

# Brahmi: “Herb of Grace”

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## Abstract

The uses of alternative medicines have increased significantly around the world. The search for effective and safe medicines is always on as well as new uses of old medicines are being looked into. Brahmi is an Ayurvedic medicinal herb which has been used for centuries. Certain neurological disorders have limited therapeutic options in Western medicine and hospitals and research institutes across the globe are increasingly looking into Ayurvedic science for effective and safer alternatives. Brahmi is a well-known nootropic herb and its uses in neurological and psychiatric disorders are well recognized. Its efficacy and safety is supported by research and thousands of years of knowledge and experience. Despite being such an old medicine, its new benefits are constantly being studied. Brahmi is one of the most sattvic herbs known in Ayurvedic pharmacopeia since Vedic times. Here, we will delve deep into the Brahmi plant, its science, its Ayurvedic uses and much more.

## Introduction

In recent times, the use of herbal products has increased significantly in the western world as well as in the developing countries. Brahmi is an important medicinal plant that has been widely used therapeutically in the orient and is becoming increasingly popular in the west <sup>6</sup>. Brahmi is a Sanskrit word derived from “Lord Brahma” or “Brahman”. Lord Brahma is the divinity responsible for all of the creative forces in the world and Brahman is the Hindu name given to the universal consciousness. Brahmi literally means the energy (or “Shakti”) of Brahma <sup>8, 9, 10</sup>. Thus, Brahmi has a lot to offer to the medical world <sup>9</sup>.

The ancient Ayurvedic sages, who were also great physicians, revealed Brahmi’s role in promoting Medhya (intellect), Ayushya (longevity), Rasayana (rejuvenation), Prajnasaktivardhana (intellectual power), Hridaya (Heart), Majjadhaty Rasayana (nervous system rejuvenation), Balya (strength, especially mind), Jivaniya (life energy), Nidrajanana (sleep), Dhana (wealth), Svava (voice), Varna (complexion) and Anuloma (redirecting the flow of vata downwards). Over the centuries, the role of Brahmi in the treatment of Kustha (leprosy/skin disorder), Pandu (anemia), Meha (diabetes), Asra Vikara (blood disorders), Kasa (cough), Visa (poison), Sopha (edema), Jwara

(fever), Vatahara (vata), Unmadahara (mental illness), Unmada (insanity), Alaksmi (inauspiciousness), Apasmara (epilepsy), Papa (evil deeds), Krtya (black magic), Ruk (pain) and Manasavikara (mental disorders) has been well described <sup>3,5,9,19</sup>.

Scientifically, Brahmi is known as *Bacopa Monnieri* L. Pennell; some of the other names it is also known as are *Bacopa monniera*, *Indian Pennywort* L. Pennell, *Bramia monnieri* L. Pennell, *Gratiola monniera* L., *Herpestes monniera* L. Kunth, *Herpestis fauriei* H. Lev, *Herpestis monniera*, *Herpestris monniera*, *Lysimachia monnieri* L. and *Moniera euneifolia* <sup>4</sup>. The herb comes from the family of *Plantaginaceae*; it can also be placed under families of *Scrophulariaceae*, *Gratiolaceae*, or *Veronicaceae* <sup>2,4</sup>. It commonly grows in marshy areas throughout India, Nepal, Sri Lanka, Pakistan, China, Taiwan, Vietnam & USA. In the USA, it is grown in Florida, Hawaii and other southern states <sup>4</sup>. It is widely distributed across most regions of the world including China, India, Canada, USA, Brazil, Australia, Argentina, Nigeria, South Africa, etc. <sup>2</sup>

