

Bright Panda™



THIS INFORMATION IS FOR PHYSICIANS AND OTHER LICENSED HEALTH CARE PRACTITIONERS ONLY. THE INFORMATION IS INTENDED TO ASSIST PRACTITIONER DECISION MAKING AS TO WHETHER OR NOT THESE PRODUCTS FIT THE NEEDS OF THEIR PATIENT. THE SCIENTIFIC INFORMATION AND DIETARY SUPPLEMENT PRODUCTS PROVIDED BY ALIGHT HEALTH FORMULAS ARE NOT INTENDED FOR USE BY CONSUMERS AS A MEANS TO CURE, TREAT, PREVENT, DIAGNOSE, OR MITIGATE ANY DISEASE OR OTHER MEDICAL CONDITION.

Bright Panda™ includes psychoactive herbs which support mental focus. Bright Panda™ is a unique nootropic blend, carefully selected to promote a healthy neuroinflammatory response while supporting balanced neurochemistry. Being rich in resveratrol and rosmarinic acid, the herbs included in Bright Panda™ also support normal neural processes involved with cognition.* Bright Panda™ is best used when increased focus is required.

Neuroinflammation is a key characteristic in PANDAS and PANS. The inflammation triggered in the autoimmune process primarily involves the microglia, the brain's resident immune cells, and mast cells. The resulting inflammation and neurochemical changes not only contribute to obsessive-compulsive symptoms, tics, and behavioral changes, but also disrupt cognitive function and affect alertness. It's common for children with PANDAS and PANS to have learning and memory problems, which are not related to IQ, but rather to the degree of neuroinflammation disrupting cognition.

The herbs selected for Bright Panda™ are designed to optimize brain function and support healthy cognition, mood, and memory in the face of neuroinflammation. It contains a comprehensive array of brain-supportive herbs to address the brain's unique set of needs under the assault of autoimmunity. It's formulated to assist with various aspects of brain health such as cell energy production, mitochondrial support, neuronal regeneration, and antioxidant status. Bright Panda™ supports cognitive function and neuronal health.

Brahmi

The use of brahmi (*Bacopa monnieri*) goes back centuries in traditional Ayurvedic medicine, where it's touted as a brain tonic and cognitive aid. It's said to help sharpen the mind and the intellect. That claim is bearing out as several randomized, double-blind, placebo-controlled trials have substantiated brahmi's nootropic utility in humans. Brahmi's triterpenoid saponins successfully establish a healthy antioxidant environment in various tissues especially in the liver and brain.

Current evidence suggests that brahmi acts by multiple mechanisms, including antioxidant neuroprotection, acetylcholinesterase inhibition and/or choline acetyltransferase activation, β -amyloid reduction, increased cerebral blood flow, and neurotransmitter modulation, with subsequent preservation of dopamine D1 and D2 receptors. Brahmi inhibits pro-inflammatory cytokine release from microglial cells and inhibits enzymes associated with inflammation in the brain, thus limiting inflammation in the central nervous system.

Supplement Facts

Serving Size 1/2 tsp. (2.5mL)
Servings Per Container 24

Amount Per Serving	% Daily Value
Proprietary blend:	675mg h/w equivalence*
Brahmi aerial (<i>Bacopa monnieri</i>)	
Gotu Kola aerial (Dried/Fresh <i>Centella asiatica</i>)	
Thorough-Wax root (<i>Bupleurum falcatum</i>)	
Japanese Knotweed root (<i>Polygonum cuspidatum</i>)	
Rosemary leaf (<i>Rosmarinus officinalis</i>)	
Ginkgo leaf (Fresh <i>Ginkgo biloba</i>)	
Bilberry leaf & berry (<i>Vaccinium myrtillus</i>)	

*Daily Value not established.

Other Ingredients: Organic glycerin and distilled water
Free from alcohol, gluten, dairy, soy, GMOs.

Recommended Use

Child-safe dose (50 lb): ½ tsp twice daily, best early in the day, or as directed by your health care practitioner. Adjust for others using a weight-adjusted dose.

