

Neuroprotective Plants; What, How, And Why? A Narrative Review

Mohammadjavad Hoseinpourafard^{*1}, Morteza Izadi², Mohammad Nasehi³, Mohammad Torabi-Nami⁴, Mohammad-Reza Zarrindast¹

¹ Institute for Cognitive Science Studies, Tehran, Iran.

² Health Research Center, Baqiyatallah University of Medical Science, Tehran, Iran.

³ Islamic Azad University, Tehran Medical Sciences Branches, Tehran, Iran.

⁴ Department of Neuroscience, Shiraz University of Medical Sciences, Shiraz, Iran.

* Corresponding Author

Mohammadjavad Hoseinpourafard

E-mail: hp.javad@gmail.com

Submission Date: 19/11/2015

Accepted Date: 20/01/2016

Dear Editor, salutation;

As you know, neuroprotective plants are utilized in healthy custom by ancient people in all of the world. These products apply by many format such as drink, inhaler, pomade, and so on. Lavandula (ostokhodoos), Matricaria (Babouneh), Lemon balm (Badranjbouyeh), Hyoscyamus niger (Bang daneh), Orange blossom (Baharnarenj), Matricaria (Bidmeshk), and Matricaria (Tarangabin) are 7 of important neuroprotector agents that have the most usage in Iran. This serial study has focused on this 1st series of narrative review because of the natural neuroprotector agent's use in so wide variety forms. Effective substance is real aim for their applications. The medicinal uses of neuroprotector plants are least exploited. These may provide more effective to aid in the control of many kind of health disorder and improve patient quality of life. The data was collected from different sources. So taking these into consideration, the current issue about neuroprotector plants, covering general aspects such as basic properties to help classify them. An overview of current search for natural specification. This survey on use belonging to what, where, when, how, and why that formed the ontology tool in this study for all different types of neuroprotector plants. The data showed that neuroprotector plants can be exploited for human healthy frontier value so many of these materials possess medicinal properties so can be utilized for curing many neurobiological problems as a complementary way. During this narrative about 49 of them would be produced in 7 papers in a series of time.

Table1. Lavandula (1, 2)

| | Name | Lavandula |
|--------------|-----------------|--|
| What | Scientific name | Lavandula spica |
| | Properties | Perennial plants, neutral, and has thick stems and brown. A cluster of small flowers blue to purple or crimson. Its height is about 30 to 60 cm. Its leaves are covered with oil containing cracking and pitting. The flowers of this plant are blue or violet. The essential oil in the leaves and flowers of the plant and stored. |
| | Substance(3) | Linalol and linalyl acetate |
| | Function(4) | Hot |
| | Flexibility(4) | Dry |
| Where | Iran | Northern Iran and Tehran |
| | Other countries | Europe, Asia, Africa, and America |
| How | Form | Brewed drink, topical Rubbing, and Sleep Pillow |
| | Prepare | Herbal tea |
| Why | Effectiveness | Improvement in flatus, bur bur, bowel edema, nausea, intestinal colic, convulsions, headache, insomnia, joint pain, sudden temporary paralysis of facial muscles. Diuretic, resolving the obstructions (blockage within the digestive). Improvement in CNS, memory, brain tissue and nervous tonic, sedative and hypnotic. |

Table2. Matricaria (Babouneh) (1, 2)

| | Name | Matricaria |
|-------------|-----------------|-----------------------|
| What | Scientific name | Matricaria chamomilla |