Due to Brahmi's widespread availability across the globe, it is often recognized by different names in different regions and languages. In Sanskrit, it is called Saraswati (Goddess of learning, knowledge and wisdom or the essence of the self), Somavati (containing soma or nectar), Indravalli (energy of Lord Indra), Brahmi (knowledge of Brahma or supreme reality), Adha-birni <sup>2</sup>, Jala-Brahmi, or Svetakamini <sup>7</sup>. In Hindi, it is known as Brambhi, Safed kami (white Lord) <sup>7</sup>, Brahmi, Jaributi (herb), Nirbrahmi, or Jalneem. In Gujarati, it is known as Jalanevari or Kadavi luni (the better herb). In English, it is called herb-of-grace, *Bacopa*, Thyme leaved *Gratiola*, or *Waterhyssop*. It is known as Farfakh (the hottest tree) in Arabic, Jia ma chi xian in Chinese, Kleines Fettblatt, or Wasserysop in German, Medha giree (mountain of wisdom) in Nepalese, Litet tjockblad in Swedish and many more <sup>2,7</sup>.

### *The plant*

Brahmi is a small creeping perennial with numerous branches and small, oblong, relatively thick leaves which are arranged opposite to each other on the stem. Flowers are small and light purple or white with four to five petals. It can grow naturally in wetland, shallow water, damp and muddy shores. Its ability to grow in water makes it a popular aquarium plant; it can also grow in slightly brackish conditions <sup>4,11</sup>. What makes Brahmi a unique plant is that even though it is an aquatic plant, it can easily be cultivated in pots, in a garden under a shade or even under full sun when provided ample water <sup>13</sup>.

The whole plant can be used for medicinal purposes. It has bitter and sweet taste (Rasa), cooling energy (Virya) and sweet post-digestive effect (Vipaka). It normalizes all three Doshas and all Dhatus (tissues), especially nerve, blood and plasma. It has an effect on numerous Srotas (system); like circulatory, digestive, nervous, excretory, muscular and reproductive <sup>8,9</sup>.

### *Mandukaparni and Brahmi*

Since the 3rd century, ancient Ayurvedic authors like Charaka, Sushruta and Vagbhatta treated Brahmi and Mandukaparni as two different herbs <sup>15</sup>. Later, confusion was created in the 16<sup>th</sup> century when Bhavaprakasha and Hemadri equated Brahmi with Mandukaparni <sup>4,15</sup>. Since then, Centella Asiatica (Gotu Kola or Mandukaparni) has been known as Brahmi, particularly in North India and Kerala <sup>4</sup>. However, according to The Ayurvedic Formulary of India, Bacopa monnieri is Brahmi and Centella Asiatica is Mandukaparni <sup>9</sup>. A critical study of comparative photochemistry, pharmacology and therapeutic properties of these two drugs has proven that they are distinct <sup>15</sup>. Brahmi was used specifically in mental diseases like insanity and epilepsy, while Mandukaparni was used as a general brain tonic. Another study published in 2012 proved that these two herbs exhibited significant differences in their antioxidant values too. The study concludes that regular use of Brahmi as a supplement could be more helpful compared to Gotu Kola in the treatment of neurological disorders caused by free radical damage <sup>14</sup>. Brahmi promotes fertility and sustains implantation; while Mandukaparni is abortifacient. Both are used for skin diseases but their therapeutic effects are different <sup>15</sup>. Also, unlike Brahmi, Mandukaparni is a stronger diuretic <sup>8</sup>. Hence, these two are entirely different herbs.

### Brahmi and Ayurveda

In India, Brahmi is largely treasured as a revitalizing herb used by Ayurvedic medical practitioners for almost 3000 years. The herb has been mentioned in several Ayurvedic treatises including Charaka Samhita and Sushruta Samhita in the 3<sup>rd</sup> century AD <sup>11</sup>. In addition to being a well-known Nootropic herb for centuries, it has also been used as an antispasmodic, alterative, astringent, cardio tonic, diuretic, anticonvulsant, anti-inflammatory, analgesic, antipyretic and antiepileptic agent <sup>8,9,10</sup>.