Additionally, brahmi's potent phytochemicals have activity against oral *Streptococcus mutans* and pathogenic *Staphylococcus aureus*.

Gotu Kola

Gotu kola (*Centella asiatica*) is a psychoactive medicinal herb with immense therapeutic potential. It's traditionally used in many parts of Asia as a tonic for the brain and nervous system, and is said to minimize the impacts of excessive worry and chronic stress. As a powerful antioxidant, Gotu kola attenuates oxidative stress by significantly increased anti-oxidant enzymes, like superoxide dismutase, catalase and glutathione peroxidase, and antioxidants like glutathione (GSH) and ascorbic acid. Gotu kola contains an abundance of triterpenoid saponins, categorized as centellosides. Animal studies find that centellosides demonstrate high capability to cross the blood-brain barrier, making them particularly beneficial for neuroinflammation.

Gotu kola's triterpenoids activate anti-neuroinflammatory mechanisms by inhibiting lipopolysaccharide (LPS)-induced microglial inflammation, a targeted benefit for those with dysbiosis, where eating causes a heightened release of LPS endotoxins. Other neuroprotective mechanisms include preserving glutathione, protecting against dopamine and glutamate neurotoxicity, and suppressing neuroinflammation in microglia via modulation of the Sirt1/NF- κ B signaling pathway — a pathway dysregulated by mold mycotoxin exposure.,

Gotu kola has a restorative impact on the mucosa barrier and gut microbiota homeostasis.

This may be related to its induction of intestinal T-regulator cells, which consequently has an anti-arthritis effect.

Thorough-Wax

Multiple species of Thorough-wax have been used traditionally for thousands of years worldwide in the treatment of inflammatory disorders and infectious diseases. The American species can be found in and around Glacier National Park. We've selected *Bupleurum falcatum*, which exhibits diverse pharmacological effects, such as anti-inflammatory, antioxidant, anti-histaminic, antispasmodic, anticancer, antipyretic, antimicrobial, antiviral, hepatoprotective, neuroprotective, and immunomodulation.

In animal models, Thorough-wax's triterpenoid saponin, saikosaponin D, preserved the morphology of neurons and decelerated the activation of microglia and astrocytes in the hippocampus, which resulted in significant reduction in memory impairment. Saikosaponins alleviate symptoms of attention deficit hyperactivity disorder through downregulation of dopamine transporters and by enhancing brain-derived neurotrophic factor (BDNF) expression. Saikosaponins also inhibit neuroinflammatory influences on glutamate and GABA to contain their expressions to within normal range.

Thorough-wax has antimicrobial activity with moderate activity against *Streptococcus pyogenes*, and activity against Influenza A, with more potent inhibitory activity and selectivity than the positive control, Ribavirin.

Made without the use of alcohol. Free from added sweeteners.

Taste-tested by both kids and adults. Glycerin provides a pleasantly sweet taste.

Japanese Knotweed

Japanese knotweed (*Polygonum cuspidatum*) is a widely used Chinese medicine with a broad spectrum of pharmacological effects, commonly prescribed for varying treatments including anti-aging, inflammation, amenorrhea, arthralgia, hyperlipidemia, jaundice, abscess, scald and bruises.

Human studies report a reduction in inflammation, with a significant reduction in plasma levels of TNF- α and IL-6. It assists learning and memory, while the active component polydatin displays anxiolytic effects through the blockade of neuroinflammation. Additionally, polydatin is involved with neuroplasticity by up-regulating brain-derived neurotrophic factor (BDNF).

Japanese knotweed is neuroprotective by attenuating neurotoxicity caused by microglial activation. Important for the basal ganglia changes in PANDAS and PANS, animal models suggest that Japanese knotweed protects the dopaminergic neurons, attributed to its radical scavenging ability and antioxidant properties.

