Pharmacological Properties of Herbal Oil Extracts Used In Iranian Traditional Medicine

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ABSTRACT

Herbal oils also called oil extracts are traditional herbal remedies used to treat several conditions. Beneficial effects are achieved through the combination of nutrients, antioxidants and biostimulants obtained from herbs using gentle nondestructive oil extraction techniques. Therefore, all knowledge of healing effects of herbal oil, acquired over the centuries of trials and mistakes, are applicable only to oil extracts, until proven otherwise. In this study, the data collected by junior medical students divided into several groups from ethno-pharmacologists, herbal-drug sellers and rural native-healers, from different regions of Iran, especially Northwest, Central and Northern provinces. We report here, the herbal oil extract used in Iranian traditional herbal medicine. Thirty-three species, which are used as oil, extract found common in this study as Iranian traditional herbal medicine. According to the data collected in our study 33 percents of the herbal oils have been used for rheumatoid arthritis and joint diseases, arthralgia as anti-inflammatory. 22 percents of them used as analgesic and for sciatic or muscular pains. For hair fall 16 percent and for nourishing the hair roots one percent of the herbal oils have been used traditionally. Ten percent also used as neurotonics and for neurological conditions. Five percent of plant oils used for dermatological usages, skin moisturizing and skin care. The rest indications are 5 percent for internal diseases and 4 percents for miscellaneous and other usages, including gastrointestinal etc.

Key words: Pharmacological activity, herbal oil extracts, Iranian traditional medicine.

Introduction

The extracts of medicinal plants have been already studied for different pharmacological activities. Herbal oils are traditional cosmetic aids and herbal remedies used to nourish and revitalize the skin and treat skin conditions. Beneficial effects are achieved through the combination of nutrients, antioxidants and biostimulants extracts from herbs with vegetable oil. Herbal oil extracts are produced by repetitive extraction of raw herbs into vegetable oils in conditions optimized for preservation of herbal antioxidants, stimulants and nutrients. The process is similar to the one used for alcohol extracts, only vegetable oil is used instead of alcohol. However, herbal oils utilized in traditional herbal medicine are all obtained with vegetable oil extraction, the only available method at those times. Similarly, the limited amount of research and clinical trials available today, was conducted using herbal oil obtained by extraction of herbs into the vegetable oils. Therefore, all knowledge of healing effects of herbal oil, acquired over the centuries of trials and mistakes, are applicable only to oil extracts, until proven otherwise. Clinical trials and scientific research demonstrated biological activity, therapeutic efficiency and safety of herbal oil extracts, conducted during last century.

Herbal oils are obtained by continuous cold extraction of raw herbs into vegetable oils. The process is similar to the one used for alcohol extracts, only vegetable oil is used instead of alcohol. In summary, herbal oil extract are stable, safe (with proper use) and effective preparations of bioactive herbal ingredients, backed by the history of thousands years of use as herbal medicines and anti-aging cosmetics.

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Comparing oil extract with the essential oil or *quinta essentia*, which is responsible for the fragrance of plants; phenolic compounds with a C-3 side-chain and at a lower level of oxidation without any oxygen are classified as essential oils. The oils that are highly enriched in the isoprene structure (Figure 1) are called terpenes, having the general chemical formula C10H16. They occur as di (C20), tri (C30), and tetraterpenes (C40), as well as hemi (C5) and sesquiterpenes (C15). When they contain additional elements such as oxygen, they are called as terpenoids, which are active against many viruses [1].

According our best regard there is no specific report about the herbal oils used in traditional Iranian medicine. We have studied the oil extracts of the herbal used in Iranian traditional medicine.

**Materials and Methods**

For data collection, the junior medical students were grouped into several groups. Then, the information gathered from ethno-pharmacologists, herbal-drug sellers and rural native-healers, from different regions of Iran, especially Northwest, Central and Northern provinces. All data collected, were summarized for every species. For each repeated report of a certain indication we added “a point” to the specification of that plant. If the number of every reported indication was more than 5-12 times we reported that indication or pharmacological effect in our final report in this article. We thought that, the higher frequency of the reports of an activity or indication, may mean the most reliable applications of that plant oil extract in Iranian traditional medicine. We report here, the herbal oil extract used in Iranian traditional herbal medicine.

