Linnea

L-5-Hydroxytryptophan
Griffonia Seed Extract 99%
In investigations into the causes of neuropsychiatric disorders, sufficient evidence has been found to support the theory whereby an unbalanced metabolism of amino acids, and Serotonin in particular, plays an important role in causing these disorders. In fact, these substances are present in a reduced quantity in the brain tissue of depressed patients and in some neurological syndromes their rate of metabolite production is low. Since exogenous Serotonin cannot be used, it must be synthesized at the sites where it acts from the amino acid precursor, Tryptophan. Only 1% of exogenous Tryptophan is however transformed into Serotonin.

A natural alternative is the use of the food supplement L-5-Hydroxytryptophan (5-HTP), that is the direct Serotonin precursor in the brain. It passes through the blood/brain barrier easily and acts by providing more of the basic raw material the body needs to metabolise Serotonin and thus raise Serotonin levels.

Source

5-HTP is extracted from the seeds of the Griffonia tree, which belongs to the Fabaceae family and grows principally in West Africa. Griffonia simplicifolia is a woody climbing shrub native to West and Central Africa where it is found mostly in thickets, usually near mounds of the termite Macrotermes, on plains, in forests, in secondary vegetation and on old farms. Griffonia simplicifolia is an extremely adaptable evergreen plant that produces fairly large quantities of highly palatable herbage of good nutritive value and large, viable seeds. Traditionally, Africans use different parts of the plant for different purposes. The stem and roots are used as chewing sticks that aid wound healing whilst leaf juice is used as an enema and in the treatment of kidney ailments. A decoction of stems and leaves is also used to stop vomiting, to treat congestion of the pelvis and as an aphrodisiac. Griffonia simplicifolia seeds are carefully harvested through a selected network of suppliers. Every shipment leaving West Africa is inspected previously by a Linnea representative in situ so as to ensure raw material of the highest quality all over the world.
Activity

5-HTP is the precursor in the biosynthesis of the neurotransmitters Serotonin and Melatonin from Tryptophan. While Tryptophan has a general effect on the whole body, 5-HTP crosses the blood-brain barrier easily, skips the hydroxylation phase, which is obligatory for Tryptophan, and is completely transformed into Serotonin by 5-hydroxytryptophan decarboxylase (present in nervous and liver tissue) [1].

Serotonin is an important neuromediator in the modulation of several specific activities at the CNS level, including control of the pain threshold, regulation of sleep patterns, the activity of the neuroendocrine pituitary gland, the motor integrating mechanisms of the extra-pyramidal system and neuronal excitability. It is also involved in thermal and eating regulation and the control of sexual and aggressive behaviour [2].

Common Applications

5-HTP is a nutritional supplement used principally to maintain sleeping patterns, lighten moods (anxiety, depression) and treat obesity-related binge eating [1,3]. It has also been found to be effective in relieving the symptoms of several diseases such as fibromyalgia, premenstrual syndrome, attention deficit disorder and chronic headaches [4].

Clinical Evidence

Depression
Considering the major role of Serotonin in depression and 5-HTP in Serotonin synthesis, 5-HTP has been used for a long time in Europe as an alternative anti-depressant [5]. The antidepressant efficacy of 5-HTP has been studied in more than 900 patients treated with doses ranging from 50 mg/day to 600 mg/day for a period of 4 weeks to 8 months and most of them found 5-HTP superior to the placebo. A number of open-label studies have also been conducted in comparison with other active substances [2].

5-HTP was found to be effective in reducing depression scores (on the Hamilton’s Rating Scale for Depression, Zung’s Depression Status Inventory, Clinical Global Impression Scale, Mini Mental State Examination, etc.) and in reducing mild-to-moderate depression with the advantage of giving fewer side effects than conventional anti-depressants. 5-HTP supplementation is thus considered a possible significant addition to the antidepressant armamentarium [6,7,8].

Migraine, headache and other pain syndromes
Many Authors in the past have demonstrated that Serotonin plays a role in mitigating migraine attacks. They found that the plasma levels of Serotonin were significantly reduced during the attack while its main metabolite 5-HIAA (5-Hydroxyindoleacetic Acid) was excreted in increasing quantities in the urine. Serotonin and its precursor 5-HTP also act as analgesics [1,9]. It has been postulated that both a reduction in Serotonin levels and a malfunctioning of the antinociceptive system are involved in causing migraine. Clinical experience with 5-HTP in migraine is based on several trials conducted on more than 400 adult patients for
a period of 6 weeks to 24 months and on more than 150 paediatric patients (aged 6-14 years) for 6 weeks to 3 months [9,10]. In all open-label trials and placebo-controlled trials, treatment with 5-HTP was shown to significantly improve the symptom scores (migraine index, pain score, etc.), reducing the frequency and severity of the headache. Almost 74% of patients were considered as responders to treatment with an improvement in the symptoms in 86% of cases.

A study conducted for the Portuguese Headache Society also demonstrated that 5HTP is an effective prophylactic treatment for chronic tension headaches and juvenile headaches that does not cause the adverse reactions often associated with similar drugs [11].

Sleep disorders
Serotonin, like other neuromediators, is involved in the regulation of hypnotic activity. The duration and quality of sleep and its REM phase are also influenced by the activity of Serotonin [12]. Several studies conducted on adults and children have shown that 5-HTP, thanks to its role in the synthesis of Serotonin and Melatonin, has a positive effect on the regulation of sleep patterns. The doses tested ranged from 300 mg to 100 mg and the lower dose seems preferable since, according to anecdotal reports, higher doses tend to cause vivid dreams or even nightmares [13,14].

Obesity
Clinical studies demonstrate that serotonergic drugs specifically reduce appetite prior and subsequent to the consumption of fixed calorie loads, and also reduce pre-meal appetite and calories intake during ad libitum meals. Significant weight loss in obese patients has been observed in treatment with 5-HTP for two consecutive 6-week periods with or without diet prescription. A reduction in carbohydrate intake and early satiety were also reported. These findings together with the high tolerance observed suggest that 5-HTP may be used to treat obesity safely [15,16].

Toxicity and Safety

Extensive analyses of several sources of 5-HTP have revealed no toxic contaminants similar to those associated with L-Triptophan, nor the presence of any other significant impurities. Due to the risk of a Serotonin syndrome, 5-HTP should be administered with caution to patients currently being treated or who have recently been treated with either an SSRI or an MAOI antidepressant. Some patients may initially experience mild nausea when taking 5-HTP. This effect is usually transitory, and is best dealt with by initiating therapy at low doses (50 mg three times a day) and increasing the dosage gradually if necessary [17].

In the acute toxicity studies the oral LD50 for 5-HTP in rats and mice was found to range from 243 to 1’708 mg/kg body weight (bw); the intravenous LD50 in the rat was found of 27 mg/kg and of 375 mg/kg in the mouse [18]. 5-HTP revealed no teratogenic activity in the rat or in the rabbit [19].
**Technical Description**

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**Structural Formula**

![Structural formula image]

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Bibliografic References


19. Registry of Toxic Effects of Chemical Substances (RTECS)