Bacopa (Bacopa monnieri)

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General Features

The leaf of Bacopa, or water hyssop, has been used in the Indian medical system of Ayurveda since the 6th century A.D. to help improve mental performance. Its active ingredients (bacosides A and B) have been shown to enhance nerve transmission and are potent antioxidants, which may help to protect brain cells and other lipid-rich tissues in the body from free radical damage (including LDL-cholesterol). Under experimental conditions 100 mcgs of Bacopa monnieri extract was equivalent to 247 micrograms of EDTA and 58 micrograms of Vitamin E in regards to its antioxidant potency. Bacopa is presently being used and studied as a natural substance to strengthen memory and general cognition and to help control epilepsy.[1,.2] It has been used as a mild sedative in cases of insomnia.[2]

Active Constituents

The primary active constituents include Bacosides A and B.[1] The alcohol fraction of Bacopa extract has been shown to provide its strong antioxidant properties.[2]

Clinical Application and Mechanism of Action

1. **Enhancement of Memory, Learning Ability and Intellectual Activity**

   Studies demonstrate that Bacopa supplementation can increase learning ability in laboratory animals. Human studies have also provided evidence that Bacopa may improve intellectual activity in children as well as improve memory and mental performance in adults. As such, it may be of value in the preservation of cognitive function and memory as we age and in the treatment of dementia and other severe cognitive dysfunction states (e.g., Alzheimer's disease).[3,4] In the study by C Stough et al, healthy volunteers were given Bacopa monnieri supplementation (300 mg per day) or a placebo, with follow-up neuropsychological testing performed at weeks 5 and 12. Compared to the placebo group, the subjects given the Bacopa significantly improved speed of visual information processing, learning rate, memory consolidation and demonstrated a reduced state of anxiety. The researchers concluded that these findings suggest that Bacopa monnieri may improve higher order cognitive processes that are critically dependent on the input of information from our environment such as learning and memory.[4] Ayurvedic practitioners have routinely recommended Bacopa supplementaion for impaired memory or cognitive dysfunction for many centuries with reported good results.[1]

2. **Epilepsy**

   Some preliminary evidence indicates that Bacopa may be useful in improving the symptoms and occurrence of epileptic seizures.[5] A study published in 2000 by D Vohora et al, has strengthened this argument and provided evidence that Bacopa supplementation can also correct much of the cognitive impairment induced by anti-epileptic drugs such as Phenytoin, which is known to adversely affect cognitive function. Thus, the concurrent use of anti-epileptic drugs and Bacopa supplementation may effectively reduce epileptic seizures and significantly reverse Phenytoin-induced cognitive impairment.[6]

Dosage and Standardized Grade

Bacopa monnieri extract should be standardized to 20% bacosides A and B content.

1. General Support of Mental Acuity - Consider 100 mg, one to two times per day (if used as a single agent).
2. Early to Moderate Memory Loss or Cognitive Impairment - Consider 50-150 mg, up to three times per day (if used as a single agent).
3. Epilepsy - Consider 100 mg, one or two times per day.[1]

Adverse Side Effects and Toxicity

There are no well known side effects from the use of Bacopa monnieri at recommended doses. It has demonstrated a long and safe history of use in Ayurvedic medicine.[1,2]

Drug-Nutrient Interaction

Calcium Channel Blocker Antihypertensive Drugs - Bacopa may increase the effects of these medications and thus, the dose of these drugs required for treatment may need to be reduced.[7]

Pregnancy and Lactation

During pregnancy and lactation, the only supplements that are considered safe include standard prenatal vitamin and mineral supplements. All other supplements or dose alterations may pose a threat to the developing fetus and there is generally insufficient evidence at this time to determine an absolute level of safety for most dietary supplements other than a prenatal supplement. Any supplementation practices beyond a prenatal supplement should involve the cooperation of the attending physician (e.g., magnesium and the treatment of preeclampsia.)

References: Pregnancy and Lactation

1. *Encyclopedia of Nutritional Supplements. Murray M. Prima Publishing 1998.*
2. *Reavley NM. The New Encyclopedia of Vitamins, Minerals, Supplements, and Herbs. Evans and Company Inc. 1998.*
3. *The Healing Power of Herbs (2nd edition). Murray M. Prima Publishing 1995.*
4. *Boon H and Smith M. Health Care Professional Training Program in Complementary Medicine. Institute of Applied Complementary Medicine Inc. 1997.*

1. Dietary Supplement Information Bureau. www.content.intramedicine.com: Bacopa monnieri
2. Tripathi YB et al. Bacopa monniera linn. As an antioxidant: Mechanism of action. Indian J Exp Biol. Jun1996;34(6):523-6
3. Kidd PM. A review of nutrients and botanicals in the integrative management of cognitive dysfunction. Altern Med Rev. Jun1999;4(3):144-61
4. Stough C, Lloyd J, Clarke J, Downey LA, Hutchison CW, Rodgers T, et la. The chronic effects of an extract of Bacopa monniera (Brahmi) on cognitive function in healthy human subjects. Psychopharmacology (Berl), Aug2001;156(4):481-4
5. Mukherjee GD et al. Clinical trial on brahmi. I. J Exp Med Sci, 1966;10(1):5-11
6. Vohora D, Pal SN, Pillai KK. Protection from phenbytoin-induced cognitive deficit by Bacopa monniera, a reputed Indian nootropic plant. J Ethnopharmacol, Aug2000;71(3):383-90
7. Dar A, Channa S. Calcium antagonistic activity of Bacopa monniera on vascular intestinal smooth muscles of rabbit and ginea-pig. J Ethnopharmacol, 1999;66(2):167-74