The God-Like Brain Tonic

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Brahmi (Bacopa Monnieri)

ब्राह्मी
Brahmi -- The God-Like Brain Tonic

INTRODUCTION

Brahmi means “God-like,” an indication of the respect for this spectacular herb,¹ and is derived from the word “Brahman.” Brahman is the combination of un-manifested pure potential and pure consciousness that existed prior to creation and is said to have no attributes. “Brahma means Cosmic Consciousness.”² Brahman is also described as; “The Supreme Being; the Absolute Reality; Godhead”³ Of the three gunas (quality or the state of the mind); Sattva (clear, pure), Rajas (Active), and Tamas (Dark), Brahmi is of the Sattvic quality.⁴

The remarkable herb Brahmi (Bacopa Monnieri) is considered to be “one of the best sattvic herbs known,” and is a top ten best Ayurvedic herbs for health.⁵ One of the extraordinary properties of this herb is that it is applicable to all three Doshas (Vata, Pitta, & Kapha). In short the three doshas are constitutional types. Although far more in depth and wisdom, physically they can be likened to the three body types ectomorph, mesomorph & endomorph respectively. They are representatives of the elements: earth (Prithvi), water (Apas), fire (Tejas), air (Vayu), and ether/spaces (Akasha). Vata dosha consists of the air and ether/space elements.

Vata governs motion and controls circulation, the movements of nerve impulses, the movement of thought, and the movement of the joints. Pitta dosha consists of the fire element and a little water. Pitta governs metabolism and digestion. Kapha dosha consists of the earth and water, and governs the structure of the body. While all three doshas exist within each person, the percentage of each dosha present in each person.⁶-⁷ In Ayurvedic medicine all diseases and conditions are treated with respect to the clients’ constitution or balanced state (Prakruti) in mind along with the current state of imbalance (Vikruti) that is present. Hence, the accuracy of pathology and treatment become more precise.

Historically, Brahmi (Bacopa Monnieri) has been a traditional Ayurvedic herbs since at least the sixth century A.D.⁸
THE PLANT

Brahmi is a small, creeping, ascending, erect, water-loving herb. Its stems are 10-40 cm long. It roots at the lower nodes. Often times, Brahmi forms mats on wet grounds, hence its water loving characteristics. Its leaves are simple, oblong with obscure nerves, rounded apex, entire margins and has a narrowed base. Its solitary flower blooms in-between the leaves and stems. Its pedicels are about 0.7-0.3 cm, and its flowers about 1 cm across. Fruits an ovoid-ellipsoid about 0.5 cm long, glabrous capsule with an acute apex, and is often hidden under the flowers. The seeds are abundant and very minute, less than 1 mm long, oblong, brown and with reticulations. 9 The whole plant can be used.

Botanical Description of Brahmi are as follows; Bacopa monnieri (Linn.) Wettst. (Syn – Moniera cuneifolia Michaux). Scrophulariaceae, Jalal Brahmi, Jalneem, Sambareni aaku, Bacopa. 10

CLASSIFICATIONS

The Dravyaguna (or “qualities of a substance”) are different actions within the body, such as: rasa, virya, vipaka, and prabhava. Rasa in Sanskrit means taste (when used in this context) of a substance (i.e., sweet, sour, salty, pungent, astringent, and bitter). Virya is potency, which determines weather the substance is heating or cooling in nature. Vipaka is the post-digestive effect of the substance (i.e., sweet (madhu), sour (amla), and pungent (katu)). The prabhava are the special and unique properties and qualities of a substance.11 The Dravyaguna of Brahmi is:

- The Rasa – is bitter (“Tikta”) and astringent (“Kashaya”).12 The bitter taste is composed of Air and Ether-space and bitter is cool, light, and dry. Bitter acts on the different body systems as follows: it dries and purifies secretions, it is an anti-aphrodisiac, it returns all tastes to normal balance which helps with toning the organism, it amplifies the appetite, and restricts skin diseases and fevers. The astringent taste (which makes your mouth pucker) is composed of Air and Earth, and is cooling, light, and dry. The astringent taste constricts all body parts, just as it makes the mouth pucker, and is healing and purifying. It reduces secretions and is also an anti-aphrodisiac. 13
- The Guna – is light (“Laghu”) due to its sattvic energetics. 14
- The Virya – cool (“Sheeta”). Substances that have a cool Virya are pacifying to pitta and generally decrease digestive fire (Agni).15
• The Vipaka – sweet ("Madhura"). Substances that have a sweet Vipaka are nourishing to the body. They are most often alkaline, increase saliva secretions, and help with elimination. In relation to the doshas, substances with a sweet Vipaka tend to pacify vata and pitta doshas, and increase the kapha dosha.

