

Phytotherapy for anxiety in Iran: A review of the most important Anti-anxiety medicinal plants

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ABSTRACT

Background: Anxiety refers to an unpleasant feeling with vague fear with no definite content, and includes uncertainty, inability, and physiological arousal. Anxiety can be a debilitating factor for many daily activities, and may even cause adverse physiological effects on normal functions of the body. Several chemical drugs are used to treat anxiety disorders. However, most of these drugs are associated with several side effects and if they are discontinued, relapse of disorders is likely. Because many of the medicinal plants play a role in treating anxiety and many other diseases, and are used abundantly in traditional medicine, the aim of this review article is to report the native medicinal plants of Iran that are used to treat anxiety.

Methods: In this work, the keywords, anxiety, medicinal plants, extract, essential oil, and Iran were searched for in some databases such as Google Scholar and Scientific Information Database to retrieve and analyze relevant articles.

Results: According to the findings, *Lavandula stricta* Del, *Pimpinella anisum*, *Achillea millefolium*, *citrus species*, *Trigonella foenum-graecum*, *Cassia fistula*, *Passiflora incarnate*, and *Rosa damascene* were the most important native medicinal plants of Iran with anti-anxiety property.

KEY WORDS: Psychiatric diseases, Anxiety, Medicinal plants, Iran.

1. INTRODUCTION

Anxiety refers to an unpleasant feeling with vague fear with no definite origin, and includes uncertainty, inability, and physiological arousal, associated with certain bodily feelings such as nausea, chest tightness, tachycardia, perspiration, and headache (Johnston, 2003). Normally, anxiety is an adaptive, emotional response to stressful physiological, psychological and social stimuli that every person may experience in life (Finn, 2003). Anxiety is considered a common psychological problem, such that approximately 25% of the US population are suffering from this disease. Furthermore, pathological anxiety is one of the most prevalent psychological and mental disorders that leads to disturbance of daily life and suffering (Nikfarjam, 2013; Hasanpour-Dehkordi, 2016; Heydarnejad and Dehkordi, 2010). To treat anxiety, benzodiazepines and barbiturates are used. Many of the chemical drugs that are used to treat anxiety disorders may cause side effects (Clement and Chapouthier, 1998; Clement, 2002).

Currently, despite modern technologies and remarkable scientific and technical progresses, we are observing that many people are seeking to use folk and native medicine, medicinal plants and the products derived from these plants to treat diseases (Bahmani, 2013; Gholami-Ahangaran, 2012; Madihi 2013; Gholami-Ahangaran, 2012; Bahmani, 2014; Asadi-Samani, 2014; Delfan, 2014; Saki, 2014; Asadbeygi, 2014). Medicinal plants are the plants that have one or more organs, containing effective compounds, and therapeutic effects (Karamati, 2014; Parsaei, 2016; Bahmani, 2014; Asadi-Samani, 2015; Nasri, 2013; Bahmani, 2016; Akhlaghi, 2011; Bahmani, 2015; Asadi-Samani, 2013). In many studies, several therapeutic effects of medicinal plants in traditional medicine documents have been confirmed (Jivad, 2016; Rouhi-Boroujeni, 2016; Paesaei, 2016; Ahmadipour, 2016; Mohsenzedh, 2016). Moreover, the effects of medicinal plants have been investigated *in vitro* and in clinical trials (Rafieian-Kopaei, 2013; Rabiei 2013; Kooti 2014; Samarghandian, 2016; Rafieian-Kopaei and Nasri, 2016; Shirani, 2011; Moradi, 2012; 2014).

Studies have shown that the effective compounds in medicinal plants have a biological balance because they accompany other compounds. Therefore, these compounds are not accumulated in the body and cause no or much fewer side effects compared to chemical drugs (Bahmani 2012; 2013; 2014; 2015; Ghasemi Pirbalouti, 2013; Delfan, 2014; Nasri, 2016). In this regard, complementary therapies are increasingly being used in many health care centers. These therapies are less risky, economical, and convenient, and lead to limited side effects (Bahmani, 2015; Sadeghihe, 2007; Ebrahimie, 2015; Amirmohammadi, 2014; Bahmani, 2012; Eftekhari, 2012).

Given the widespread incidence of anxiety among different socioeconomic classes and several uses of medicinal plants to treat various disorders and diseases such as anxiety, the present review article seeks to report the native medicinal plants of Iran that are used to treat anxiety.

2. MATERIALS AND METHODS

The articles with no accessible full text or those that did not address the anti-anxiety properties of the plants directly were excluded from the study. The flowchart below illustrates how the articles were selected for final analysis.