Brahmi is one of the best herbs for balancing and rejuvenating Pitta, while at the same time strongly reducing Kapha <sup>8</sup>. It enhances the quality of Sadhaka pitta which directly influences the nature of consciousness <sup>9</sup>. It can balance Vata if taken in proper doses or with other anti-vata herbs <sup>8</sup>. It aids in the recovery from exhaustion, stress, debility and

aggravation of vata. It helps in all conditions with a deficient Majja dhatu; hence it is used in Parkinson's disease, Alzheimer's disease, dementia, ADHD, Asperger's syndrome, autism, insomnia and depression<sup>9</sup>. It reveals its sattvic quality by helping to give up bad habits and all types of addictions. It aids in recovery from alcoholism or drug abuse, and also helps to kick the sugar habit. For this reason it is added to many Ayurvedic formulas as a nervine agent<sup>8</sup>. As a purifier, it is a first rate herb to cleanse the system by eliminating all sorts of poisons. It is therefore very useful in leprosy, syphilitic and scrofulous ulceration, obstinate eczema, cutaneous affections and psoriasis<sup>12</sup>. According to Bhavaprakasha, Brahmi is useful in skin conditions with underlying nervous imbalance. In addition to a blood purifier, it strengthens the immune system, allays excess sexual desire, and is beneficial in venereal diseases, including AIDS. It also cleanses the kidneys, while calming and soothing the liver. It calms the heart and helps guard against heart attacks<sup>8</sup>. It is beneficial in relieving tension throughout the system and helps to ease constipation from stress, relaxes muscles and alleviates menstrual pain and disorders. It has a cooling effect on Mutravaha srota (urinary system) and it cools the heat of cystitis and pain of dysuria by guiding pitta out of the system<sup>9</sup>.

### *Brahmi Rasayana*

Ancient Ayurvedic texts describe a remedy called Brahmi Rasayana which is a molecular nutrient and nutrition enhancing agent. According to Acharya Charaka, Rasayana therapy improves the nutritional status of the body, leading to the formation of better qualities of cells and tissues which can sustain aging and stress<sup>18</sup>. Sage Sushruta explains Brahmi Rasayana as an elixir and remedial agent which improves memory and invigorate mental faculties, as well as increasing the duration of human life. After proper cleansing of the body, Sushruta describes the treatment with fresh juice of Brahmi and an extremely light diet at a specific time of the day for 21 days. It improves memory and intellectual power every week of the treatment. The complete 21-day treatment removes all inauspicious features of the body and the mind. The Goddess of learning appears in an embodied form in the mind of the user and the mind gains different kinds of knowledge. It also enables the person to live for five hundred years<sup>17</sup>. As a heart rejuvenator, it is recommended in the treatment of heart diseases<sup>30</sup>. Acharya Charaka also used Brahmi as one of the herbs in preparation of Aindra Rasayana to treat Svitra (leucoderma), kustha (skin diseases including leprosy), Jathara (abdominal diseases including ascites), Gulma (phantom tumor), Purana pliha (chronic splenic disorders), Visama jvara (irregular fever); and in Indrokta Rasayana to improve longevity, youth, voice, complexion, nourishment, intellect, memory and strength and be disease free<sup>5</sup>.

The Rasayana specific to the brain called Medhya Rasayana slows the brain aging process and helps in regeneration of neural tissues besides producing anti-stress, adaptable and memory enhancing effects <sup>18</sup>. The soothing effects on the nervous system as well as its mind enhancing capability are legendary. According to Dr. Frawely, it is the most important Nervine herb used in Ayurvedic medicine; it improves memory and aids in concentration. It revitalizes the brain cells by removing toxins and blockages within the nervous system, while at the same time having a nurturing effect. Brahmi, which grows in the Himalayas, is an important food for yogis practicing meditation. A small amount of its fresh leaves are eaten daily for rejuvenating the mind and to improve meditation. Brahmi helps awaken the crown chakra (Sahasrara; the seventh spiritual chakra in head) and balances the right and left hemispheres of the brain <sup>8,9</sup>. Brahmi has been used as Medhya Rasayana since Vedic times and it is still well-researched in today's medical world.

