: The authors declare no conflict of interest.

Authors' contribution: All of the authors took part in writing, reviewing and editing the manuscript.

REFERENCES

- Cross SA. Pathophysiology of pain. *Mayo Clin Proc.* 1994;69:375-383. [PubMed]
- Mokhtari M, Shariati M, Sadeghi N. Effect of alcohol extract from leave *Juglans regia* on antinociceptive induced by morphine in formalin test. *Medical Sciences.* 2008;18(2):85-90. [Free Full Text]
- Vallath N, Salins N, Kumar M. Unpleasant subjective emotional experiencing of pain. *Indian J Palliat Care.* 2013;19(1):12-9. [PubMed] DOI: [10.4103/0973-1075.110217](https://doi.org/10.4103/0973-1075.110217)
- Balsinde J, Balboa MA, Dennis EA. Group IV cytosolic phospholipase A2 activation by diacylglycerol pyrophosphate in murine P388D1 macrophages. *Ann N Y Acad Sci.* 2000;905(1):11-5. [PubMed]
- Pergolizzi J, Böger RH, Budd K, Dahan A, Erdine S, Hans G, et al. Opioids and the management of chronic severe pain in the elderly: consensus statement of an international Expert Panel with focus on the six clinically most often used World Health Organization Step III Opioids (buprenorphine, fentanyl, hydromorphone, methadone, morphine, oxycodone). *Pain Pract.* 2008;8(4):287-313. [PubMed] DOI: [10.1111/j.1533-2500.2008.00204.x](https://doi.org/10.1111/j.1533-2500.2008.00204.x)
- Pilotto A, Franceschi M, Leandro G, Paris F, Niro V, Longo MG, et al. The risk of upper gastrointestinal bleeding in elderly users of aspirin and other nonsteroidal anti-inflammatory drugs: the role of gastroprotective drugs. *Aging Clin Exp Res.* 2003;15(6):494-9. [PubMed]
- Dahl V, Reader JC. Non-opioid postoperative analgesia. *Acta Anaesthesiol Scand.* 2000;44:1191-203. [PubMed]
- Domaj MI, Glassco W, Aceto MD, Martin BR. Antinociceptive and pharmacological effects of metanicotina, a selective nicotine agonist. *J. Pharmacol. Exp Ther.* 1999;291(1):390 - 8. [PubMed]
- Rabiei Z, Hojjati MR, Moradi-Nafchi A, Rafeian-kopaei M. Effect of various doses of *Lavandula officinalis* on acute pain in rat. *Razi J Med Sci.* 2015;22(135):115-21. [Free Full Text]
- Sofiabadi M, Azadmehr A, HajiAghaei R, Rezazadeh S, Ajdari Zarmehri H. Effect of ethanolic extract of *Scrophularia striata* on pain in male rats. *J Med Plants.* 2012;2(42):113-9. [Free Full Text]
- Arzi A, Hemati AA, Mehrabi MM, Siahpush A, Nazari Z. The study of analgesic effect of hydroalcoholic extract of *Vitis vinifera* seed on rat by Formalin TEST. *Jundishapur Sci Med J.* 2013;11(6):609-18. [Free Full Text]
- Abbaszade Z, Kesmati M, Fathi Moghaddam H. Study of benzodiazepine like effect of *Matricaria recutita* extract on acute pain in the presence and absence of paraventricular nucleus in adult male rats. *Physiol and Pharmacol.* 2006;10(3):183-90. [Free Full Text]
