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Review Article

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"HERBS IN NEUROPSYCHIATRIC DISORDERS"-A COMPREHENSIVE REVIEW

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ABSTRACT

Human brain disorders vary from a wide range, including Alzheimer's disease, Parkinson's disease, depression, epilepsy, schizophrenia, anxiety, etc. Synthetic drugs available in the market appeared to be expensive, unavoidable and poor compliance on the part of the patient. Therefore, the treatment with drugs of herbal origin is preferred over conventional treatments. This article provides an idea about the herbal medicines used for neuropsychiatric disorders.

KEYWORDS: Neuropsychiatric disorders, Medicinal plants, Herbal medicine.

INTRODUCTION

The medicinal plants are the gift of nature so that the human being can lead a healthy life without diseases. It plays a vital role in the preservation and maintenance of our health. India is one of the most diverse countries in medico-cultural terms in the world, where the herbs sector is part of a tradition honoured in time, which is still respected today. Medicinal plants are considered as much safer and proven elixir in the treatment of various diseases. In our country, more than 2,000 herbs have been recognized.[1] The daily interest in acquiring knowledge about medicinal plants has grown considerably around the world due to the increase of problems as a result of the adverse effects of modern medical science treatments. According to the WHO, 80% of the world's population is directed to natural products based mainly on medicinal herbs for their primary health care needs. Clinical and preclinical studies are still underway to investigate a new plant molecule that is useful for treating various diseases.[2]

Neuroprotective potential of medicinal plants

Neuropsychiatry is the subspecialty of psychiatry that treats disorders at the intersection between neurology and psychiatry. These disorders considerably influence the health of those affected and impair their ability to learn and to work. The pathological process that is common in most neurodegenerative diseases is the accumulation of certain protein aggregates that can be used as a morphological marker of the disease. Neuropsychiatric disorders and neurodegenerative disorders such as bipolar disorder, schizophrenia, anxiety, depression, alzheimer's disease, dementia, cerebrovascular insufficiency, seizures, head injuries and parkinsonism are enormous burden for society. The major symptoms of neuropsychiatric disorders consist of seizures, attention deficit disorder, cognitive impairment, paralysis, uncontrolled fury, migraines, addictions, eating disorders, depression and anxiety, and others. Causes comprise traumatic head injuries, infections, side effects of medications, attention deficit hyperactivity disorder and causal function may be related to environmental factors, genetic predisposition and other factors.[3]

Herbal medicine has been used for a long time to treat neuropsychiatric disorders. Although the exact mechanism of action of medicinal herbs has not yet been determined, it has been shown that some exert anti-inflammatory and antioxidant effects in a variety of peripheral systems. It is believed that the phytochemicals present in vegetables and fruits reduce the risk of neurodegenerative disorders. Over time, several neurotransmitters and signaling molecules were identified, which are considered as newer therapeutic targets. In addition, both conventional and new molecules have been tested against these targets. Phytochemicals in medicinal plants play a vital role in maintaining the chemical balance of the brain by influencing receptor function for the major inhibitory neurotransmitters. In the practice of traditional medicine, it has been reported that many plants treat cognitive disorders.[4] The following are some of the important herbs which are utilised in the treatment of neuropsychiatric disorders.

Aquilaria species

Aquilaria is also known as lign aloes or lign-aloes trees from the family Thymelaeaceae. The plant is

traditionally used as a carminative medicine to relieve gastric problems, coughs, rheumatism, and high fever. Studies showed that agar wood is very effective in treating nervous system related diseases and disorders. The leaves of A. sinensis trees have a role in regulating gastrointestinal effect. It is also reported as an antibacterial and antifungal agent.[5]

Brassica rapa

It is a plant consisting of many cultivated sub species consisting turnip, napa cabbage, bomdong, bok choy and cime di rapa belonging to the family Brassicaceae. Traditionally the plant is used in the treatment of headaches, chest complaints, rheumatism, edemas, gonorrhoea, syphilis and rabies. Glucosinolates and isothiocyanates are the major constituents of turnip, which has anti-cancer effects. Flavonoids, phenolics, indoles and volatile oils are also isolated from the plant. The plant is reported to possess antitumour, antihypertensive, antidiabetic, antioxidant, anti-inflammatory, hepatoprotective and nephroprotective effects.[6]

Crataegus pinnatifida

It is known as Chinese hawthorn from the family Rosaceae. It contains flavonoids, polyphenolic compounds, triterpenene acids. The plant is reported to be very effective in decreasing blood cholesterol levels and also in the treatment of diseases and disorders associated with the heart. Fruits of the plants are effective in improving digestion and in promoting blood circulation. Since the fruits possess astringent properties it can also be utilised in treating heavy menstrual bleeding.[7]