**Findings:**

33 species, which are commonly used as oil extract found in this study in Iranian traditional herbal medicine. These herbs are presented here with their specifications. We have summarized the collected data as Scientific name, English and native Persian names, therapeutic nature (only as in oil extract), suggested actions and pharmacology, and indication and usage. Other comments also are added from other papers, especially from four articles of Dr. Parsa titled as Medicinal plants and drugs of plant origin in Iran (I-IV). The collected data have been summarized according to the scientific name in the alphabetical order, as follows:

**Allium Sativum L:**

The garlic (or *sîr*, in Persian), is par excellence the potherb of the East, aid digestion, and is a gastric stimulent. Garlic oil is used for severe skeletal pains, insect stings, preventing hail fall and promoting the growth of the lost hairs.

**Amygdalus Communis L:**

This species is correctly called as *Prunus communis* Arcangeli, also as *Prunus amygdalus* Batsch, and in Persian is called as *bādām-e-talkh*. The bitter almond tree, like the sweet, is a native of Iran and Asia Minor, and is indistinguishable in botanical characters. In form and appearance, bitter almonds closely resemble Valencia almonds, but are usually smaller. An ointment made of bitter almonds is applied to furuncles. Some old physicians for hemorrhoids give some recipe, of almond base. The almond oil is also given for the childbirth. The bitter almond oil is used for hair fall, nourishing the hair root, hair conditioner, and arthralgia.

**Anthemis Nobilis L:**

Chamomile flowers or *bābūneh* in Persian is used as oil extract for nourishing the hairs of head and eyebrow, sciatic and joint pains, arthritis, and used as anti-inflammatory.

**Capsicum Annuum L:**

Red pepper or *felfel ghermez* is called as oil for analgesic, sciatic and joint pains, arthritis, varicose veins, backache and muscle spasms.

**Carum Carvi L:**

Caraway or *zīreh-siyāh, zīreh* (in Persian), is used as oil for skin wrinkles, skin dryness, and muscle slimmer.

**Cicer Spp:**

The chick pea is called *nokhod* in Persian. Pea oil is used for nourishing the hairs of head and eyebrow, rheumatoid arthritis, muscle paresis, and used as anti-inflammatory.

**Cinnamomum Zeylanicum Nees:**

Cinnamon tree or *dārchīn* (literally: Chinese tree) is used as oil extract for gout, rheumatoid arthritis, astringent and biostimulant, antineoplastic, and also is used for arthralgia and myalgia. Dr.
Ahmad Parsa believes that the common species is *Cinnamomum cassia*. The cassiabark tree or cinnamon bark from China is kept by druggists, and is a favorite spice. It is used in curry and as an ingredient in medicines. The bark is prepared as a tea for excessive salivation, frequent in Iran. The small, black fruits of the cinnamon tree from China are sold in the bazaars under the name Ghurfah. The leaves of Cinnamon are taken internally for rheumatism [13].

**Coriandrum Sativum L:**

Coriander or cellender is called *geshnīz* in Persian. The coriander plant is cultivated all over Iran, Afghanistan and India. The globular fruits are a well-known spice and flavoring agent. The plant is used in salads and curries, and an infusion of the leaves is said to relieve headache. Tile fruits are smoked to relieve toothache. The leaves are cooked in a kind of soup. The plant is said to be one of the antiaphrodisiac medicines; it is considered to be an annihilator of the erection. In Torbat-Heydariyeh of Khorassan the infusion prepared with the jujub fruits is considered as a good stomachic (Parsa: 83f). Coriander oil is used for body and face wrinkles, joint and muscular pains, and an oxytocic agent.

**Corylus Avellana L:**

The filbert or fandogh in Persian, is used as oil for nourishing the hairs of head and eyebrow, sciatic and joint pains, arthritis, and backache. The oil extract supports the compromised muscles and joints.

**Dianthus Spp:**

The pink or carnation is called *mīkhak* in Persian. Pink oil is used as general analgesic and tooth pain killer, tooth caries, biostimulant and anti-inflammatory agent.

**Elaeagnus Angustifolia L:**

Russian olive or oleaster is called *senjed* in Persian. The oil is used for myalgia, rheumatoid arthritis, and knee-ache.

**Eruca Sativa Lam:**

The rocket salad is called *mandāb* in Persian. The rocket oil is used as oil for nourishing the hairs of head and eyebrow, sciatic and joint pains, arthrosis, and backache. The oil extract supports the compromised muscles and joints.