#### *Usage forms*

The Ayurvedic pharmacopoeia of India mentions important formulas of Brahmi as Sarasvataristha, Brahmi Ghrita, Ratnagiri Rasa, Brahmi Vati, Sarasvata Curna and Smrtisagara Rasa <sup>19</sup>. The herb can be taken as ghrita (medicated Ghee), medicated oil, churna (powder), svarasa (fresh juice), infusion, decoction, tincture (fermented beverage), syrup, tea, lepa (paste), pill or eaten fresh (leaves). As a milk decoction, Brahmi is a good brain tonic, particularly if combined with Aswagandha <sup>8</sup>. Sarasvataristha is a fermented beverage (tincture) in which Brahmi is the major constituent, used in the treatment of infertility, epilepsy and mental disorders <sup>20</sup>. As a medicated oil, it helps relieve joint pain, headache and to clear the mind. When massaged on the skull, it works as a brain tonic to strengthen memory and encourage hair growth <sup>9</sup>. Brahmi paste applied to the neck is very useful in cough and pneumonia, especially in children <sup>12</sup>. Topical use also treats diaper rash in infants <sup>30</sup>. Brahmi lepa (paste) helps to reduce swellings. A poultice made of boiled plant is placed on the chest in acute bronchitis and other coughs in children. Its leaves are fried in ghee (purified butter) and consumed to relieve hoarseness. Juice of its leaves is given to relieve diarrhea in children. Brahmi juice mixed with petroleum can improve symptoms when applied in rheumatism <sup>7</sup>. As neti, Brahmi is one of the best herbs to normalize the absorption of prana through the sinus <sup>30</sup>. A cup of fresh Brahmi tea taken with honey before meditation is also a great aid in its practice <sup>8</sup>.

When combined with ghee (purified butter) or milk, Brahmi has a tonifying, nerve nourishing and pitta cooling effect <sup>9</sup>. Brahmi Ghrita or Ghrta (Brahmi medicated ghee) is a popular formula referenced in classical Ayurvedic

texts. Charaka described the recipe of Brahmi Ghrita as one part old cow's ghee cooked with four parts Brahmi juice and 1/4<sup>th</sup> part in total of the paste of vaca, kustha and sankhapuspi. This medicated ghee cures insanity, inauspiciousness, epilepsy and effects of evil deeds <sup>5</sup>. In Astanga Hridayam, Brahmi Ghrita is mentioned with herbs like vyosa, syama, trivit, danti, sankhapuspi, nradruma, saptala and krmihara for the treatment of insanity, leprosy and epilepsy, and to improve speech, voice, memory, intelligence and to bestow sons to barren women <sup>6</sup>. Classical texts also mention the use of Brahmi along with other herbs in the preparation of other Ghritas. For example: Maha paisacika Ghrita to treat insanity <sup>6</sup> and Tryusanadya Ghrita to cure fever, gulma (phantom tumor), anorexia, splenic disorders, headache, chest and cardiac pain, jaundice, piles, vatika type of asthila (hard tumor), phthisis and tuberculosis <sup>5</sup>. Brahmi Ghrita can be applied as nasya in doses of five drops per nostril in the treatment of mental disorders. Brahmi Ghrita prepared with sesame or coconut oil can be massaged on the feet, large joints and ears before sleep in the treatment of anxiety and depression <sup>20</sup>. According to Dr. Frawely, "Brahmi Ghrita is the best rejuvenative for the mind and the heart which should be kept in every home" <sup>8</sup>.

#### *With other herbs*

When Brahmi is combined with other herbs, its medicated qualities are expanded even further. Taken with basil and a little black pepper, Brahmi is good for all kinds of fevers <sup>8</sup>. When used with neem, manjishtha and turmeric, it helps in skin conditions with pitta imbalance <sup>9</sup>. According to Dr. Halpern, a popular remedy for acne is to combine Brahmi and turmeric in equal amounts, add 1 tsp. (4oz.) of warm cow milk and ½ tsp. of ghee and taken twice a day for several months. This remedy reduces Bhrajaka pitta on the skin (acne) and makes the skin lustrous <sup>30</sup>. Brahmi and vacha stimulate the mind with a high kapha condition, whereas; gotu kola, jatamansi and tagarah bring out its sedative effect. Brahmi combined with aswagandha, kushta, kappikacchu, shankhapuspi and bala works as a nerve tonic. Brahmi Rasayana, with ten parts Brahmi, forty parts sugar, two parts clove and one part each of cardamom and pippali, works as an anti-inflammatory and nerve tonic agent. When combined with digestive stimulants like ginger and cardamom, it suppresses the appetite; with cumin, fennel and ajwan it relaxes the intestines <sup>9</sup>.