Rosemary

Rosemary (*Rosmarinus officinalis*) has a long history of traditional use benefitting mental health and cognition. This evergreen bushy shrub is used in folk medicine as an antispasmodic, mild analgesic, to cure intercostal neuralgia, headaches, migraine, insomnia, emotional upset, and depression. Different investigations have highlighted rosemary's neuropharmacological properties finding that it has significant antimicrobial, anti-inflammatory, anti-oxidant, anti-apoptotic, anti-tumorigenic, antinociceptive, and neuroprotective properties. Importantly for this formula, it shows important clinical effects on mood, learning, memory, and anxiety.

The active component rosmarinic acid mitigates the lipopolysaccharide-induced neuroinflammatory responses and regulates microglial M1/M2 polarization under conditions of neuroinflammation. Through the inhibition of the NLRP3 inflammasome, it exerts antioxidant, anti-inflammatory, and neuroprotective effects via phase 2 enzyme induction initiated by activation of the KEAP1/NRF2 transcriptional pathway, which in turn attenuates NLRP3 activation.

Ginkgo

Ginkgo (*Ginkgo biloba*) is a well-studied botanical relevant to nootropics and supporting brain health. It's neuroprotective, cardioprotective, gastroprotective, vasotropic, and has antioxidant properties shown to assist with multiple degenerative processes.

Ginkgo has been shown to promote cognition, thought to be partly attributed to its antioxidant properties. In a meta-analysis of placebo-controlled trials with mild-to-moderate dementia patients, supplementation with ginkgo demonstrated improvement in memory function, concentration, and anxiety, and also significant improvements in cognitive function and quality of life measurements. Animal models report that it diminishes stress-induced memory deficits.

Bilberry

Bilberry (*Vaccinium myrtillus*) is one of the richest natural sources of anthocyanins, which are the polyphenolic components that give bilberry its blue/black color and high antioxidant content. While most well-known for its vision improving benefit, bilberry has also been reported to lower blood glucose, to have anti-inflammatory and lipid-lowering effects, and to promote antioxidant defense and lower oxidative stress, making it useful for the prevention and treatment of chronic inflammatory disorders.

Animal models describe the mechanisms by which bilberry functions in its traditional use of improving learning and memory, much to do with increasing microvascular circulation. Bilberry's anthocyanins improve neuroinflammation and cognitive dysfunction in via signaling pathways in microglia. Animal models show that bilberry polyphenols resulted in a significant reduction in anxiety as compared to controls, not to mention its normalizing effect on insulin resistance.

Therapeutic Differences by Composition



Glycerin was chosen as the extraction menstruum for the herbs in this formula for more than its alcohol-free benefits. Whereas ethanol has 2-carbon atoms and only one hydroxyl group to share, glycerin has 3-carbon atoms and three hydroxyl groups to share, making it superior for extracting more therapeutic properties from the herbs, including higher concentrations of polyphenols and flavonoids.

In addition, glycerol aquaporins within the fatty acid backbone of the cell membrane preferentially allow glycerins through the cell membrane resulting in maximum absorption and bioavailability.

For more information about Alight Health Formulas®, email contact@alighthealthformulas.com.