• The Prabhava – “The sweet Vipaka is the Prabhava which gives it its unique rejuvenating action on the body.”

PROPERTIES & ACTIONS

The administration of herbs is a healing art-- the language of herbs can help us choose and direct the specific healing action(s) needed to cure the imbalance. Brahmi has a diverse assortment of properties and actions which at times may seem contradictory to the different categories in which it lies. First and foremost, Brahmi is a Rasayana / rejuvenative tonic: Only in the Ayurvedic herbal category, they are nutritive tonics that nourish all the dhatus (tissues) of the body, most importantly they build ojas (in short, physical, mental, emotional, & spiritual immune system). According to the Sushruta Samhita it states “A wise physician should (invariably) prescribe some sort of tonic (rasayana) for his patients in their youth and middle age after having their systems (properly) cleansed” furthermore, “A person who’s system has not been (previously) cleansed (Śodhana) with the proper purifying remedies (emetics and purgatives) should not, in any case, have recourse to such tonics inasmuch as they would fail to produce the wished-for result, just as the application of a dye to a piece of dirty cloth will prove non-effective”. Nervine tonic: Improve and reinforce the nervous system, they improve its ordinary functions along with adding strength to the nervous system. Nervine sedative: Sedates or calms the nervous system besides it largely stimulates the parasympathetic functions of the nervous system, many nerve sedatives are antispasmodics as well. Cardiac tonic: Develops and reinforces the heart and circulatory system. “A rather unusual herb is Brahmi. It is a tonic, sedative, and stimulant herb. Its action on the nervous system are universal and benefit people of all constitutions and imbalances”.

According to The Way of Ayurvedic Herbs, “The sedative and cardiotonic effects are due to the presence of hersaponin, one of four saponins isolated from the plant.” Alterative: “Herbs that cleanse or purify the Rakta (blood) aiding the removal of Ama (toxins) from the body.” Diuretic: “Herbs that increase urination, they have a cooling, cleansing, and detoxifying effect on the body by stimulating the kidneys to release more fluid.” Febrifuge: Herbs that reduce fever. Often diaphoretic herbs have this action as well, also called antipyretic. Medhya: Herbs that are intellect promoting, and improve cognitive functions of the brain.
Laxative: Promotes healthy elimination. **Antispasmodic:** Muscle relaxer, suppresses muscle spasms. **Purgative:** Induces diarrhea. **Anthelmintic:** Destroys worms, parasites, yeast and fungus. **Analgesic:** Herbs that reduce pain, are often muscle relaxers and block pain.

**CONTROVERSIES**

Many different original texts in Ayurveda such as “Charaka Samhita” use Brahmi (Bacopa Monnieri) and Gotu kola (Centella Asiatica) interchangeably. Bacopa Monnieri can also be called water hyssop, and Centella Asiatica can also be called *Madukaparni* (Frog Leaved). 26

According to *The Way of Ayurvedic Herbs*, “Baba Hari Dass differentiates gotu kola (centella asiatica) as the “weaker Brahmi” and Bacopa Monnieri as the “stronger Brahmi.” Charaka recognizes both as being supporters of mental faculties, but maintains that Brahmi has a more specific role in treating mental diseases (insanity, anxiety, depression, epilepsy), while mandukaparani advances mental function through a more general rasayana effect.” 27

**INDICATIONS**

**ADHD:** An open-label study on the effects of Standardized Bacopa Monnieri Extract (SBME) was conducted with 31 children between ages 6-12, where the onset of ADHD was diagnosed before age 7. The results indicated that Bacopa was “effective in alleviating the symptoms of ADHD and was well tolerated by the children.” 28

**AIDS:** Due to its cleansing actions on the blood, and tonic effects on the immune system, Bacopa is excellent for Venereal diseases. 29

**Alzheimer & Dementia:** The channel clearing and nerveine tonic qualities of Brahmi, along with Basil, Calamus, Ashwagandha, Bala and Kappikacchu, aid in the treatment of the memory loss that occurs with this condition. 30

**Anger & Intensity:** Bacopa, a cooling nerveine sedative and tonic, paired with skullcap, & shankhapuship which are complementary to Brahmi in the treatment of anger and intensity. 31

**Anxiety & Depression:** The nerveine sedative and tonic qualities of Bacopa assist in the treatment of anxiety, and the nerveine stimulant quality of the herb treats depression.