Hypericum perforatum

It consist dried aerial parts including the flowers of *Hypericum perforatum* from the family Hypericaceae. The plant consists of chemical constituents like anthraquinones mainly hypericin and pseudohypericin, flavonoids, phenolic acids like caffeic acid, chlorogenic acid , tannins, saturated fatty acids, vitamins, volatile oils etc. The plant is used for the treatment of mild to moderate depression. The plant is also used in relieving sprains and also as a wound healing agent.[8]

Gynostemma pentaphyllum

It is a herb of the genus Gynostemma belongs to the family Cucurbitaceae which consisits of cucumber, gourd and melons. The constituents reported from the plant are sterols like ergostanol, sitosterol and stigmasterol. Other than this certain other constituents are also isolated from the plant, which include flavonoids, ombuin, ombuoside, rutin, polysaccharides, vitamins. The plant is effective in treating cardiovascular disorders, hyperglycemia, and CNS disorders.[9]

Lippia citriodora

The genus Lippia belongs to the family Verbenaceae. The plant is reported to be a sedative, febrifuge, antiflatulent, antispasmodic and antimicrobial. The major constituents isolated from the leaves are the three phenolic compounds like dihydrocaffeic acid, luteolin-7-o-glycoside and 4-hydroxycinnamic acid. These phenolic compounds possess analgesic, antipyretic, antioxidant, anti-inflammatory activities.[10]

Melissa officinalis

This plant is commonly known as balm mint from the family Lamiaceae. The leaves are used in the production of green tea and also as a flavouring agent. Due to the presence of flavonoids the drug has antioxidant properties.The plant is also reported to possess antimicrobial, antiviral, antispasmodic and antitumour properties.[11]

Musa sapientum

The banana is a herbaceous perennial of the Musaceae family. It contains carbohydrates, catecholamines such as norepinephrine, serotonin, dopamine, tryptophan, indole compounds, pectin have been found in the pulp. Several flavonoids and related compounds were isolated from unripe pulp of plantain. The fruits and stems of the plant are commonly used for the treatment of diarrhoea, ulcer, hypertension. Since the plant is rich in flavonoids it possess antioxidant properties. The plant is also reported as a diuretic and wound healing agent.[12]

Nymphaea lotus

It is a water plant with white flowers wide spread in tropical Africa belonging to the family Nymphaeaceae, commonly known as water lily. Flowers are used in the treatment of male sexual disorder or psychiatric conditions. It is also very effective in treating Rheumatism. The plant also possess anti-cancer effects. The constituents isolated includes flavonoids and phenolic compounds. The plant has antioxidant, anti-inflammatory, antibacterial, antiviral, antifungal activities.[13]

Panax ginseng

It is a perennial herbaceous plant belongs to the family Araliaceae. The constituents isolated from the roots have medicinal properties like lowering blood pressure, lowering hypertension, anti-inflammatory, antineoplastic agents, anti-stress, improve vitality and sexual dysfunctions. The constituents isolated includes ginsenosides, amino acids, phenolics, alkaloids, polypeptides and vitamins.[14]

Passiflora edulis

This plant is a sweet seedy fruit commonly called passion fruit from the family Passifloraceae. Passion flower extracts have medicinal properties like anxiolytic, spasmolytic, hypnotic, sedative, narcotic and anodyne. Passion fruit juice is nutritious fruit juices rich in digestible carbohydrates, ascorbic acid and carotene. Carotenoids present in this plant has an antioxidant activity by acting as a quenching agent.[15]

Valeriana wallichii

It is a rhizome of the genus Valeriana and from the family Valerianaceae. It is a herb used as an analeptic, antispasmodic, carminative, sedative, stimulant, stomachic and nervine tonic. The crude drugs from roots and rhizomes are used as mild sedative. The root contains Valerianic acid, Valerosidatum glycoside, Valepotriates, which is used in sedative and tranquilizer preparation.[16]

CONCLUSION

In the present study, we reviewed 12 plants belonging to various families used in the treatment of neuropsychiatric disorders. This result revealed the traditional knowledge about plants in neuropsychiatric disorders. According to many authors, in their specific studies all these plants possess phytochemical components which have effects on the nervous system. These herbs mentioned in the review are much better than other available psychotropic, antidepressant and anxiolytic drugs, as they do not have uniform toxic effects at the therapeutic dose until traditionally used in antiquity. Traditional herbs suggested in this review are a real interest against neuropsychiatric disorders. Then, further researches will be necessary to identify psychoactive compounds from these plants and their acting mechanisms for neuropsychiatric diseases treatment.

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