

Zylaria™

**IT'S TIME TO RE-THINK RELAXATION
& SLEEP QUALITY**

RESEARCH OVERVIEW



DISCOVER ZYLARIA™

Xylaria nigripes is a fungus whose sclerotia grow several feet underground on *Odontotermes formosanus* termite combs during spring and summer months. Wild *Xylaria nigripes* are rare and hard to find because of its growing region.

Zylaria™ is NuLiv Science's proprietary *Xylaria nigripes* extract produced by a patented fermentation technology that grows the *Xylaria nigripes* mycelia in fermentation vats.

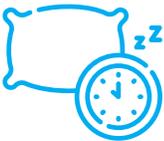
KEY BENEFITS



PROMOTES RELAXATION*



ELEVATES MOOD*



BENEFITS SLEEP LATENCY & QUALITY*

HOW ZYLARIA™ WORKS

When night approaches, the body and mind should naturally unwind and be aware that it's time for rest; however, for many individuals, this doesn't happen for a number of reasons. The body needs an essential amino acid called gamma-aminobutyric acid (GABA) in order for the brain to communicate specific signals throughout the body.

Zylaria™ replenishes the brain with this essential amino acid and phytonutrients to support normal healthy brain functions due to the fungi's sedative-like qualities.* This unique fungus belongs to a specific subgenus of *Xylaria* that is exclusively hidden deep down in the dirt where nutritious, yet obscure fungi lies within the nest of the *Odontotermes* termite.

Zylaria™ contains many essential amino acids, vitamins, minerals, trace elements, glycoproteins, glutamic acid, γ -aminobutyric acid (GABA) and decarboxylase identical to wild *Xylaria nigripes* that has been demonstrated *in-vivo* and in human clinical studies to improve sleep quality and promote relaxation.

On sleep, it is well established that glutamic acid assists the uptake of GABA to specific brain cell receptors and exerts a tranquilizing effect on the central nervous system.

OVERALL WELLNESS & MOOD

Studies showed that the RBC, WBC and Hemoglobin counts increased after the administration of *Xylaria nigripes*.

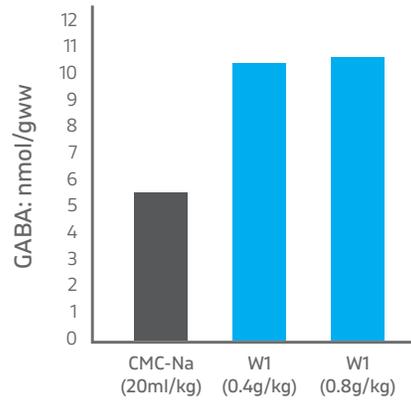
The increases of these vital cells provided greater volume of oxygen and nutrients to all cells, tissues and organs in studied subjects and increased their sense of well-being, energy and vitality.

SLEEP QUALITY

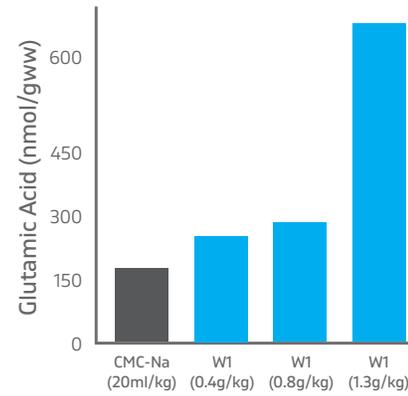
Pharmacological studies¹ indicate that the contents of glutamic acid (Glu), γ -aminobutyric acid (GABA) and the binding affinity of GABA receptors in the brain were found to be augmented in subjects in the treatment groups as compared to the subjects in the control group after the administration of *Xylaria nigripes*.



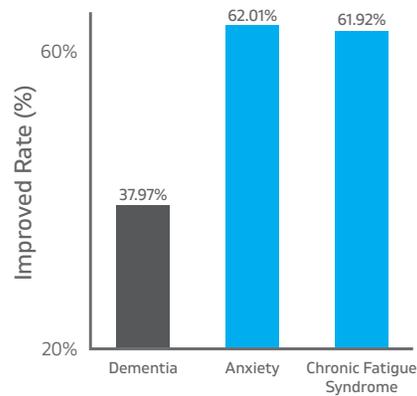
CLINICAL EFFECTS OF ZYLARIA™



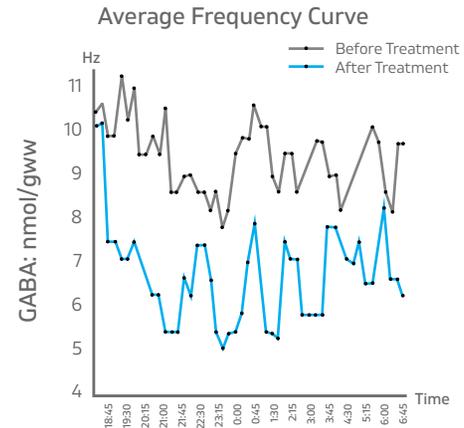
Effect of Zylaria™ on brain uptake of GABA in mice