| | | |
|-------|-----------------|--|
| | Properties | Small and approximately 30 cm tall perennial plant with fragrant scent that grows in meadows and sandy land. Its stem colored red, green and or white. Its leaves have the small cuts with narrow and irregular form and covered with vegetable wool. |
| | Substance | Camazolin, Anthemique Acid, tannin, phytosterol, mucilage, and amino acids such as glycine flavonoids such as apigenin, hydroxy, and methoxy coumarin Vitamins such as A, B1, B2, and B9 (folate) Minerals such as iron, potassium, zinc, manganese, magnesium, and copper Antioxidant and pure saccharides |
| | Function | Hot |
| | Flexibility | Dry |
| Where | Iran | Lawns and sandy ground around the country, including Azerbaijan, Lorestan, Fars Western Ghir va karzin, poldokhtar; Khuzestan, ize, seven goals, Branch, RAMHORMOZ, and PA; around Tehran, Damavand, and grows in forests Fandoglo of Vilbage namin |
| | Other countries | Chamomile is a native plant of the Mediterranean region, Asia Minor, but its sources have reported. Today, this plant is widely distributed in Europe, West Asia, North Africa, North and South America, and Australia has found. Some species of daisies in various parts of Europe also grows |
| How | Form | Decrease (about 25%) and significant fluctuations in glucose control caused by renal and neurological problems. decrease the cholesterol [LDL] and thus preventing heart disease - coronary arteries. Matricaria effects on the nervous system: the inhibitory effect on neurologic disorders, sedative, called flavonoids apigenin, an anxiolytic compounds that contain neural connections in the brain similar to benzodiazepines but not addictive. Increased amino acid glycine in the body (nerve and muscle relaxants) herbal tea consumed before bedtime] MC effect on the skin: eczema and skin wound healing [to face creams and lotions; MC effect on the digestive system: Sore throat is healing [mucilage (mucilage), strengthening the stomach, reduce flatulence, gastrointestinal pain relief, stomach, antiseptic, increase gastrointestinal discharge, neurological, inflammatory bowel disease, and relieve inflammation of the stomach. [Boiled or herbal tea] anti edematous, , anti-vomiting and nausea, diarrhea treatment, antispasmodic, antiviral, improving intestinal flora. According to property [antioxidant] helps to keep the body from damage caused by radicals. It has protective effects on liver and prevents liver damage. |
| | Prepare | |
| Why | Effectiveness | Flavonoids: plant oils which inhibit the release of inflammation-causing substances in the body [anti-inflammatory]. Phytosterols are naturally occurring plant compounds like cholesterol, there was low uptake of negatively interfere with the absorption of cholesterol. [Antioxidant] protect the body against oxidants present in the environment responsible. Thus the circle of free radicals that damage cells is to prevent their effects. Hetero-polysaccharides: Because white blood cells are stimulated immune activity, the effect is to boost the immune system. Regular use of this herb helps boost the immune system naturally and as a result the body's resistance against viruses such as colds and infections increases. Coumarin (blood thinner (anticoagulants)) |

Table3. Lemon balm (Badranjbouyeh)(1, 2)

| | Name | Lemon balm (<i>Melissa officinalis</i>) |
|-------|-----------------|---|
| What | Scientific name | <i>Melissa officinalis</i> |
| | Properties | And wild herbaceous plant of the mint leaves large dark mint leaves and roughly circular and has many branches. Its leaves are removed from the root and are greenish yellow in color and shaped like an oval or heart-shaped and has a serrated edge to them. its has a square stem with a little vegetables wool. Besides the leaves, flowers with sepals yellow and white color first and then become purple. Thirty to eighty centimeters tall promoted. |
| | Substance | The green parts of the plant materials, including: oleic acid, Citral, geraniol and rosemary acid there. Volatile oil "Citral", Citrallemon scent is spicy. Lemon balm leaves are tannins. Limonene and flavonoids |
| | Function | Hot |
| Where | Flexibility | Dry |
| | Iran | Along the water channels in the Caspian steppes, City and its environs, roudbar, Tehran surrounding areas in some parts of West Azerbaijan province, and some eastern regions. |
| | Other countries | Mediterranean origin, but it's also found in Europe and Asia. And it can be found. |

| | | |
|-----|-----------------------|---|
| How | Form | The leaves and young twigs of the plant can be used. Oil, oil extracts, oils, ointments, compresses, herbal tea, decoction, syrup and it is being produced. |
| Why | Prepare Effectiveness | Relaxing, fun and exhilarating, mouth freshener, treatment of heart disease - GI (gastro - intestinal) Chngzdgy feel like removing the stomach, improve hiccups, improve vomiting during pregnancy, heart palpitations, headaches, unilateral, dizziness, fixes nervousness, insomnia treatment, treatment of anemia in young girls, a tooth nerve pain relief and relieve irritability in young girls and women, increase intelligence and memory, improve shortness of breath, strengthen gums and teeth, treat nightmares, overcome fear of nervous origin . Antihistaminic and antispasmodic effect on isolated guinea pig intestine is shown. |

