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Nootropic Plants: A Review: Part VI

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Abstract

The present article is the 6th in the series of Nootropic plants: A Review. In this article the nootropic role of 6 plants namely, Foeniculum vulgare (Saunf or Madhurika), Vitis vinifera Grapes-Draksha), Albizzia lebbeck (Shirish), Albizzia julibrissin, Ptychopetalum olacoides (Marapuama/Amazon plant) and Tabernaemontana divaricata is discussed. The data was collected from various published sources and compiled.

1. FOENICULUM VULGARE (SAUNF OR MADHURIKA)

Saunf is commonly used and a mouth freshener after taking food. It has a lots of medicinals roles particularly as a nootropic medicine. Foeniculum vulgare Linn. Extract was used as a nootropic and anticholinesterase agent in mice. F. vulgare extract increased step-down latency and acetylcholinesterase inhibition in mice significantly. F. vulgare is employed in treatment of cognitive disorders such as dementia and Alzheimer's disease (Joshi and Parle 2006). Bhatti et al, 2018 have shown the neuroprotective role of F. vulgare seed extract on lead induced neurotoxicity in mice brain. Maqbool et al, 2021 have reported the functional restoration of compression injury of sciatic nerve by methanolic extract of F. vulgare. Abbasi-Maleki et al, 2021 have shown the antidepressant like activity of essential oil of F. vlugare on dopaminergic and serotonergic systems on mice which were subjected to forced swim test.

2. VITIS VINIFERA GRAPES- DRAKSH

Grapes are fruits which are commonly used all over the world for its nutritional value. The aerial parts of Vitis vinifera (common grape or European grape) have been widely used in Ayurveda to treat a variety of common and stress related disorders. Jin et al, 2013 have reported the neuro-protective role of V. vinifera extract on pre-diabetic mice induced by high fat diet. Lakshmi et al, 2014 have shown the neuro-protective role of hydroalcoholic extract of V. vinifera against aluminium induced oxidative stress in rat brain. Aslam and Sultana, 2015 have shown the nootropic activity of V. vinifera juice on memory impaired mice. Deepthi et al, 2019 have shown that V. vinifera acts as anti-Alzheimer’s agent by modualation biochemical parameters involved in cognition and memory. Pazos-Tomas et al, 2020 have claimed that V.

vinifera could be an alternative for prevention of neurodegerative diseses. Chiavaroli et al, 2021 have reported the neuroprotective properties of grape Pomace extracts. Sasaki et al, 2021 have reported the modulation of neuronal cell proliferation by grape skin extract. Fandy, 2022 have reviewed in details the neuro-protective effect of grape seed extract on Parkinson's disease.

3. ALBIZZIA LEBBECK (SHIRISH)

This plant is traditional used for treating asthma, colds, coughs and other allergic diseases. This plant is also has nootropic effects. The effect of saponin containing n-butanolic fraction (BF) extracted from dried leaves of Albizzia lebbeck on learning and memory was studied in albino mice using passive shock avoidance paradigm and the elevated plus maze. The involvement of BF of A. lebbeck as monoamine neurotransmitters in the nootropic action has been shown (Chantawar et al, 2002). Velraj et al, 2009 have shown the antidepressant activity ethanolic extract of A. lebbeck bark in animal models. Srivastav et al, 2016 have shown the anticonvulsant activity of leaf extracts of A. lebbeck in experimental rats. Saleem et al, 2019, have investigated the invivo therapeutic efficacy of A. lebbeck in experimental model of Parkinson's disease. Saleem et al, 2019 also have studied the therapeutic effct of A. lebbeck seed in Alzheimer's disease by experimental and computational methods. Phoraksa et al, 2023 have reported the neuroprotective role of A. lebbeck leaf ectarct against glutamate induced endoplasmic reticulum stress and apoptosis in human microglial cells. They have suggested that the leaf extract of A. lebbeck could be a promising source and alternative approach for prevention of neurodegenerative disease.

4. ALBIZIA JULIBRISSIN

The antidepressant-like effects of the methylene chloride fraction of another species of Albizzia, namely Albizzia julibrissin was also reported to have antidepressant activity in mice. (Kim et al, 2007)

5. PTYCHOPETALUM OLACOIDES (MARAPUAMA) (AMAZON PLANT)

It is a medicinal plant favoured by the elderly in Amazon communities. Piato et al, 2009 profiled the anti-stress activity of P. olacoides. Piato et al, 2010 have reported the antistress role of tonic Ptycopetalum alacoides (Marapuama). Figueiro et al, 2012 have sown the inhibitory effect of P. olacoides on acetylcholine esterase isoform in brain of mice.

6. TABERNAEMONTANA DIVARICATA

Tabernaemontana divaricata (TD), a Thai medicinal herb, has been widely used as an analgesic, sedative, or a cough syrup. Ingkanian et al, 2006 have isolated Vobasinyl-iboga bisindole alkaloids from T. divericata, which is a potent acetylcholineestarase inhibitor.Chattipakorn et al, 2007 have shown the inhibitory effect of T divericata extract on neuronal acetylcholine esterase activity in rats. Moreover, it has been used in traditional rejuvenation remedies as for preventing forgetfulness and improving the memory (Nakdook et al 2010). Khongsombat et al, 2018 have shown the inhibitory effect of T. divericata root extract on oxidative stress and neuronal loss induced by amyloid β_{25-35} peptide in mice.

CONCLUSION

The above list of 6 plants are shown to have neuroprotective and neuroregenarative roles in Ayurveda and Sidhha medicinal practices. This is the 6rd list of nootropic plants and the series continues in subsequent issues.

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