# GO BEYOND THE ORDINARY

In Cognitive Health

MEMORY | FOCUS | ATTENTION | RECALL



Natural Brain Performance





### **Beyond the Ordinary in Cognitive Health**

## BacoMind™

**Natural Remedies** is an internationally renowned botanical healthcare company committed to advancing the field through rigorous research and the development of clinically validated Herbal Branded Ingredients. Guided by our foundational principle of BEING USEFUL, we combine traditional herbal wisdom with cutting-edge science to develop world class products. Collaborating with businesses worldwide, we assist in enhancing their health and wellness formulations.

Innovation lies at the heart of our operations, supported by a state-of-the-art R&D and production facility certified to ISO 9001:2000 and ISO 22000:2005 standards. Our esteemed team of over 45+ scientists has contributed to over 230 publications in peer-reviewed journals. With the isolation of more than 250 phytocompounds for global reference standards and the contribution of over 100 monographs to respected authorities such as USP, IP, and API, we are at the forefront of botanical research.

## Our innovative Branded Ingredients offer a unique portfolio catering to trending categories:

Cognitive Health – BacoMind™, Stress & Sleep Management – Holixer®, Digestive Health - GutGard™, Joint Health - Turmacin™ & Immune Health - KalmCold™. We have patented and registered some of them with various leading authorities like TGA, ANVISA & KFDA. Safety and compliance are at the core of all we do. We adhere to the strictest regulations, ensuring our offerings comply with USA & EU limits for pesticides, heavy metals, and aflatoxins. Our offerings come along with a fully traceable supply chain combined with sustainable harvest programs, thereby offering global clients a one-stop shop for premium-quality standardized botanical ingredients.



#### For Natural Brain Performance



The brain is a remarkable organ which marvels of interconnected neurons and that serves as the command centre for our entire being, from infancy to old age. It orchestrates a symphony of functions, ranging from basic bodily movements to complex cognitive processes. As we journey through life, our brains undergo a series of transformations.

### Young Minds:

- Children's brains are in constant flux, forming trillions of connections, while learning and adapting.
- However, challenges like ADHD or learning disabilities can impact this development.

### **Maturing Minds:**

- As we age, memory and processing speed might dip, a natural part of "normal cognitive aging."
- But sometimes, this decline becomes more significant, leading to mild cognitive impairment.

#### **Elderly:**

 While wisdom often comes with age, dementia can tragically rob individuals of their cognitive abilities, impacting their thinking, behaviour, and daily lives.

### Bacopa monnieri (Brahmi)

The humble herb Brahmi (Bacopa monnieri) for a millennium is known as the "mindful wonder". Brahmi has held a cherished place in Ayurveda, India's ancient medicine system. Revered as a "medhya rasayana," it's believed to promote longevity, prevent aging, and sharpen the mind. Its leaves, particularly prized for addressing fatigue, nervous breakdown, and other imbalances, are often incorporated into formulas supporting memory, focus, and a calm disposition.

Many clinical studies of Bacopa monnieri which have been demonstrated show improvements in verbal learning, delayed word recall, memory acquisition, and anxiety reduction. It has been described as a calming cognitive enhancer. The triterpenoid saponins in Brahmi are believed to be responsible for most of the herb's pharmacological actions.

### INTRODUCTION

Go beyond the ordinary in Cognitive Health,

BacoMind™ - the world's best Bacopa with

9 bioactives for natural brain performance.

BacoMind™ is a trusted branded ingredient that is

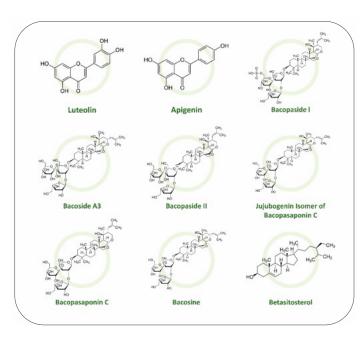
tested safe on human clinicals.

BacoMind™ shows effectiveness from elderly to children demonstrating its ability to improve memory, focus, attention, and recall.

### BacoMind™

### **Phytochemistry**

BacoMind™ is the full spectrum Bacopa monnieri extract offering the 9 key bioactives, working synergistically to deliver unparalleled cognitive health benefits with the benefit of GRAS affirmation.