References

- Aguiar S, Borowski T. Neuropharmacological review of the nootropic herb *Bacopa monnieri*. *Rejuvenation Res.* 2013 Aug;16(4):313-26. doi: 10.1089/rej.2013.1431. PMID: 23772955; PMCID: PMC3746283.
- Sekhar VC, Viswanathan G, Baby S. Insights Into the Molecular Aspects of Neuroprotective Bacoside A and Bacopaside I. *Curr Neuropharmacol.* 2019;17(5):438-446. doi: 10.2174/1570159X16666180419123022. PMID: 29676230; PMCID: PMC6520587.
- Aguiar S, Borowski T. Neuropharmacological review of the nootropic herb *Bacopa monnieri*. *Rejuvenation Res.* 2013 Aug;16(4):313-26. doi: 10.1089/rej.2013.1431. PMID: 23772955; PMCID: PMC3746283.
- Nemetchek MD, Stierle AA, Stierle DB, Lurie DI. The Ayurvedic plant *Bacopa monnieri* inhibits inflammatory pathways in the brain. *J Ethnopharmacol.* 2017 Feb 2;197:92-100. doi: 10.1016/j.jep.2016.07.073. Epub 2016 Jul 26. PMID: 27473605; PMCID: PMC5269610.
- Jeyasri R, Muthuramalingam P, Priya A, Alexpandi R, Shanmugam NRS, Nivetha S, Shin H, Pandian SK, Ravi AV, Ramesh M. Comprehensive in vitro and in vivo evaluation of therapeutic potential of *Bacopa*-derived asiatic acid against a human oral pathogen *Streptococcus mutans*. *Front Microbiol.* 2024 Jun 25;15:1404012. doi: 10.3389/fmicb.2024.1404012. PMID: 38983632; PMCID: PMC11231090.
- Emran TB, Rahman MA, Uddin MM, Dash R, Hossen MF, Mohiuddin M, Alam MR. Molecular docking and inhibition studies on the interactions of *Bacopa monnieri*'s potent phytochemicals against pathogenic *Staphylococcus aureus*. *Daru.* 2015 Apr 17;23(1):26. doi: 10.1186/s40199-015-0106-9. PMID: 25884228; PMCID: PMC4405885.
- Jayashree G, Kurup Muraleedhara G, Sudarslal S, Jacob VB. Anti-oxidant activity of *Centella asiatica* on lymphoma-bearing mice. *Fitoterapia.* 2003 Jul;74(5):431-4. doi: 10.1016/s0367-326x(03)00121-7. PMID: 12837356.
- Hanapi NA, Mohamad Arshad AS, Abdullah JM, Tengku Muhammad TS, Yusof SR. Blood-Brain Barrier Permeability of Asiaticoside, Madecassoside and Asiatic Acid in Porcine Brain Endothelial Cell Model. *J Pharm Sci.* 2021 Feb;110(2):698-706. doi: 10.1016/j.xphs.2020.09.015. Epub 2020 Sep 16. PMID: 32949562.
- Sasmitha AO, Ling APK, Voon KGL, Koh RY, Wong YP. Madecassoside activates anti-neuroinflammatory mechanisms by inhibiting lipopolysaccharide-induced microglial inflammation. *Int J Mol Med.* 2018 May;41(5):3033-3040. doi: 10.3892/ijmm.2018.3479. Epub 2018 Feb 9. PMID: 29436598.
- Xu CL, Wang QZ, Sun LM, Li XM, Deng JM, Li LF, Zhang J, Xu R, Ma SP. Asiaticoside: attenuation of neurotoxicity induced by MPTP in a rat model of Parkinsonism via maintaining redox balance and up-regulating the ratio of Bcl-2/Bax. *Pharmacol Biochem Behav.* 2012 Jan;100(3):413-8. doi: 10.1016/j.pbb.2011.09.014. Epub 2011 Oct 6. PMID: 22001429.
- Qian Y, Xin Z, Lv Y, Wang Z, Zuo L, Huang X, Li Y, Xin HB. Asiatic acid suppresses neuroinflammation in BV2 microglia via modulation of the Sirt1/NF- κ B signaling pathway. *Food Funct.* 2018 Feb 21;9(2):1048-1057. doi: 10.1039/c7fo01442b. PMID: 29354820.
- Li H, Chen X, Liu J, Chen M, Huang M, Huang G, Chen X, Du Q, Su J, Lin R. Ethanol extract of *Centella asiatica* alleviated dextran sulfate sodium-induced colitis: Restoration on mucosa barrier and gut microbiota homeostasis. *J Ethnopharmacol.* 2021 Mar 1;267:113445. doi: 10.1016/j.jep.2020.113445. Epub 2020 Oct 3. PMID: 33022343.
- Qiao S, Lian X, Yue M, Zhang Q, Wei Z, Chen L, Xia Y, Dai Y. Regulation of gut microbiota substantially contributes to the induction of intestinal Treg cells and consequent anti-arthritis effect of madecassoside. *Int Immunopharmacol.* 2020 Dec;89(Pt A):107047. doi: 10.1016/j.intimp.2020.107047. Epub 2020 Oct 8. PMID: 33039960.
- Ashour ML, Wink M. Genus *Bupleurum*: a review of its phytochemistry, pharmacology and modes of action. *J Pharm Pharmacol.* 2011 Mar;63(3):305-21. doi: 10.1111/j.2042-7158.2010.01170.x. Epub 2010 Nov 16. PMID: 21749378; PMCID: PMC7197585.