Table4. Hyoscyamus niger (Bang daneh)(1, 2, 5)

| Name | | Hyoscyamus niger |
|-------|----------------------|---|
| What | Scientific name | Hyoscyamus niger |
| | Properties | Herbaceous and shrub with 80 cm height. The leaves are roughly triangular and sharp and has a relatively deep cuts, so that the pointed lobes are divided and unequal. Leaf length and width of 7 to 20 cm. Distal end of The stem are sessile. Its leaves are light green in color. Its flowers are usually pale yellow. A network of fine violet or purple petals surface is covered. The flowers are usually a fairly regular intervals are the stem and the stem end face are complex. Once fully developed flower becomes the fruit hull containing lots of tiny spherical beads and pale brown in color. The fruit hull of about half a centimeter in diameter, with sepal-like sea at the mouth of which five are sharp, and there is not enclosed. These plants are mainly biennial, but there are also a variety of annuals. Henbane seeds and grains have been especially highly toxic, so it can cause death. Henbane leaves mouse repellent. |
| | Substance | Resin, tannin, mucilage alkaloids hyoscine (young plants), hyoscyamine. Apo-atropine, atropine, Scopin, Scopoline, Tropine, and pyridine. |
| | Function Flexibility | Hot Dry |
| Where | Iran | Tehran, Karaj, north of Iran, Azerbaijan, Urmia, Tabriz, Astara, Ardebil, Arak, Tafresh, Gorgan, roudbar. |
| | Other countries Form | Has been used since the Middle Ages in England. The leaves of the plant and its seeds are used. Its seeds contain analgesic and narcotic. After extraction of drugs, seeds, oils, gums, resins and use it separately. Using dried leaves of henbane alkaloids hyoscyamine content is used for treating alcoholism and opium. |
| How | Prepare | Ear pain and rheumatic pain, use of analgesics (Europe). Anesthetics and anesthetic (in the Middle Ages, along with a combination of Aconitum, datura, and opium for smoke) Of its extract for firming breasts and treat cancer, cancer of the parotid, and has been used for healing cancer. |
| | | Henbane herbal tea as well as hypoglycemic, antispasmodic, carminative, sedative, vasodilator pupils, Housing, and medicines used. Treatment of asthma, bronchitis, coughs and relieve rheumatism recovery of leaf and seed powder with its capacious form of tobacco used to relieve toothache. (India) Mixture of henbane, sage, and datura to use cigarettes to relieve asthma (Russia). The seeds are used to prepare the uterus vaginal pain. Tincture of this plant can be used to improve chest pain, menstruation, eye infections, fever, a kind of blindness, intestinal inflammation, nosebleeds, and abnormal sexual behavior used (homeopathy) |
| Why | Effectiveness | Anti-acetylcholine, anticholinergic, Parasympathetic and rodenticides. Lead antitoxin, anti-salivation, antispasmodic, increases the sexual impotence, astringent, carminative, seizure inducing, hypnotic, laxative, pupil dilator, muscle relaxants, analgesics addictive Due to the highly poisonous henbane alkaloids, may cause death. Symptoms of poisoning include vomiting, headache, increased saliva, seizures and coma is. These symptoms can be caused by oral administration with smoke extraction in advanced stages cause death. 4% tannic acid poisoning of the oral solution and sometimes caffeine or morphine should be used with caution. |

Table5. Orange blossom (Baharnarenj)(1, 2, 6)

| | Name | Orange blossom |
|--------------|-----------------|--|
| What | Scientific name | Orange blossom |
| | Properties | Citrus aurantium is the blossom tree in spring and autumn and winter tree ornament will become orange. |
| | Substance | |
| | Function | Hot |
| Where | Iran | Babul and Shiraz |
| | Other countries | |
| How | Form | Orange blossom essential oils in perfume making, producing seasonal drinks and beverages, jams, reports, and filing applications. |
| | Prepare | |
| Why | Effectiveness | Soothing, Anti convulsion, relieve nervous headaches and migraines, stomach strengthening, modification, irregular heartbeat, relieve anxiety, anti-anxiety, seizure control, prevention of heart attacks, improve sleep or insomnia, appetizer, and cough Citrus aurantium used instead of tranquilizer diazepam before surgery. |