#### *Kaya Kalpa*

Swami Sivananda described a very remarkable treatment called Brahmi Kalpa treatment in his book – 'The Practice of Ayurveda'. It is a treatment of 'Kaya Kalpa', where 'Kaya' means the body and 'Kalpa' means transformation or rejuvenation. After going through pancha karma, he explains Kaya Kalpa treatment with fresh Brahmi leaves' juice

and fresh cow milk for 45 days. The treatment restores the aged and debilitated body to its pristine youth and vigor, re-establishes the full potential of the senses and imparts good health. It prolongs as well as improves the quality of life. It restores the natural balance of all three doshas, brings the function of sapta (seven) dhatus to a normal condition and cures many incurable diseases <sup>12</sup>.

## Brahmi and Science

Over the last few decades, Brahmi has been researched extensively for its chemical constitution and identification of its therapeutic role. Compounds responsible for the pharmacologic effects of Brahmi include alkaloids, saponins, and sterols <sup>21</sup>. Detailed investigation first reported the isolation of the alkaloid 'brahmine' from Brahmi <sup>11</sup>. Later, numerous compounds have been isolated including nicotine, herpestine, betulinic acid, stigmasterol, beta-sitosterol, as well as numerous bacosides and bacopasaponins <sup>21</sup>. Extensive investigation on the plant extract and isolated bacosides, especially bacosides A and B, confirm their nootropic (Medhya Rasayana) action <sup>23</sup>. Brahmi enhances the three basic components of mind: power of learning (Dhi), power of retention (Dhuti) and power of recall (Smriti) <sup>21</sup>. Since 1993, Central Drug Research of India has been doing extensive research with Brahmi on human volunteers <sup>13</sup>. Triterpenoid saponins and their bacosides are responsible for Brahmi's ability to enhance nerve impulse transmission. The bacosides aid in repair of damaged neurons by enhancing kinase activity, neuronal synthesis, and restoration of synaptic activity, and ultimately nerve impulse transmission <sup>22</sup>. A research on adults indicated that Brahmi had a significant effect upon retention of new information; improved the speed of visual information processing, learning rate and memory consolidation within 12 weeks of treatment <sup>20</sup>. A 2012 research study on the elderly clearly demonstrated that *B. monnieri* suppresses AChE activity resulting in enhanced cholinergic function, which in turn enhances attention and memory processing and increases working memory <sup>24</sup>. In children, a 12 week Brahmi treatment revealed significant benefits with improvement in sentence repetition, logical memory, and paired associate learning tasks <sup>22</sup>.

Brahmi helps in coping with combined hypoxic, hypothermic and immobilization stress that could lead to the onslaught of 'free radicals' (highly reactive oxygen species). Brahmi extract exhibits interesting antioxidant properties, expressed by its capacity to scavenge superoxide anion and hydroxyl radical, and to reduce H<sub>2</sub>O<sub>2</sub> induced cytotoxicity and DNA damage in human fibroblast cells. An animal study showed its antioxidant activity in the hippocampus, frontal cortex and striatum. Brahmi extract has shown neuroprotective effect against aluminum-