**Euphorbia Spp. L:**

Euphorbia specially *Euphorbia helioscopia* L. called *forfiyān* in Persian, perhaps a loanword from Greek εὐφορβίον, intermediated through Arabic. Euphorbia oil is used for arthrosis, backache, myalgia, neuralgia, rheumatoid arthritis.

**Foeniculum Vulgare Miller:**

Common fennel is called *rāziyāneh* in Persian, and it is used long lastingly as a remover of waist hairs all the face and the body. Fennel is a stately, umbelliferous plant cultivated for its fruits in several parts of Europe and Asia. The fruits are frequently, in Iranian traditional medicine, confounded with aniseed (*Pimpinella anisum* L.). The taste is sweet and aromatic, and the fruits contain from 3 to 5% of essential oil with anethol as the principal ingredient. Fennel is valued as a condiment and enters into mixtures given for dysentery and colds.

The root of the fennel plant is a rather important medicine in native practices, as in infusion for toothache and to relieve pains following childbirth. The infusion of the seeds is given for a chronic diarrhea. The decoction of the seeds is considered as a special tonic for optic nerve, and is also given for stomach-ache in Torbat-Haydari of Khorassan [13].

**Iris germanica L:**

German iris or *zanbagh* (in Persian) is used as oil extract for kidney, uterus, and urinary bladder pains, Pre-menorrheal symptoms (PMS), anti-inflammatory and sedative.

**Lavandula Vera DC:**

The commonest species of lavender in Iran are *Lavandula stricta* and *Lavandula sublepidota*, which the latter is specific to this geographical region. But as herbal medicine *Lavandula vera* (in Persion: *Ostokhoddās*) also is used as oil extract for neuralgia, rheumatoid arthritis, arthrosis and sciatic pains. The general pharmacological activity of this extract is as a nurotonic.

**Mentha Piperta L:**

Peppermint, Lamb-mint and black mint is called *na'nā* in Persian. Peppermint oil is used for migraine headache, common cold symptoms, disinfectant, and decongestant.

**Myrtus Communis L:**

The myrtle is called *mord or murd* in Persian. The myrtle oil is used for itching, hair fall, dandruff, nourishing the hair roots, and the inflammations of urinary tract.

**Nigella Sativa L:**

Garden fennel-flower, Black cumin or *siyāh-dāneh* (in Persian) used as oil for generalized pains, sciatic pain, arthralgia, and lactagogue.
Olea Europaea L:

Common olive or zeytūn (in Persian) is a famous medicine among native practitioners. Cultivated, in north and Baluchistan, for its fruits and for the extraction of oil, the olive tree provides an important article of diet and medicinal remedy. Leaves are sometimes prepared as a decoction for coughs. It is referred to in Koran. The olive oil is used as a laxative, purgative, liver protector, cholagogue, and prevents the hair fall.

Peganum Hermala L:

Hermel paganum is called Espand in Persian, and its oil extract is used as hair tonic, nourishing the hair root and prevention of hair loss and dandruff.

Pistacia Atlantica Desf. Subsp. Kurdica (Zohary) Rech:

Turpentine tree called saqqaż in Persian is used as oil extract for skeletal pains, rheumatic arthritis, arthrosis, sciatic pain, and arthralgia.

Ricinus Communis L:

Castor bean oil (rōghan Karchak, in Persian) is used as laxative, purgative, and also for radiological study, joint pains, and nourishing the hair root.

Rosa Centifolia L:

Rose or gol-e-sorkh (exactly Cabbage rose) grows wild in the western Iran. The petals are considered as a purgative. The chewing of the flowers is considered as a tonic for the gums. The poultice of the flowers is used as a resolvent of the inflammatory pains of stomach. The decoction of the flowers is given for the ulcers of intestine. The powder of the rose-buttons and that of the seeds is given as astringent in hemorrhage and diarrhea. The leaves macerated in sesame or olive oil are left to be dried in the sun. The leaves are squeezed or pressed after becoming white; they are succeeded by the new ones, and this should be repeated seven times. The oil so obtained is considered as a strong derivative and astringent used externally for rash without fever; united with the white of the egg it is given for the intestinal ulcers, and diarrhea [14]. It is used as oil for softening the dry skins, anti-inflammatory, skin freckles, and skin tonic.