### Figure 1

### BacoMind™

### **Mechanism of Action**



### **Neuronal Morphological Changes**

 Increases number of dendrites and dendrite branching.

### **Neurotransmission**

 Inhibits COMT & PEP Spares useful dopamine, norepinephrine, and Substance

## Antagonises Serotonin Receptor (5-HT6)

 Enhances cholinergic & glutaminergic transmission.

#### **Neuroprotection**

Inhibits ROS and PARP to provide



### BacoMind™

### **Clinical Trials**

BacoMind™ is clinically supported for use from adults, 2 in children and 1 human safety study.

#### BacoMind™ in Adults

- A randomized, placebo-controlled, double-blind trial, conducted on 98 healthy Australian adults, aged 55 years and older were divided into two groups. When one took BacoMind™ 300 mg, the other took a placebo for 12 weeks. The study participants underwent several memory tests at the beginning and at the end of the study.
- The results showed of BacoMind™ compared to the placebo had statistically significant improvements in memory acquisition and retention.

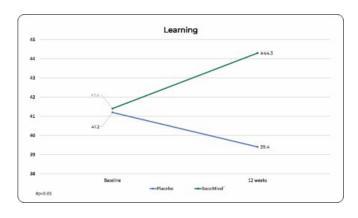


Figure 2

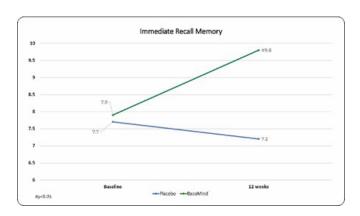


Figure 3

A second double-blind, placebo-controlled trial, conducted on 65 healthy Indian adults, aged 50 to 75 years, were divided into two groups. When one took BacoMind™ 450 mg, the other took a placebo. Study participants underwent several tests of attention and memory at the beginning of the study and again after 12 weeks and 24 weeks. The results showed that compared to placebo, BacoMind™ achieved several statistically significant improvements:

#### **Visual Retention:**

Scores increased by 22% at 12 weeks versus just 0.6% for placebo

### List Learning Delayed Recall:

Scores soared by 78% at 24 weeks versus a 2% decline for placebo

## Paired associated dissimilar delayed recall:

Scores rose by 36% at 24 weeks versus a 6% drop for placebo

#### **BacoMind™** in Children

An open-label study conducted on 27 children, aged 6 to 12 years, with psychologist-diagnosed ADHD. These children were devoid of ADHD medications and were on 225 mg of BacoMind™ for 6 months when diagnosed using the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). The children showed improvement in 6 out of 7 symptoms of ADHD.

In a 2nd open-label study conducted on 24 children aged 4 to 18 years, who had an individual education programme (IEP - IEPs are assigned to children with learning disabilities to help them succeed in school), all children took 225 mg of BacoMind™ for 4 months and underwent memory and mental control tests at baseline and again at the end of the study. A large majority of children taking BacoMind™ experienced a benefit, with 83% of children showing an improvement in memory.

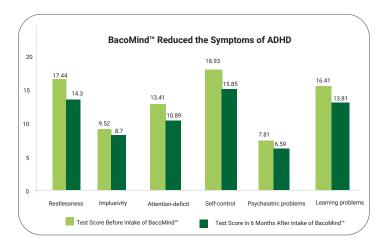


Figure 4

### BacoMind™ in Human Safety Study

In a randomized, open-label, dose escalation human study, 23 healthy adults took 300 to 450 mg of BacoMind™ daily for 30 days. Researchers examined haematological, biochemical, and electrocardiographic parameters and found no ill effects.

Extensive in vitro tests and studies in animals have also confirmed the safety of BacoMind™. In a 90-day repeated dose oral toxicity study, BacoMind™ produced no observed adverse effects at a dose of 500 mg per kilogram of body weight - many times the human dose. Similarly, in vitro tests on human cell lines - including the bacterial reverse mutation test, the chromosome aberration test, and the micronucleus test - have found BacoMind™ to be non-mutagenic.