induced oxidative stress in rat brain; and reduced nicotine-induced lipid peroxidation and geno protection in mice. It reduces amyloid levels and can be used in the therapy of Alzheimer's disease <sup>11</sup>. Since mild cognitive impairment (MCI) and early phase Alzheimer's disease occur due to cholinergic degeneration and oxidative stress, Brahmi extract provides a benefit in terms of decreasing memory impairment in these two diseases and even in attention deficit disorder <sup>24</sup>. A study has shown a protective role of bacoside A against chronic cigarette-induced oxidative damage in rat brain <sup>11</sup>. In the management of stress related study, Brahmi extract was found not only to induce the expression of heat shock protein (HSP 70) but also of CYP 450 enzymes in all regions of the brain. Brahmi primes the brain for stress by stockpiling and modulating the activities of useful enzymes like HSP 70, CYP 450 and SOD even before the onset of the stressful condition <sup>11</sup>. In paranoid schizophrenia, adding Brahmi to olanzapine resulted in improvement in psychopathology as evidenced by reduction in PANSS and BPRS scores, without any treatment associated adverse effects <sup>25</sup>.

Brahmi extract has been found comparable to standard anti-depressant drug imipramine in anti-depressant activity in rodent animals. The same study has postulated its role on serotonin and GABA (gamma amino butyric acid) receptors in the mechanism of action for its anti-depressant and anti-anxiety activity <sup>11</sup>. Early research in India demonstrated that hirsaponin (an active constituent of Brahmi) exhibited protection against seizures in mice; whereas another study examined the anticonvulsant properties of Brahmi extract at higher doses by its mechanism on GABA receptors <sup>11</sup>.

Animal and human studies have investigated the effect of Brahmi extract on the gastrointestinal tract. An in-vitro study has demonstrated its direct spasmolytic activity on intestinal smooth muscles, via inhibition of calcium influx across cell membrane channels; suggesting its benefit in intestinal spasm such as irritable bowel syndrome. Brahmi also has a protective and curative effect on gastric ulcer. A study showed that Brahmi extract significantly healed penetrating ulcers induced by acetic acid, significantly strengthened the mucosal barrier and decreased mucosal exfoliation. A methanolic extract of Brahmi given for 5 days demonstrated a dose-dependent anti-ulcerogenic on various gastric ulcer models induced by ethanol, aspirin, two hour cold stress and four hour pylorus ligation <sup>20</sup>. The extract also alleviated stress-induced ulcers as observed by significant reduction in LPO in rat gastric mucosa <sup>11</sup>. Diethyl ether and ethyl acetate extract of Brahmi have slight anti-fungal activity but have a broad spectrum of antibacterial activity <sup>10</sup>. Another in vitro study demonstrated its specific anti-microbial activity against *Helicobacter pylori*, a bacterium associated with chronic gastric ulcers <sup>11</sup>.



A recent 2013 study revealed Brahmi's wound healing properties. Brahmi showed antimicrobial activity against skin pathogens, enhanced wound breaking strength, rate of contraction, skin collagen tissue formation, and early epithelization period with low scar area by decreasing myeloperoxidase and free radical generated tissue damage <sup>32</sup>. Brahmi possesses anti-inflammatory activity that has shown 82% edema inhibition when compared to indomethacin. It also significantly inhibited 5-lipoxygenase (5-LOX), 15-LOX and cyclooxygenase-2 (COX-2) activity. Another paper supported its anti-inflammatory activity via inhibition of prostaglandin synthesis and lysosomal membrane stabilization <sup>10, 11</sup>.

Brahmi extract has the potential usefulness in bronchoconstrictive and allergic conditions. Animal studies have demonstrated that it has a relaxant effect on chemically-induced bronchoconstriction, probably via inhibition of calcium influx into cell membranes. In vitro research using rabbit and pig aortas and pulmonary arteries has demonstrated that Brahmi exerts a vasodilatory effect on calcium chloride-induced contraction in both tissues via interference with calcium channel flux in tissue cells. Nearly all of the Brahmi extract subfractions inhibited carbachol-induced bronchoconstriction, hypotension and bradycardia in this animal model. Another study demonstrated that a methanol extract of Brahmi possessed potent mast cell stabilizing activity comparable to disodium cromoglycate, a commonly used allergy medication <sup>11</sup>.