**Asthma:** Multiple studies on animals suggests that Bacopa extract has a relaxing effect on chemically induced bronchoconstriction. 32
Bronchitis & Coughs: According to the Indian Materia Medica, “A poultice made of the boiled plant is placed on the chest in acute bronchitis and other coughs of children.” 33

Cancer: “The alcoholic extract of the whole plant was found to have anti-cancer activity against walker carcinosarcoma.” 34

Epilepsy: “Bacopa and gotu kola, are the foremost general herbal medicines for the mind.” An herbal formula from The Way of Ayurvedic Herbs: “Old ghee, processed with brahmi juice, vacha, Kustha and shankpushpi, assuages “insanity”, epilepsy and tough karma in life.” 35

Gastrointestinal disorders: The laxative property of this herb assists in healthy elimination caused by gastrointestinal disorders. Animal and human studies have shown that Bacopa extracts targets “direct spasmyotic activity on intestinal smooth muscle, via inhibition of the calcium influx across cell membrane channels.” This suggests beneficial results in intestinal spasms (i.e., Irritable Bowel Syndrome). Bacopa also has healing and strengthening effects on the gastric mucosal barrier.36

Hypothyroidism: In a study of mice, a high dosage of Bacopa extract (200 mg/kg) given orally, increase in thyroid hormone T4 by 41%. 37

Infertility: A study performed on male mice on the effects of Bacopa, showed “reversible suppression of spermatogenesis and fertility, without producing apparent toxic effects.” 38

Insomnia: The cooling nervine tonic and sedative actions of Bacopa nourish and calm the nerves that cause insomnia.

Mental function, Memory: Bacopa extract of 300 mg daily in a double-blind, placebo-controlled trial in 46 healthy participants, 18-60 years of age, in a 12 week trial, resulted in, “significant improvement in verbal learning, memory consolidation, and speed of early information processing in the treatment group compared to placebo.” 39

Neuralgia (Nerve pain): Due to the nervine tonic and sedative effects of Bacopa on the nervous system and its analgesic properties, Bacopa would be considered a go to herb for nerve related pain.

Pregnancy: Brahmi is considered an important and safe herb to use during pregnancy. It is suggested that the use of Brahmi in low dosages throughout pregnancy will produce a healthy offspring. 40

Stress: In CASE STUDY 4 below, significant increase of blood glucose was prevented with the use of Brahmi, signifying the exhibition of anti-stress activity by the reduction of the acute increased state in the adrenal gland weight, plasma cortisol, blood glucose, and triglyceride levels.

Weak immune system: The tonic and rejuvenative qualities of Bacopa specifically target and strengthen the immune system.
MENTAL & SPIRITUAL

“Himalayan Brahmi is an important food for Yogis and improves meditation. A small amount of the fresh leaves are eaten daily for rejuvenating the mind. Brahmi helps awaken the crown chakra and balance the right and left hemispheres of the brain.” 41 Every divyausadhis (celestial drug) that grows in the Himalayas is developed with Virya (potency) such as: Brahmi, Punarnava, Satavari, and Vidari to name a few.

Mixed with milk and taken for six month, it is understood in the Charaka Samhita that, “By doing so the person is endowed with excellent longevity, youth, freedom from diseases, voice, complexion, nourishment, intellect, memory, strength and such other desirable benefits.”42

All varieties of Ayurvedic texts, both traditional and modern, strongly recommend cleansing and purifying the body of all toxins with the use of emetics, purgatives, etc. to remove all doshic imbalances prior to any Rasayana, rejuvenative, or tonic therapies. In the treatment section of the traditional texts of Sushruta Samhita, it states, “A continuous use of the medicine for a week improves the memory, leads to the expansion of the intellectual faculties and imparts a celestical glow to the complexion. In the second week of its course it revives old and forgotten memories in the user and adds to his proficiency in the writing out of any book to be written. In the third week it enables a man to reproduce from memory as many as one hundred words if twice heard or read (at a single sitting). In the same manner a (further) use of the drug for twenty-one days removes all inauspicious features whether of the body or of the mind, the goddess of learning appears in an embodied form to the (mind of the) user, and all kinds of knowledge come rushing into his memory. A single hearing is enough to make him reproduce (verbatim from memory a discourse however lengthy), and he is enabled to live for five hundred years” 43 According to The Way of Ayurvedic Herbs, “Nutmeg, Brahmi and zinc bhasma (pure ash) may be added to balance the connection between the heart and the mind”,44 and “When seeking herbs to open and balance the mind, four herbs stand out gotukola, brahmi, shankpushpi and jatamansi. Most folks would profit from long term use of one or more of these at modest doses.” 45

CHEMICHAL CONSTITUANTS

According to Dravyaguna Vijnana, the chemical constituents of Brahmi are as follows; nicotinic acid, brahmine, herpstine, alanine, hentri-acontane,
octacosane, monnierin (saponin), hersaponin, bacoside A & B, bacogenins A1-A4 (Sapogenins), and b-sitosterol etc. 46