### BacoMind<sup>™</sup>

### **GRAS Affirmed**

BacoMind™ is the first bacopa extract to achieve self-affirmed GRAS status, enabling its possibility of incorporation into food and beverages:

- Functional beverages and shots
- Gummies, chews, and alternative delivery technologies
- Shakes and bars



### Baco**Mind**<sup>™</sup>

### Sustainability

BacoMind™ comes along with sustainability measures that will meet the consumers' high standards. Bacopa monnieri is grown and cultivated in accordance with Good Agricultural Practices (GAP), with natural nutrient-rich fertilizers and without the use of herbicides or pesticides. The plants are harvested in accordance with Good Collection Practices (GCP), and the entire process allows for Natural Remedies to have end-to-end control from seed to shelf.

#### Good for the Climate

The crop is sustainably grown in the eastern region of India relying almost entirely on manual methods of cultivation. We minimize our carbon footprint by cultivating mostly with non-fossil fuel techniques. We recycle and reuse the water used for growing the crop, thereby maintaining the optimal groundwater levels. During manufacturing, most of the power utilized is from hydro and solar energy sources.

#### Good for the Community

Bacopa monnieri cultivation offers many of the impoverished farmers a lifeline. Collaborating with a local NGO, Natural Remedies supplies our farm partners with in-depth training; provides them with machinery for harvesting, chopping, and packing; and teaches them water conservation methods. Our buy-back guarantee gives them peace of mind and improves their standard of living. Natural Remedies believes in creating a WIN-WIN situation for the farmers and therein improving their livelihood.

### Good for the Crop

Bacopa monnieri is cultivated in farms with ideal conditions. The herb is then hand weeded without the use of any herbicides therein to yield pure crop. The mature crop is also hand-picked by our partner farmers and inspected for organoleptic qualities. The fields are inspected on regular basis to maintain the quality of the crop cultivated.

The cultivated herb is died immediately to prevent any sort of fungal contamination during transport and therein offer the best Bacopa.



BacoMind™ is the world's best Bacopa with 9 bioactives for Brain Health. BacoMind™ is clinically validated with on its effectiveness from elderly (at 300 to 450 mg/day) to children (at 250 mg/day). With GRAS affirmation, BacoMind™ safety is furthermore assured. Therefore, BacoMind™ has demonstrated its ability to support memory, focus, attention, and recall.

At Natural Remedies we harness nature & apply science, for health and happiness.

		ABBREVIATIONS
1.	ADHD	Attention Deficit Hyperactivity Disorder
2.	ANVISA	Agência Nacional de Vigilância Sanitária (The National Health Surveillance Agency)
3.	API	Ayurvedic Pharmacopoeia of India
4.	COMT	Catechol- O-methyl transferase
5.	EU	European Union
6.	GRAS	Generally Recognized as Safe
7.	IP	Indian Pharmacopeia
8.	ISO	International Organization for Standardization
9.	KFDA	Korea Food & Drug Administration
10.	mg	milligram
11.	NGO	Non-governmental organization
12.	PARP	Poly (ADP- ribose) polymerase
13.	PEP	Prolyl endopeptidase
14.	R&D	Research & Development
15.	ROS	Reactive oxygen species
16.	TGA	Therapeutic Goods Administration
17.	USA	United States of America
18.	USP	United Sates of Pharmacopeia
19.	5-HT6	5-hydroxytryptamine6

### **Bibliography**

- Dethe et al. Pharmacognosy Magazine 2016, 12: 482-487.
- Dave et al. Advances in Mind-Body Medicine 2014, 28(2):10-15.
- Deepak and Amit. Fitoterapia 2013, 87: 7-10.
- Morgan and Stevens. The Journal of Alternative and Complimentary Medicine 2010, 16(7): 753-759.
- Barbhaiya et al. Journal of Pharmacology and Toxicology 2008, 3(6): 425-434.
- Deb et al. Biomedical and Environmental Sciences 2008, 21: 7-23.
- Usha et al. Journal of Pharmacology and Toxicology 2008, 3(4): 302-310.
- Kasture et al. Journal of Natural Remedies 2007, 7(1): 166-173.
- Pravina et al. Phytomedicine 2007, 14: 301-308.
- Allan et al. Food and Chemical Toxicology 2007, 45: 1928-1937.
- Deepak et al. Phytochemical analysis 2005, 16(1): 24-29.
- Deepak and Amit. Phytomedicine 2004, 11(2-3): 264-268.
- D'Souza et al. Phytotherapy Research 2002, 16(2): 197-198.