References

- B Yang F, Dong X, Yin X, Wang W, You L, Ni J. Radix Bupleuri: A Review of Traditional Uses, Botany, Phytochemistry, Pharmacology, and Toxicology. *Biomed Res Int.* 2017;2017:7597596. doi: 10.1155/2017/7597596. Epub 2017 May 16. PMID: 28593176; PMCID: PMC5448051.
- Zhou L, Huang JY, Zhang D, Zhao YL. Cognitive improvements and reduction in amyloid plaque deposition by saikosaponin D treatment in a murine model of Alzheimer's disease. *Exp Ther Med.* 2020 Aug;20(2):1082-1090. doi: 10.3892/etm.2020.8760. Epub 2020 May 17. PMID: 32742347; PMCID: PMC7388258.
- Jichao S, Xinmin H, Xianguo R, Dongqi Y, Rongyi Z, Shuang L, Yue Y, Yuchen S, Jingnan Y. Saikosaponin A Alleviates Symptoms of Attention Deficit Hyperactivity Disorder through Downregulation of DAT and Enhancing BDNF Expression in Spontaneous Hypertensive Rats. *Evid Based Complement Alternat Med.* 2017;2017:2695903. doi: 10.1155/2017/2695903. Epub 2017 Feb 15. PMID: 28293263; PMCID: PMC5331296.
- Xie W, Li CZ, Bao Y, Yu LJ. [Saikosaponins inhibit increased glutamate and GABA expressions in the hippocampus of pentetrazole-induced slow kindling rats]. *Nan Fang Yi Ke Da Xue Xue Bao.* 2006 Aug;26(8):1132-5. Chinese. PMID: 16939901.
- Ashour ML, El-Readi MZ, Hamoud R, Eid SY, El Ahmady SH, Nibret E, Herrmann F, Youns M, Tahrani A, Kaufmann D, Wink M. Anti-infective and cytotoxic properties of *Bupleurum marginatum*. *Chin Med.* 2014 Jan 17;9(1):4. doi: 10.1186/1749-8546-9-4. PMID: 24438177; PMCID: PMC3901767.
- Fang W, Yang YJ, Guo BL, Cen S. Anti-influenza triterpenoid saponins (saikosaponins) from the roots of *Bupleurum marginatum* var. *stenophyllum*. *Bioorg Med Chem Lett.* 2017 Apr 15;27(8):1654-1659. doi: 10.1016/j.bmcl.2017.03.015. Epub 2017 Mar 7. PMID: 28314599.
- Lin SP, Chu PM, Tsai SY, Wu MH, Hou YC. Pharmacokinetics and tissue distribution of resveratrol, emodin and their metabolites after intake of *Polygonum cuspidatum* in rats. *J Ethnopharmacol.* 2012 Dec 18;144(3):671-6. doi: 10.1016/j.jep.2012.10.009. Epub 2012 Oct 13. PMID: 23069945.
- Peng W, Qin R, Li X, Zhou H. Botany, phytochemistry, pharmacology, and potential application of *Polygonum cuspidatum* Sieb. et Zucc.: a review. *J Ethnopharmacol.* 2013 Jul 30;148(3):729-45. doi: 10.1016/j.jep.2013.05.007. Epub 2013 May 22. PMID: 23707210.
- Peron G, Dall'Acqua S, Sut S. Supplementation with resveratrol as *Polygonum cuspidatum* Sieb. et Zucc. extract induces changes in the excretion of urinary markers associated to aging in rats. *Fitoterapia.* 2018 Sep;129:154-161. doi: 10.1016/j.fitote.2018.06.022. Epub 2018 Jun 27. PMID: 29959053.
- Zahedi HS, Jazayeri S, Ghiasvand R, Djalali M, Eshraghian MR. Effects of *Polygonum cuspidatum* containing resveratrol on inflammation in male professional basketball players. *Int J Prev Med.* 2013 Apr;4(Suppl 1):S1-4. PMID: 23717757; PMCID: PMC3665013.
- Xu NG, Xiao ZJ, Zou T, Huang ZL. Ameliorative effects of physcion 8-O- β -glucopyranoside isolated from *Polygonum cuspidatum* on learning and memory in dementia rats induced by A β 1-40. *Pharm Biol.* 2015;53(11):1632-8. doi: 10.3109/13880209.2014.997251. Epub 2015 Apr 9. PMID: 25856718.
- Li RP, Wang ZZ, Sun MX, Hou XL, Sun Y, Deng ZF, Xiao K. Polydatin protects learning and memory impairments in a rat model of vascular dementia. *Phytomedicine.* 2012 Jun 15;19(8-9):677-81. doi: 10.1016/j.phymed.2012.03.002. Epub 2012 Apr 4. PMID: 22483554.
- Guan SY, Zhang K, Wang XS, Yang L, Feng B, Tian DD, Gao MR, Liu SB, Liu A, Zhao MG. Anxiolytic effects of polydatin through the blockade of neuroinflammation in a chronic pain mouse model. *Mol Pain.* 2020 Jan-Dec;16:1744806919900717. doi: 10.1177/1744806919900717. PMID: 31964240; PMCID: PMC6977205.
- Sun J, Qu Y, He H, Fan X, Qin Y, Mao W, Xu L. Protective effect of polydatin on learning and memory impairments in neonatal rats with hypoxic-ischemic brain injury by up-regulating brain-derived neurotrophic factor. *Mol Med Rep.* 2014 Dec;10(6):3047-51. doi: 10.3892/mmr.2014.2577. Epub 2014 Sep 18. PMID: 25241777.