Table6. salix aegyptiaca (Bidmeshk)(1, 2)

| | Name | salix aegyptiaca (Bidmeshk) |
|--------------|-----------------|---|
| What | Scientific name | salix aegyptiaca |
| | Properties | Tree or shrub two basis of race, Willow, and a height of less than 9 meters. It's shaped pale yellow flowers that appear before the leaves. On wood and sharp bumps under the skin there. Its leaves at the base of the male and female are different. The leaves are dark green and lighter fluff behind it. Flowers, trees, the leaves are often oval and wider. Flowers are fragrant pussy. Salicin glycoside. In addition, tree bark, waxes, resins, oxalate, and tannins there. |
| | Substance(7) | phenols and flavonoids such as gallic acid, caffeic acid, myricetin, catechin, quercetin as well as salicin. |
| | Function | Cold |
| Where | Iran | In the semi-arid steppe of the Alborz and Zagros in Arak, Hamadan, Azerbaijan, Fars and western is growing. |
| | Other countries | Europe, America, and Australia |
| How | Form | To relieve ague children Salisin can be dissolved in boiling water and drink it iterative and slowly. Mental extract spike moth (rod) to relieve insomnia due to nervous breakdowns and fixes menstrual pain and discomfort during sleep can be consumed by nerves. Is useful. Blossom oil rubbing pussy forehead relieves headache (hot nature) is. As mentioned this drink is sedative and hypnotic, and boiled with sugar flowers has use in neurological disorders, depression, neuralgia, rheumatism, improves. It is effective heart tonic and for good health. To reduce fever. Pussy strengthening the nervous system and its leaves are boiled with honey calms the nerves. Boiled leaves or bark disposal pussy cause gastrointestinal parasites and worms are |
| | Prepare | |
| Why | Effectiveness | Strengthening the nervous and circulatory systems. Laxative effect on the digestive system and is excreted fluently. rubbing Juice on inflamed edema make it better. Pussy smelling leaves and blossoms will create a positive effect on the nervous system. Consumption by Salisin glycoside compounds in controlling acute rheumatoid arthritis, is effective. Musk willow bark can be soaked in cold water and then smooth out the drinks consumed, the solution reduces fever, pain and inflammation are bitter and astringent, but because it is a soluble powder, which it can be mixed with a little honey or other sweet juice. It is a stimulant laxative and sexual impotence. These herbs will strengthen the digestive system and increases appetite. |

Table7. Manna of hedysarum (Tarangabin)(1, 2)

| | Name | Hedysarum |
|-------------|-----------------|---|
| What | Scientific name | Manna of hedysarum |
| | Properties | Hedysarum leaves are odd-pinnate, with entire leaflets (no notches or indentations). The stipules are free or connate, and stipels (secondary stipules) |

| | | |
|-------|------------------|--|
| | | are absent. The inflorescences are peduncled racemes or heads. Bracts are small, with bracteoles below the calyx, and calyx teeth subequal. The petals are pink, purplish, yellow, or whitish. Vexillum is longer than the wings, with an obtuse keel longer or rarely shorter than the wings. |
| | Substance | |
| | Function | Hot |
| | Flexibility | Wet |
| Where | Iran | Tehran in the Alborz region, the central part Northeastern, East, Southeast, Northeast and Northwest of Iran |
| | Other countries | Asia, Europe, North Africa, and North America |
| How | Form | . |
| | Prepare | . |
| Why | Effectiveness(8) | Some species are used as food plants by the larvae of some Lepidoptera (moth and butterfly) species including <i>Coleophora accordella</i> . Some species, such as <i>Hedysarum alpinum</i> also known as Alpine Sweetvetch, were eaten by the Inuit to help ward off the effects of scurvy due to it being rich in vitamin C. |

References

1. Razavi Pharmacy Razavi Pharmaceutical Institute (RPI); 2013. Available from: <http://www.razavipharma.com/index.php/en/homepage>
2. Pezeshki va Salamat: Rasekhoun; 2011. Available from: <https://rasekhoun.net/article/600/>.
3. Buchbauer G, Jirovetz L, Jager W, Dietrich H, Plank C, Singh S, et al. Aromatherapy: evidence for sedative effects of the essential oil of lavender after inhalation. *Z Naturforsch C*. 1991;30:395-6.
4. Available from: <http://ravazadeh.com/fa/content/ehyaye-salamat-article/herb-article/4107-lavandula-stoechas.html>.
5. Jametarin Majaleye Pezeshki va Salamat 2014. Available from: <http://www.hidoctor.ir/>
6. Tazehaye Darouhaye Guiyahi va Tebe Sonati: Beytoote; 2013. Available from: <http://www.beytoote.com/health/cure-herbaceous.html>
7. Asgarpanah J. Phytopharmacology and medicinal properties of *Salix aegyptiaca* L. *African Journal of Biotechnology*. 2014;11(28):7145-50.
8. Geraci JR, Smith TG. Vitamin C in the diet of Inuit hunters from Holman, Northwest Territories. *Arctic*. 1979:135-9.