Effect of Zylaria™ on brain uptake of Glutamic Dehydrogenase in mice



Effect of Zylaria™ on brain uptake of Dementia, Anxiety, and Chronic Fatigue Syndrome



Effect of Zylaria™ in lowering brain wave activity that leads to improved quality of sleep

PHASE I IN-VIVO EXPERIMENTS DISCUSSION

Three experiments indicated that *Xylaria nigripes* had sedative effects and induced peaceful sleep in tested subjects. The experiments showed that continuous treatment with *Xylaria nigripes* for 1 or 4 days at high- or medium-dose could only produce some trend in reducing the time needed for mice to fall asleep and prolong their sleeping time.

This means that *Xylaria nigripes* would show the effect only after continuous administration for more than 7-8 days, and the effect was mild and accumulative. 2 hours after waking up from *Xylaria nigripes* induced sleep, the mice showed normal behavior which was nearly the same as the mice in the control group.

Xylaria nigripes contains abundant amino acids, vitamins and various nutrient substances. The rich content of glutamic acid in *Xylaria nigripes* promotes metabolism, protein synthesis and transmission of stimulative signals in nerve synapse and is closely related to the phenomena of long term synaptic potentialization (LTP).

It would, in long term use, improve the learning ability and memory. In addition, Glu changes into a restrictive transmitter-GABA by the action of GAD.

Xylaria nigripes contain a large amount of Glu and GABA. In order to study the effects of *Xylaria nigripes* on the central nervous system, an isotopic tracing method with ³H-Glu and ³H-GABA was used. The results showed that, 30 minutes after injection of ³H-Glu and ³H-GABA, their quantity in the mouse brain increased significantly.

This suggested that compounds in *Xylaria nigripes* may increase the permeability of Glu and GABA to brain tissue and increase their intake, resulting in the improvement of the regulation of the central nervous system.

**Request Zylaria™ product dossier for in-depth tables/graphs & discussion*

PHASE II DISCUSSION

Results from the Phase II Clinical study suggest *Xylaria nigripes* treated participants are statistically better off compared to the participants in the Control group in improving their sleep quality and the other 3 conditions. In particular, the study suggested that the effects of *Xylaria nigripes* may last at least two weeks after participants stopped taking *Xylaria nigripes* capsules.

At the minimum, *Xylaria nigripes* was able to reduce the severity of insomnia among the participants who took the product. The study also showed that *Xylaria nigripes* worked for participants of all ages and the duration of having insomnia and 3 other conditions did not reduce the effectiveness of *Xylaria nigripes*.

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PHASE III DISCUSSION

Results from the Phase III Clinical study suggests that 90% of the participants who were given *Xylaria nigripes* felt their sleep quality improved, much improved, or symptom free. In particular, the study suggested that the effect of *Xylaria nigripes* may last at least two weeks after participants stopped taking *Xylaria nigripes* capsules

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REFERENCES

1. W. A. Sands. The association of termites and fungi. In *Biology of Termites*, Edited by K. Krishna and F. M. Weesner, Vol. 1, 495-524 (1970), *Academic Press*, New York
2. Zylaria™ Product Dossier. NuLiv Science USA, Inc. (Request document to review)
3. Shih-Chuan *Chinese Medical Journal*, p1434 (1960)
4. Z. J. Ma, et al., *Journal of Immunology (China)*, 5 (2), 13 (1989)
5. In-vivo Study. NuLiv Science USA, Inc. (Request Product Dossier to review)
6. Sreerama L, Veerabhadrapa, Isolation and properties of carboxylesterases of the termite gut-associated fungus, *Xylaria nigripes*. K., and their identity from the host termite. *Odentotermes horni*. W., mid-gut carboxylesterases, *International Journal of Biochemistry* 1993 Nov; 25(11):1637-51
7. Study on the Mechanism and Sedation Effect of *Xylaria Nigripes*, *Chinese Pharmacological Journal* 1999;6,34(6)

**These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.*

For questions and additional information please contact



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