



## Awareness on nootropic herbs among dental students Herbal nootropic agents

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### ABSTRACT

Nootropics herb constitutes of compounds that enhance cognitive performance by increasing mental functions memory, creativity, motivation, and attention, eventually causing individuals to be many alerts and focused. These nootropic herbs tend to enhance brain performances. To assess the awareness on nootropic herbs among dental students. A cross-sectional study was done with a self-administered questionnaire with 10 questions circulated among 100 dental students. The questionnaire assessed the awareness on pharmacological properties, traditional uses, medicinal uses and memory-enhancing function of the nootropic herbs from ayurvedic pharmacopoeia. The responses were recorded and analysed. 17% were aware of nootropic herbs. 5% were aware of their pharmacological properties. 3% were aware of traditional uses. 3% aware of medicinal uses. 12% were aware of memory-enhancing function. The awareness of nootropic herbs usage in clinical practice among dental students was found to be low in this study. Our findings emphasize the importance of incorporating several educational and training programs to dental students to sensitize them to look for alternative and herbal medicines in the treatment of diseases.

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### INTRODUCTION

Nootropics herb intensifies that upgrade psychological execution by expanding mental capacities, memory, inventiveness, inspiration, and consideration, in the long run, making people be a lot of caution and focussed. These nootropic herbs will in general influence the mind exhibitions by means of a few

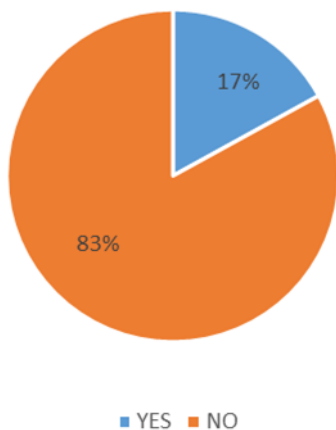
components and pathways, for example, dopaminergic pathway and a few examinations detailed has demonstrated to have an impact in cerebrum exercises, for example, on rewarding memory issue, for example, Alzheimer's ailment, Parkinson's ailment, Huntington's maladies and other mental related issue which are accepted to disable the pathways and systems as referenced previously. Nonetheless, these days with the present consistently developing innovation, current science has been a partner and joining some intellectual advantages notwithstanding ever more secure, cleaner and much successful current assembling methods completely using these nootropic herbs (Gajarmal *et al.*, 2020; Rashmi, 2017).

Nootropic herb is additionally normally known as a smart drug, mind supporter or memory-enhancing drug at the end of the day dependable to improve the cerebrum exercises, subjective execution which prompts very much kept up mental execution inevitably by enhancing in a few per-

spectives, for example, memory, inspiration, focus and consideration (Pal and Ningthoujam, 2019). By and by, the investigation of restorative plants internationally for improving subjective capacity (nootropic herbs) is on the ascent because of their less unfavourable impacts contrasted with regular drugs. Ayurveda gives a rundown of herbs referred to for its nootropic movement just as their multi-reason utility in numerous conditions (Dixit et al., 2018; Nariyal et al., 2017). This study was done to assess the awareness of nootropic herbs among dental students.

**MATERIALS AND METHODS**

A cross-sectional study was done with a self-administered questionnaire with 10 questions circulated among 100 dental students. The questionnaire assessed the awareness about nootropic herbs, their pharmacological properties, traditional uses, medicinal uses and memory-enhancing function of the nootropic herbs from ayurvedic pharmacopoeia. The responses were recorded and analysed.

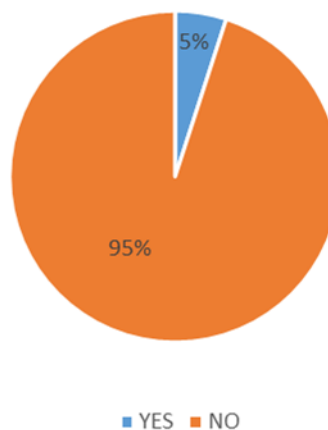


**Figure 1: Awareness of nootropic herbs**

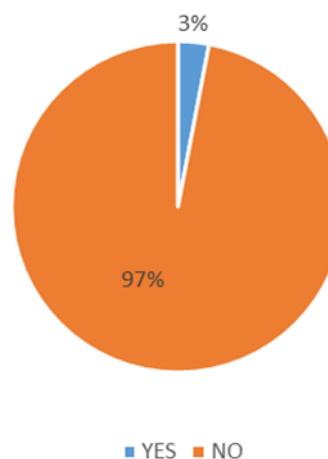
**RESULTS AND DISCUSSION**

17% were aware of nootropic herbs (Figure 1).5% were aware of their pharmacological properties (Figure 2).3% were aware of traditional uses (Figure 3). 3 % aware of medicinal uses(Figure 4 ) 12%were aware of memory-enhancing function (Figure 5).