Recently, some studies have demonstrated Brahmi's anti-cancer activity. A study on rats found that Brahmi extract promotes antioxidant status, reduces the rate of lipid peroxidation and markers of tumor progression in fibro sarcoma <sup>10</sup>. The anticancer effect of Brahmi extracts may be due to inhibition of DNA replication in cancer cell lines <sup>11</sup>. A study on rats revealed that pretreatment of bacoside A prevents the elevation of lipid peroxidase activity of serum marker enzymes and maintains the antioxidant system and thus protects the rats from Diethyl nitrosamine-induced hepatocellular carcinoma <sup>10</sup>. Brahmi protects human lymphocytes against various clastogens with its high anti-oxidant activity since clastogens are known to induce their clastogenic effects via the production of oxidative radicals <sup>10</sup>. More research is needed to support Brahmi's anticancer ability.

A study on rats showed Brahmi's protective effect against morphine-induced liver and kidney toxicity <sup>10</sup>. Simultaneous administration of morphine and alcohol extract of Brahmi significantly decreased lipid peroxidation and increased liver antioxidant enzyme level, thereby protecting the liver against morphine <sup>28</sup>. In mice, Brahmi

administration with phenytoin reversed phenytoin-induced cognitive impairment, and improved acquisition and retention of memory <sup>22</sup>.

An animal study showed that high doses of Brahmi extract increased the thyroid hormone, T4. However, T3 levels remained unchanged. Based on this study, Brahmi may have a potential use in hypothyroidism, however, the doses used in this study were very high and this effect has not yet been studied in humans <sup>26</sup>. The antifertility potential of Brahmi was studied in male mice. According to a 2009 study, Brahmi caused reversible suppression of spermatogenesis and fertility, without producing apparent toxic effects; and 56 days after treatment cessation, the parameters returned to baseline <sup>27</sup>. According to classical texts, Brahmi can safely be used during pregnancy to help both the mother and the fetus to be strong and sattvic. Also following delivery, the child may be given a honey-sweetened confection prepared with Brahmi to promote intellect <sup>30</sup>.

In addition to its beneficial effect on humans and animals, Brahmi has a favorable effect on the environment. Brahmi is a known hyper accumulator of cadmium, chromium, lead and mercury and can be used for phytoremediation <sup>10</sup>. A 2011 study reported that substantial amount of arsenate were found accumulated in the Brahmi plant, thus aiding in phytoremediation <sup>29</sup>.

Brahmi growing in contaminated areas may be toxic to health when consumed by humans <sup>29</sup>. According to Swami Sivananda, Brahmi should not be collected from impure and unholy places; instead it should be collected from clean places with "fresh airy regions" <sup>12</sup>.

### A Final Thought

Brahmi is one of the rare Ayurvedic herbs which can be grown almost anywhere when provided ample hydration and is widely available. It has been used for centuries in various forms and its advantages are supported by a vast body of literature and experience. Interestingly, the whole plant can be used for medicinal purposes. Ayurveda is the complete knowledge of life. Brahmi helps to achieve the primary goal of Ayurveda which is to prevent and treat illnesses and enhance lifespan by maintaining proper balance between the body, mind and the soul. Its therapeutic range is wide, and can be used in prevention as well as cure of a variety of disorders. It is a sattvic herb which comes from the same root as Brahman whose nature is Sat-Chit-Ananda <sup>16</sup>. Its sattvic quality can help build strong ojas and reduce bad habits and treat addictions. It balances all doshas, dhatus and has an effect on almost all the Srotas of the

human system and, based on the studies, animals, too. Being a nervine agent, it is beneficial in many neurologic and psychiatric disorders. This unusual herb has tonic, sedative and at the same time stimulant nervine effects. As a purifier, it is helpful in debilitating skin conditions. It strengthens the immune system and improves nutritional status, memory, intellect and longevity. It can help to achieve higher consciousness and improve meditation skills. By helping to open the crown chakra, it helps to achieve the highest goal of human life which is self-realization. Its ability to be used in different forms as well as in combination with other herbs makes it a popular medicinal plant. Finally, we have to agree with Swami Sivananda, “Rarely is it possible to come across an herb of such great worth.”

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