Nicotinic Acid, has shown with human research that it’s effective for treating high cholesterol levels and relatively safe. Some evidence show that it may help with clogged arteries and heart disease.47 Alanine, is a non-essential amino acid that can be made by the body as well as externally, its used for improving athletic performance and exercise capacity, in building lean muscle mass, and improving physical functioning and delay muscle fatigue in the elderly. 48 Saponins are found in many plants and in the animal kingdom. They have memolytic, expectorative, anti-inflammatory, immune-stimulating, and antimicrobial properties (particularly against fungi, bacteria, and protozoa.) 49 Bacosices A & B are two saponins that attribute to the nerve tonic quality of Brahmi and, “bacosides appear to be promising compounds having facilitatory effect on mental retention capacity by improving responses with positive as well as negative reinforcement.” 50

CASE STUDIES

CASE STUDY 1

A study of 76 adults (28 males and 48 females) between the age of 40 and 65 years was implemented in a double-blind randomized, placebo control study on human memory. Different memory functions and anxiety levels were measured. Three different testing periods were performed; one prior to the onset of the study, one three months into the study, and one six weeks after the end of the study.

Brahmi produced significant improvement on the retention of new information, although a follow-up test indicated that the degree and speed of learning was unchanged. Thus proposing that forgetting recently acquired information is lessened by the effects of Brahmi. One of the 84 starting volunteers withdrew from the study due to a gastrointestinal reaction to the Brahmi capsules. 51

CASE STUDY 2

A study was performed on 54 volunteers, 65 years or older (mean 73.5 years), on cognitive performance, anxiety, and depression. This study was also a randomized, double-blind, placebo-controlled clinical trial which included a placebo run-in of 6 weeks and a treatment period of 12 weeks. Dosage of Brahmi extract used were, 300 mg/day or similar placebo tablet orally.
Brahmi indicated enhanced performance score from the Rey Auditory Verbal Learning Test (AVLT) relative to placebo. Stroop Task, assessing the ability to ignore irrelevant information, presented with improvements in the Bacopa group in comparison to the placebo group unaffected. The Bacopa group also showed a decrease in depression, anxiety, and heart rate, but the placebo group showed an increase. The blood pressure and mood remained unchanged within both groups. “This study provides further evidence that B. monnieri has potential for safely enhancing cognitive performance in the aging.”

CASE STUDY 3

A case study was performed on 40 children from rural India between the age of 6-8 years old, to measure Bacopa’s effects on cognitive and intellectual functions in children. The 40 children were divided into two groups of 20 (Bacopa and placebo group). The Bacopa group received one teaspoon of Bacopa syrup (350mg Bacopa powder) three times daily, and the placebo group received Syrup Simplex. A sequence of tests were administered prior to the onset of the study and at the end of treatment, measuring visuomotor and perceptual abilities and memory span.

The Brahmi group showed substantial improvements in strengthened exploratory drive (measured by maze learning), enhanced function in perception of images and patterns, and improvements in perceptual organization and reasoning ability (measured by reaction time).
gland weight, plasma cortisol, blood glucose, and triglyceride levels. An increase in the serum triglyceride levels was also prevented under the cold restraint stress test.  

**CASE STUDY 5**

A study was done on Caenorhabditis elegans (roundworm) under stress conditions to examine the antioxidant and stress resistance capabilities of Bacopa Monnieri aqueous extract using the above mentioned animal model system. The antioxidant activity was measured using in vitro and in vivo assays, antistress potential (0.1, 0.01, and 0.001 mg/ml) and was calculated through thermal stress of (37°C) and oxidative stress (10mM paraquat) using C. elegans.

The study revealed that Bacopa “significantly enhanced stress tolerance and increased the mean lifespan of worms during thermal and oxidative stress, although it did not extend lifespan at 20°C and attenuated age dependent decline in physiological behaviors. Moreover, it was shown that Brahmi was able to up-regulate expression of stress associated gene hsp-16.2, which significantly (P<0.001) extends the mean lifespan of worms under stress conditions.”

**A FINAL THOUGHT**

The use of alternative medicine, natural products, and herbal medicine, is becoming generally more widespread in today’s western culture. More people are starting to realize the different uses, benefits, and values of herbs first administered thousands of years ago. Unfortunately, often times the potency, effectiveness, and diverse use of herbs are discounted by the modern day medical professionals. They rely on current studies and clinical trials that result in the dismissal of the wisdom, knowledge, experience, and the effectiveness of the traditional use of herbal medicine. Historical wisdom and modern day clinical studies will shed a new light on the properties and capabilities of Brahmi (Bacopa Monnieri). This will assure in a collaboration of the old and the new creating a shared space of connectedness. This will ameliorate the disconnection between eastern and western medicine.

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