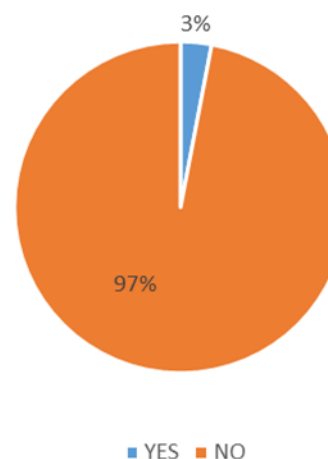
Nootropics, also known as smart drugs comes from the Greek words “noos” (mind) and “tropos” (growing), are supplements that enhance the many functions (cognition, intelligence, memory, attention, concentration, and motivation) of the human brain (Dixit et al., 2018). They are known to alter the neurochemicals (enzymes, neurotransmitters and



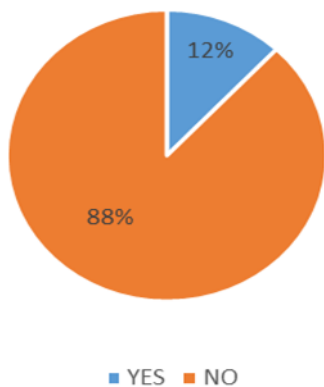
**Figure 2: Awareness of pharmacology of nootropic herbs**



**Figure 3: Awareness of traditional uses of nootropic herbs**



**Figure 4: Awareness of medicinal uses of nootropic herbs**



**Figure 5: Awareness of memory enhancement of nootropic herbs**

hormones) inside the brains Nootropic herbs are a group of medicinal plants described in Ayurveda with many benefits, specifically to improve memory and intellect. In this article, nootropic herbs we discuss are *Bacopa Monniera*, *Ginkgo Biloba*, *Acorus Calamus Linn*, *Rhodiola Rhosea* and *Celastrus Paniculatus* which acts as vasodilator against the small arteries and veins in the brain besides increasing the blood circulation to the brain besides supplementing the brain with important nutrients, energy-providing extra oxygen supply to the brain (Sharma and Bhardwaj, 2020). The brain, on the other hand, will be able to generate energy from the glucose burned which are crucial for the repair of cells, maintenance, electrical and neurotransmitter functional purposes besides being able to soothe the inflammation in the brain, act as a shield and protection of the brain from toxin infections and minimizing brain ageing. As a result, brain activities and performance will be stimulated, improving cognitive skills such as thinking and memory abilities (Ramakrishna and Roshchina, 2018).

Herbal concentrates are viewed as more secure contrasted with the cutting edge drugs with less reactions whereby as per the Ancient Ayurvedic documentations, *Bacopa monniera* is strongly prescribed to treat subjective issues, for example, inadequate concentration and focus, tension and poor engine aptitudes. In any case, because of the great well-being profiles, *Bacopa monniera* is recommended to be incorporated into the advanced drugs and therapeutic framework particularly in the treatment of Alzheimer's and Dementia, upheld by explores and in vivo investigations by means of the instrument of decrease of beta-amyloid stores in creature models which demonstrates its oddities to be commendable investigated upon human clinical studies (Alaoui-Jamali, 2010). *Ginkgo biloba* then again was utilized in antiquated days as a treatment for infirmity in

maturing which has an extra advantage which is to build the life expectancy of the client other than a rewarding psychological issue which was assumed through the impedance with mitochondria dysregulation which can likewise be the thinking used to treat Alzheimer's disease (Sen and Chakraborty, 2019; Sivarajan and Balachandran, 1994).

*Acorus calamus* plant got from the group of Araceae is commonly rehearsed in Ayurveda, Siddha, and Homeopathy was generally used to treat different human mental afflictions, for example, epilepsy, schizophrenia and memory disorders. *Rhodiola* species is a tough perpetual utilized customarily by the Viking those days for reinforce the body and safe framework to help the extended periods of time of work and substantial work (Lee et al., 2000). Besides, *Rhodiola* additionally lessens the free radicals and drugs actuated subjective harm and neuronal wounds influencing the mind execution prompting the psychological issue inevitably. There is proof of studies that *Rhodiola* species improves the psychological work limit just as regularly used to control depression (Chaudhury and Rafei, 2002; Choe et al., 2012).

*Celastrus paniculatus* is utilized generally for acumen incitement and to hone the memory by the extraction of seeds and oil where various alkaloids, for example, celastrene and paniculatin are found while the seeds are lavishly created with unsaturated fats (Dangwal and Singh, 2016). These days, the crude material is frequently remembered for the promoted tonic items for the mind as it shows a successful restorative impact on the focal sensory system improving the psychological state, learning and memory process in intellectually impeded youngsters, used to treat consideration shortage issue (ADH), uneasiness particularly among kids (Moola and Kumari, 2019; Nalini et al., 1995).

The awareness of nootropic herbs usage in clinical practice among dental students was found to be low in this study. Herbal nootropics are effective options to treat brain-related or mental disorders whereby both its individual and combined effects tend to increase the overall activity of brain performance. In addition to that, the quality of a good lifestyle will be ensured with appropriate nootropic herbal extract treatment to heal the cognitive conditions followed with proper diet, exercise and mindfulness to support all along. Herbal nootropics have more to offer compared to modern chemically derived drugs due to higher safety drug profile along with fewer side effects but to act equally as efficient and good as modern chemically derived drugs.

## CONCLUSION

The awareness of nootropic herbs usage in clinical practice among dental students was found to be low in this study. Our findings emphasize the importance of incorporating several educational and training programs to dental students to sensitize them to look for alternative and herbal medicines in the treatment of diseases.

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The authors declare that they have no funding support for this study.

## Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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