- Dashti MH, Anvari M, Rezaei M, Fallah H, Zambagh S, Yadegari S. The effect of *Solanum melongena* L. hydro-alcoholic extract on chronic pain in male mice as compared with morphine. *Ira J Med Aromatic Plants.* 2009;25(1):1. [Free Full Text]
- Gheibi NA, Sofiabadi M, Safari T. Effects of propolis extract on pain induced by formalin in male mice. *J Torbat Heydariyeh Uni Med Sci.* 2017;5(4):22-8. [Free Full Text]
- Ramezani M, Amin GH, Jalili A. Antinociceptive and anti-inflammatory effects of hydroalcoholic extract of *Vitex agnus castus* fruit in mice. *J Shahrekord Univ Med Sci.* 2010;11(4):46-51. [Free Full Text]
- Valizadeh Z, Sarkaki AR, Nasri S. Evaluation of the effect of *Malva parviflora* hydro-alcoholic extract on pain in male rat. *Jundishapur Sci Med J.* 2018;17(1):95-105.
- Dashtirahmatollahi MH, Vahidi-Mehrjerdi AR, Pilevarian AA, Farzan F. The effect of cinnamon extract on chronic pain in white mice using formalin test. *Shahid Sadougi Uni Med Sci J.* 2009;17(2):57-66.
- Sadighifar H and Zareian P. Evaluation of analgesic effect of hydroalcoholic extract of *Artemisia* in male rats in acute and chronic pain models. *Kurdistan Uni Med Sci J.* 2008;13:30-36.
- Soufiabadi M, Esmaeili MH, Haghdoust H, Gheibi NA. The effect of aqueous extract on pain in rat mice. *Yafteh.* 2008;10(23):23-29.
- Shakiba-Dastgerdi A, Rafeian-kopaei M, Jivad N, Sedehi M, Yousefi-Darani M, Shirani F. Effect of hydro alcoholic extract of *Anethum graveolens* leaves on time response to pain stimuli in mice. *J Shahrekord Univ Med Sci.* 2013;15(2):70-76. [Free Full Text]
- Dashtirahmatatabadi MH, Vahidimehrjerdi AR, Panjalzadeh ME. The effect of aqueous alcohol extract of *Taraxacum officinale* on chronic pain in mice.
- Khaksarian M, Javan M, Sonboli A, Moetamedi F, Nazari M, Mahmoudvand H. *Hypericum perforatum* L. showed antinociceptive effects through opioidergic and serotonergic systems. *Lorestan Uni Med Sci J.* 2017;5(1):11-7. DOI: [10.15405/epsbs.2017.09.4](https://doi.org/10.15405/epsbs.2017.09.4)
- Zendehe M, Ghahhari KH, Vaezi GH, Shariatfar N. The study of hydroalcoholic extract of *Ziziphora tenuifolia* on visceral pain with writhing test in mice. *Horizon Med Sci.* 2009;15(3):24-30. [Free Full Text]
- Nasri BS, Asgharimehrabad J, Mahmoudifar F. Effect of hydro-alcoholic extract of Iranian lettuce leaf on pain in male mice. *Gonabad Uni Med Sci J.* 2010;16(2):5-11.
- Parvin N, Samani RA, Shahinfard N, Reissi S, Alibabaei Z, Asgari A. Effect of alcoholic extract of *Tanacetum parthenium* on acute pain in rat. *JQUMS.* 2012;16(1):15-21. [Free Full Text]
- Faryadian S, Sydmohammadi A, Khosravi A, Kashiri M, Faryadayn P, Abasi N. Aqueous extract of *Echium amoenum* elevate CSF serotonin and dopamine level in depression rat. *Biomed Pharmacol J.* 2014;7(1):137-42. DOI : [10.13005/bpj/463](https://doi.org/10.13005/bpj/463)