References

Zhang Q, Yuan L, Zhang Q, Gao Y, Liu G, Xiu M, Wei X, Wang Z, Liu D. Resveratrol attenuates hypoxia-induced neurotoxicity through inhibiting microglial activation. *Int Immunopharmacol*. 2015 Sep;28(1):578-87. doi: 10.1016/j.intimp.2015.07.027. Epub 2015 Jul 28. PMID: 26225925.

Wang Y, Xu H, Fu Q, Ma R, Xiang J. Protective effect of resveratrol derived from *Polygonum cuspidatum* and its liposomal form on nigral cells in parkinsonian rats. *J Neurol Sci*. 2011 May 15;304(1-2):29-34. doi: 10.1016/j.jns.2011.02.025. Epub 2011 Mar 3. PMID: 21376343.

Ghasemzadeh Rahbardar M, Hosseinzadeh H. Therapeutic effects of rosemary (*Rosmarinus officinalis* L.) and its active constituents on nervous system disorders. *Iran J Basic Med Sci*. 2020 Sep;23(9):1100-1112. doi: 10.22038/ijbms.2020.45269.10541. PMID: 32963731; PMCID: PMC7491497.

Wei Y, Chen J, Hu Y, Lu W, Zhang X, Wang R, Chu K. Rosmarinic Acid Mitigates Lipopolysaccharide-Induced Neuroinflammatory Responses through the Inhibition of TLR4 and CD14 Expression and NF- κ B and NLRP3 Inflammasome Activation. *Inflammation*. 2018 Mar;41(2):732-740. doi: 10.1007/s10753-017-0728-9. PMID: 29318480.

Satoh T, Trudler D, Oh CK, Lipton SA. Potential Therapeutic Use of the Rosemary Diterpene Carnosic Acid for Alzheimer's Disease, Parkinson's Disease, and Long-COVID through NRF2 Activation to Counteract the NLRP3 Inflammasome. *Antioxidants (Basel)*. 2022 Jan 6;11(1):124. doi: 10.3390/antiox11010124. PMID: 35052628; PMCID: PMC8772720.