Rosa Centifolia L:

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Rosemary also in Persian as roz-mārī is used as oil for preventing hair fall, nourishing the hairroots, sciatic and joint pains, rheumatoid arthritis, and used as anti-inflammatory.

Ruta Graveolens L:

Common rue (sodāb, in Persian) is used as oil for kidney and urinary bladder pains, head-ache, arthralgia and myalgia.

Sesamum Indicum L:

Oriental sesamum is called konjed in Persian. Sesamum oil is used for superficial dermal burns, dermotonic, and gastrotonic.

Soswellia Carterii L:

In Persian kondur, from Greek χόνδρος, in French encens, is used as oil for ostealgia, muscle cramps, and amnesia and is used for memory enhancer.

Triticum Aestivum L:

The wheat sprout oil or javān-e-gandom, is used for dermotonic and skin beauty, face freckles, moisturizing, and repairing the minute pores of the face skin.

Urginea Maritime (L.) Baker:

Shore sea onion is called as piyāz-e-‘onsol in Persian. The oil extract is used as hair falling due to breakage, segmental hair fall, and nourishes the hair roots. It is also used as joint and muscle pains.

Urtica Dioica L. Var. Dioica:

Big-sting nettle or in Persian gazaneh, is cooked in some parts of Iran and is eaten as a potherb. Sting nettle oil nourishes the hairs, and is used for rheumatoid arthritis, gout, eczema, and spasmodic contractions.

Viola Tricolor L:

Wild pansy is called banafsheh in Persian, meaning a violet flower. Parsa says violet flowers are regarded in Iran and the Punjab as a valuable medicine. The drug is astringent, demulcent, and diaphoretic, and mixed with lime juice and sugar, is administered as an infusion for fever and headache [14]. Pansy oil is used for sinusitis, headache, rhinitis, xeromycteria (dryness of the nasal passage), anti-inflammatory and analgesic, also it is used for rheumatoid arthritis.

Zingiber Officinale Rosc:

Ginger or officinal ginger is called zanjabil in Persian. Ginger oil is used for rheumatoid arthralgia, relaxant of peripheral vessels, and diaphoretic (causing the secretion of sweat).
Fig. 2: The pie graph demonstrating the Herbal Oil Indications, according the data collected in our study. Abbreviations: RA & J: rheumatoid arthritis and joint diseases, arthralgia as anti-inflammatory; A & Sc: analgesic and sciatic or muscular pains; HF: hair fall; NHR: nourishing the hair roots; N: neurotonics and neurological usages; D: dermatological usages, skin moisturizing and skin care; Int: internal diseases; Mis: miscellaneous and other usages, including gastrointestinal etc.

Results and Conclusion:

According to the results, the indications of herbal oils in Iranian traditional medicine, according the data collected in our study has been shown in Figure 2. The results showed 33 percents of the herbal oils have been used for rheumatoid arthritis and joint diseases, arthralgia as anti-inflammatory. 22 percents of them used as analgesic and for sciatic or muscular pains. For hair fall 16 percent and for nourishing the hair roots one percent of the herbal oils have been used traditionally. 10 percent also used as neurotonics and for neurological conditions. 5 percent of plant oils used for dermatological usages, skin moisturizing and skin care. The rest indications are 5 percent for internal diseases and 4 percents for miscellaneous and other usages, including gastrointestinal etc. We have studied the phenotype and genotype of some bacterial strains in Iranian livestock. We suggest using these oil products for studying the antimicrobial activity on these strains.

The practice and study of medicine in Persia has a long and prolific history. The Iranian academic centers like Jundishapur University (3rd century AD) were a breeding ground for the union among great scientists from different civilizations. These centers successfully followed their predecessors’ theories and greatly extended their scientific research through history.

Among the brilliant contributors to the sciences of Pharmacy and Medicine during the Arabian era was one genius who seems to stand for his time - the Persian, Ibn Sina (about 980-1037), called Avicenna by the Western world. Pharmacist, physician, philosopher and diplomat, Avicenna was a favorite of Persian princes and rulers. He wrote in Arabic. His pharmaceutical teachings were accepted as authority in the West until the 17th century, and still are dominant influences in the Orient. He composed the Kitab ash-shifa’ ("Book of Healing"), a vast philosophical and scientific encyclopedia, and the Canon of Medicine, which is among the most famous books in the history of medicine. Avicenna’s Book of Healing was translated partially into Latin in the 12th century, and the complete Canon appeared in the same century.

References