27. Baharvand-Ahmad B, Bahmani M, Zargaran A, Eftekhari Z, Saki K, Baharvand-Ahmadi S, et al. Ruta graveolens plant: A plant with a range of high therapeutic effect called cardiac plant. *Der Pharmacia Lettre*. 2015;7(11):172-3. [[Free Full Text](#)]
28. Bahmani M, Shirzad H, Mirhosseini M, Mesripour A, Rafeian-Kopaei M. A review on ethnobotanical and therapeutic uses of Fenugreek (*Trigonella foenum-graceum* L.). *J Evid Based Complementary Altern Med*. 2016 Jan;21(1):53-62. [[PubMed](#)] DOI: [10.1177/2156587215583405](https://doi.org/10.1177/2156587215583405)
29. Froushani SMA, Zarei L, Ghaleh HEG, Motlagh BM. Estragole and methyl-eugenol-free extract of *Artemisia dracunculus* possesses immunomodulatory effects. *Avicenna J Phytomed*. 2016;6(5):526-34. [[PubMed](#)]
30. Baharvand-Ahmadi B, Bahmani M, Naghdi N, Saki K, Baharvand-Ahmadi S, Rafeian-Kopaei M. Medicinal plants used to treat infectious and non-infectious diseases of skin and skin appendages in city of Urmia, Northwest Iran. *Der Pharmacia Lettre*. 2015;7(11):189-96. [[Free Full Text](#)]
31. Abbasi N, Jalilian FA, Abdi M, Saifmanesh M. A comparative study of the antimicrobial effect of *Scrophularia striata* Boiss. extract and selective antibiotics against *Staphylococcus aureus* and *Pseudomonas aeruginosa*. *J Med Plants*. 2007;1(Suppl. 3):10-18. [[Free Full Text](#)]
32. Heidari MR, Zahedi MJ and Rezvani H. Analgesic effect of *lavandula officinalis* and histopathological studies in mice. *Scientific-Res J Shahed Uni (DANESHVAR)*. 2000;30(7):23-30.
33. Zendeheel M, Ghahhari J, Vaezi GhH, Shariatifar N. The study of hydroalcoholic extract of *Ziziphora tenuior* on visceral pain with writhing test in mice. *Ofoogh-e-Danesh. GMUHS Journal*. 2009;15(3):24-30. [[Free Full Text](#)]
34. Vahidi A, Dashti MH, Jamaladdini SH. Antinociceptive effect of chamomill on formalin induced pain in rat. *Sci J Shahid Sadoughi Univ Med Sci Health Ser*. 2001;9(2):60-65.
35. Parvin N, Samani RA, Shahinfard N, Reissi S, Alibabae Z, Asgari AA. Effect of alcoholic extract of *Tanacetum parthenium* on acute pain in rat. *J Qazvin Univ Med Sci*. 2012;16(1):15-21. [[Free Full Text](#)]
36. Rahmatabadi MHD, Anvari M, Sadrabadi MR, Tafti H, Zambagh S, Sadegh Y, et al. The effect of *Solanum melongena* L. hydro-alcoholic extract on chronic pain in male mice as compared with morphine: *Iran J Med Aromatic Plants*. 2009;25(1):129-38. [[Free Full Text](#)]
37. Kiasalari Z, Khalili M, Ashrafi M. Antinociceptive effect of alcoholic extract of henbane seed on the different phases of estrous cycle of female rats. *J Gorgan Uni Med Sci*. 2010;11(4):1-7. [[Free Full Text](#)]
38. Sadeghifard H, Zareian P. The study of analgesic effect of hydroalcoholic extract of *Artemisia herba alba* in acute and chronic models of pain in male rats. *SJKU*. 2009;13(4):30-36. [[Free Full Text](#)]
39. Khaksarian M, Javan M, Sonboli A, Motamedi F. Inhibition of acute and chronic pain in male rats by aqueous extract of *Hypericum perforatum* L. *Yafteh*. 2004;5(3):11-18. [[Free Full Text](#)]
40. Heshmatian B, Nasri S, Mehrabad JA, Far FM. Antinociceptive effects of hydroalcoholic extract of *Lactuca sativa longifolia* leaves in male mice. *The Horizon Med Sci*. 2010;16(2):5-11. [[Free Full Text](#)]
41. Bahmani M, Khaksarian M, Rafeian-Kopaei M, Abbasi N. Overview of the therapeutic effects of *origanum vulgare* and *hypericum perforatum* based on Iran's ethnopharmacological documents. *J Clin Diagn Res*. 2018;12(7):1-4. DOI: [10.7860/JCDR/2018/34177.11728](https://doi.org/10.7860/JCDR/2018/34177.11728)



Honors & Awards

Professor Fazal H. Khan and Professor Naveed Masood have been awarded the covet Life Time Achievement Award by Pakistan Society of Anesthesiologists, Karachi chapter, in 39th Annual conference of the chapter. Editorial Board congratulates both eminent scholars on recognition of their meritorious services in promotion and progress of the anesthesiology.



Prof. Naveed Masood, Prof. Fazal H. Khan