Lorca C, Mulet M, Arévalo-Caro C, Sanchez MÁ, Perez A, Perrino M, Bach-Faig A, Aguilar-Martínez A, Vilella E, Gallart-Palau X, Serra A. Plant-derived nootropics and human cognition: A systematic review. *Crit Rev Food Sci Nutr*. 2023;63(22):5521-5545. doi: 10.1080/10408398.2021.2021137. Epub 2022 Jan 3. PMID: 34978226.

Liu Q, Wang J, Gu Z, Ouyang T, Gao H, Kan H, Yang Y. Comprehensive Exploration of the Neuroprotective Mechanisms of Ginkgo biloba Leaves in Treating Neurological Disorders. *Am J Chin Med*. 2024;52(4):1053-1086. doi: 10.1142/S0192415X24500435. Epub 2024 Jun 21. PMID: 38904550.

Singh SK, Srivastav S, Castellani RJ, Plascencia-Villa G, Perry G. Neuroprotective and Antioxidant Effect of Ginkgo biloba Extract Against AD and Other Neurological Disorders. *Neurotherapeutics*. 2019 Jul;16(3):666-674. doi: 10.1007/s13311-019-00767-8. PMID: 31376068; PMCID: PMC6694352.

Walesiuk A, Trofimiuk E, Braszko JJ. Ginkgo biloba extract diminishes stress-induced memory deficits in rats. *Pharmacol Rep*. 2005 Mar-Apr;57(2):176-87. PMID: 15886416.

Chu WK, Cheung SCM, Lau RAW, Benzie IFF. Bilberry (*Vaccinium myrtillus* L.). In: Benzie IFF, Wachtel-Galor S, editors. *Herbal Medicine: Biomolecular and Clinical Aspects*. 2nd ed. Boca Raton (FL): CRC Press/Taylor & Francis; 2011. Chapter 4. PMID: 22593936.

Sharma A, Lee HJ. Anti-Inflammatory Activity of Bilberry (*Vaccinium myrtillus* L.). *Curr Issues Mol Biol*. 2022 Sep 30;44(10):4570-4583. doi: 10.3390/cimb44100313. PMID: 36286028; PMCID: PMC9601269.

Oh DR, Kim Y, Im S, Oh KN, Shin J, Jeong C, Kim Y, Choi EJ, Choi C. *Vaccinium bracteatum* Improves Spatial Learning and Memory by Regulating N-methyl-D-aspartate Receptors and Tau Phosphorylation in Chronic Restraint Stress-Induced Memory Impaired Mice. *Am J Chin Med*. 2021;49(1):69-94. doi: 10.1142/S0192415X2150004X. Epub 2020 Dec 26. PMID: 33371815.

Li J, Zhao R, Jiang Y, Xu Y, Zhao H, Lyu X, Wu T. Bilberry anthocyanins improve neuroinflammation and cognitive dysfunction in APP/PSEN1 mice via the CD33/TREM2/TYROBP signaling pathway in microglia. *Food Funct*. 2020 Feb 26;11(2):1572-1584. doi: 10.1039/c9fo02103e. PMID: 32003387.

Sidorova YS, Petrov NA, Shipelin VA, Zorin SN, Kochetkova AA, Mazo VK. [The impact of bilberry leaves' polyphenols on the anxiety level, spatial learning and memory of db/db mice]. *Vopr Pitan*. 2019;88(3):53-62. Russian. doi: 10.24411/0042-8833-2019-10029. Epub 2019 May 20. PMID: 31265775.

Kowalska G, Baj T, Kowalski R, Szymańska J. Optimization of Glycerol-Water Extraction of Selected Bioactive Compounds from Peppermint and Common Nettle. *Antioxidants (Basel)*. 2021 May 20;10(5):817. doi: 10.3390/antiox10050817. PMID: 34065576; PMCID: PMC8160696.