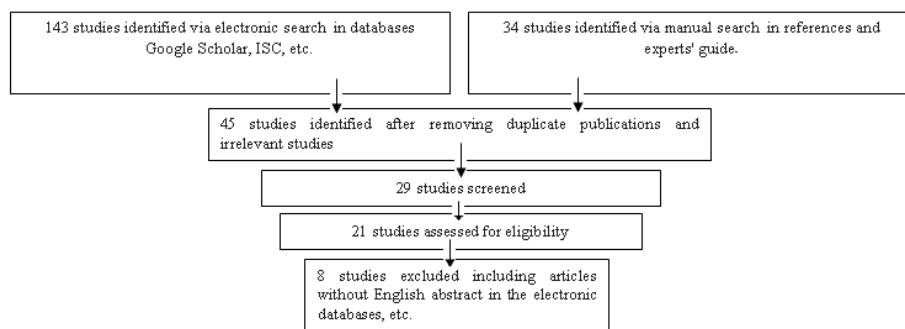


Figure.1.Flowchart for the study review

3. RESULTS AND DISCUSSION

In Iran, *Lavandula stricta* Del, *Pimpinella anisum*, *Achillea millefolium*, citrus species, *Trigonella foenum-graecum*, *Cassia fistula*, *Passiflora incarnata*, and *Rosa damascena* are used to treat anxiety (Table 1).

Table.1.Anti-anxiety medicinal plants of Iran

No.	Scientific names	Family name	Persian name	Descriptions
1	<i>Lavandula stricta</i> Del.	Lamiaceae	Ostokhodous	Aromatherapy with <i>L. stricta</i> Del. relieved anxiety and decreased cortisol concentration in nulliparous women. Furthermore, this therapy caused decrease in serotonin concentration (Tafazoli, 2011).
2	<i>Pimpinella anisum</i>	Apiaceae	Anison	250 and 300 mg/kg of hydroalcoholic extract of <i>P. anisum</i> seed significantly increased the duration of open arm ledges and decreased the duration of closed arm ledges in maze. In addition, this treatment resolved anxiety and relieved anxiety in rats (Niksokhan, 2015).
3	<i>Achillea millefolium</i>	Asteraceae	Boumadaran	100, 200, and 400 mg/kg body weight of hydroalcoholic <i>A. millefolium</i> extract significantly increased the duration of open arm ledges in maze and decreased anxious responses in mice (Zahedi-Khorasani, 2006).
4	Citrus species	Rutaceae	Porteghal	Inhaled essential oil of orange was effective in relieving anxiety of hemodialysis patients with no significant side effects (Kanani, 2012).
5	<i>Trigonella foenum-graecum</i>	Fabaceae	Shanbalileh	Hydroalcoholic <i>T. foenum-graecum</i> extract caused relief of anxiety in male mice. Moreover, 200 and 400 mg of hydroalcoholic <i>T. foenum-graecum</i> extract increased the sleep duration of the mice (Taherian, 2008).
6	<i>Cassia fistula</i>	Fabaceae	Felous	250 and 500 mg of aqueous <i>C. fistula</i> extract caused increase in the entrance and duration of open arm ledges in maze phase Besides that, these doses of the extract increased sleep duration considerably compared to the control group (Vafaei, 2011).
7	<i>Passiflora incarnata</i>	Passifloraceae	Gole saati	Intake of 45 drops of <i>P. incarnata</i> a day for four weeks caused relief of anxiety symptoms in humans (Vazirian, 2002).
8	<i>Rosa damascena</i>	Rosaceae	Gole mohammadi	Inhaled aromatherapy and foot washing with <i>R. damascena</i> , alongside foot washing with warm water, caused relief of postpartum anxiety (Vali pour, 2012).

Phytochemical investigations have indicated that Lavender, anisun, yarrow, orange, fenugreek, felus, passionfruit and Rose are the most important compounds of *L. stricta* Del. (Toyoshi, 2006). Epigenin, luteolin, limonene, linalool, camphor, camphene, alpha-pinene, rutin, and phenylpropanoids such as trans-anthol, methyl

eugenol, anisaldehyde and hydrocarbon monoterpenes including alpha-pinene, camphene, myrcene, and alpha-terpinene are the effective compounds and antioxidants of *P. anisum* (Szabadics, 2005; Samojlik, 2012). The main compounds of *A. millefolium* are polyphenolic compounds, flavones, sesquiterpenes, lactones, betaines, acetylene compounds, tannins, and achilin (Baharvand-Ahmadi, 2016) *T. foenum-graecum* contains a saponin called diosgenin (Varshney, 1984). *C. fistula* contains esterols, chromones, flavonoids, anthraquinones, diterpenoids, triterpenoids, furfural, chromone, crisofanol, and chrysophenine (Daisy, 2010; Kuo, 2002). Chrysin is the most important flavonoid of *P. incarnata* with pharmacological effects (Kamaldeep, 2001). The main compounds of *R. damascena* are citronellol and 2-phenylethylalcohol (Umezu, 2002).

4. CONCLUSION

Given the anti-anxiety properties of these plants which have already been confirmed by scientific investigations and their phytochemical compounds, the effective substances of the plants presented in this review article can be studied in clinical trials to investigate whether they can be used to produce nature-based, anti-anxiety drugs and antioxidants.

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