

Neuravena®

Green Oat: Usage since medieval times

- Nervine tonic
- Mild antidepressant
- Sedative
- Restorative and tonic
- Support of cognitive function
- Against gout and rheumatism
- Diuretic
- Anti-smoking agent



Neuravena®

Green Oat: Commission E

Green oat herb consists of the dried above-ground parts of *Avena sativa L.* harvested just before full blossom stage and preparations thereof.

Uses & safety (excerpt)

- Acute and chronic anxiety
- Stress and excitatory states
- Neurasthenia (chronic fatigue)
- Tonic and restorative
- Considered safe and well-tolerated
- Recommended dosage: 3 g herb / day

Neuravena[®]

Dual activity profile

Inhibition of MAO-B (Monoamine Oxidase B)

Mood enhancement

Stimulant

Potentially neuroprotective

Inhibition of PDE 4 (Phosphodiesterase 4)

Mood enhancement

Cognitive enhancement

Riederer et al. (2004), *Curr Med Chem* 11: 2033-2043

O'Donnell et al. (2004), *Trends Pharm Sci* 25 (3): 158-163

Houslay et al. (2005), *Drug Discovery Today* 10 (22): 1503-1519

Neuravena[®]

Proven efficacy in preclinical models (I):

„Tele-Stereo EEG“ study (2006)

- Neuravena[®] **influences brain activity** and has **stimulating** properties.
- Neuravena[®] seems to stimulate the dopaminergic transmitter system, which is implicated in:
 - ✓ **cognitive function**
 - ✓ **motivation**
 - ✓ **depression**
- Dopamine is metabolized by **MAO-B**.
- Neuravena[®] approached the results obtained from **antidementive** drugs; i. e. drugs used to treat dementia (e.g. Alzheimer's disease).

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Proven efficacy in preclinical models (II)

Behavioral trial in CNS models (2006)

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- Improved **general learning performance**
- Enhanced **speed of learning**
- Increased **alertness**
- Better **stress coping abilities**
- Improved **social intelligence**

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Clinical study (I)

Assessment of impact on human behavior using EEG (2008)

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- Mediates **stimulating** properties
- Helps **even out dips in cognitive performance** during the course of the day
- Helps **increase overall mental fitness**
- **Supports cognitive function** (concentration, learning, alertness) **under stress**

Neuravena®

EFLA® HyperPure: Purity & Safety

- Patented process technology by Frutarom
- Safe removal of lipophilic and microbial contaminants; e.g.
 - Toxins
 - Environmental pollution, pesticides
- Excellent processing and solubility properties in various applications



Neuravena®

Health Claims (EU)

Status: May 2008

Article 13 (*Avena sativa* L.)

„Generic claims“

Substantiated by consensus;
i.e. backed up by
bibliographic literature

Submitted by third parties:

- Mental Health*: Seed
- Heart Health: Herb

Article 18 (Neuravena®)

„Unique / proprietary claims“

Claims for new ingredients
Product specific claims (process,
formulation, etc.)

Submission by Frutarom (based on own studies):

- Stress reduction
- Support of cognitive functions
- Social intelligence

* Based on the evaluation of Frutarom there is insufficient evidence for backing up this claim

Neuravena[®]

Activate your mind!

- Bioactivity tested, branded Wild Green Oat Extract
- Support of cognitive function & stress coping abilities
- Scientifically selected, proprietary variety of *Avena sativa* L.
- Contract cultivation of raw material
- Patented and PIC-GMP/ISO compliant process technology (EFLA[®]HyperPure)
- Efficacy and safety supported by clinical studies