



Maizinol™

For Enhanced Sleep Quality, Reduced Stress & Improved Mood

What is Maizinol™?

Maizinol™ is a Zea mays (corn leaf)-derived, patented, clinically-proven natural sleep aid, stress, and mood health ingredient that contains proprietary standardized natural compounds known to bind to melatonin receptors and produce melatonin-like effects for better sleep quality. Maizinol™ is also clinically proven to reduce levels of a stress hormone, cortisol, and to improve mood health.*

Key Benefits

- Once-a-day dosing increases consumer compliance and lowers cost per serving.
- High compatibility in formulating with other ingredients.
- Natural compound with a long history of safe human use.
- Extensive in vivo safety testing with no adverse effects
- Patent protected.

Plant Origin

Zea mays (corn or maize) leaves.

Formulation

Can be used as an active agent in tablets, capsules, liquids, powders, bars and other delivery systems.

Physical Properties

Brown powder. Specifications available on request.

What Makes Maizinol™ Unique?

- Maizinol™ was shown to be efficacious in reducing a stress hormone, cortisol, in human clinical studies.*
- Maizinol™ was found to be effective in improving sleep quality in human clinical studies by enhancing the deep sleep stage of sleep.*
- Maizinol™ was shown to improve overall mental well-being measured by the Pittsburgh Sleep Quality Index (PSQI) and Profile of Mood States (POMS) in human clinical studies.*
- Provides positive mood support and enhances emotional well-being.*

Mechanism of Action

The sleep quality and mood health effects of Maizinol™ are derived from three defined mechanisms of action:

1. binding to melatonin receptors
2. reducing cortisol levels
3. regulating melatonin synthesis pathways via 6-MBOA

As the molecular structure of 6-MBOA is very similar to that of melatonin, 6-MBOA itself acts as a melatonin analogue (Sweat & Berger, 1988).

Fig. 1: Similar structure between melatonin and 6-MBOA

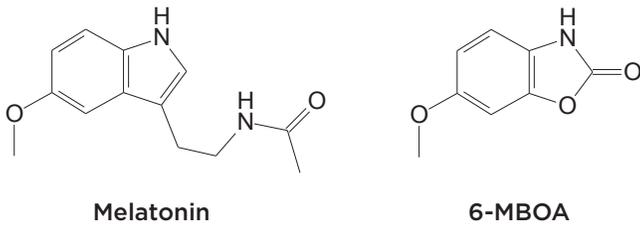


Fig. 2: Maizinol™ mechanism of action

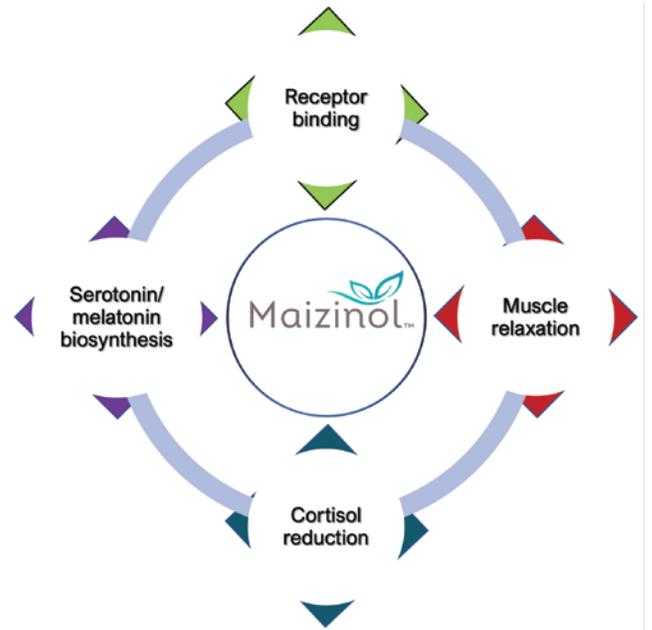
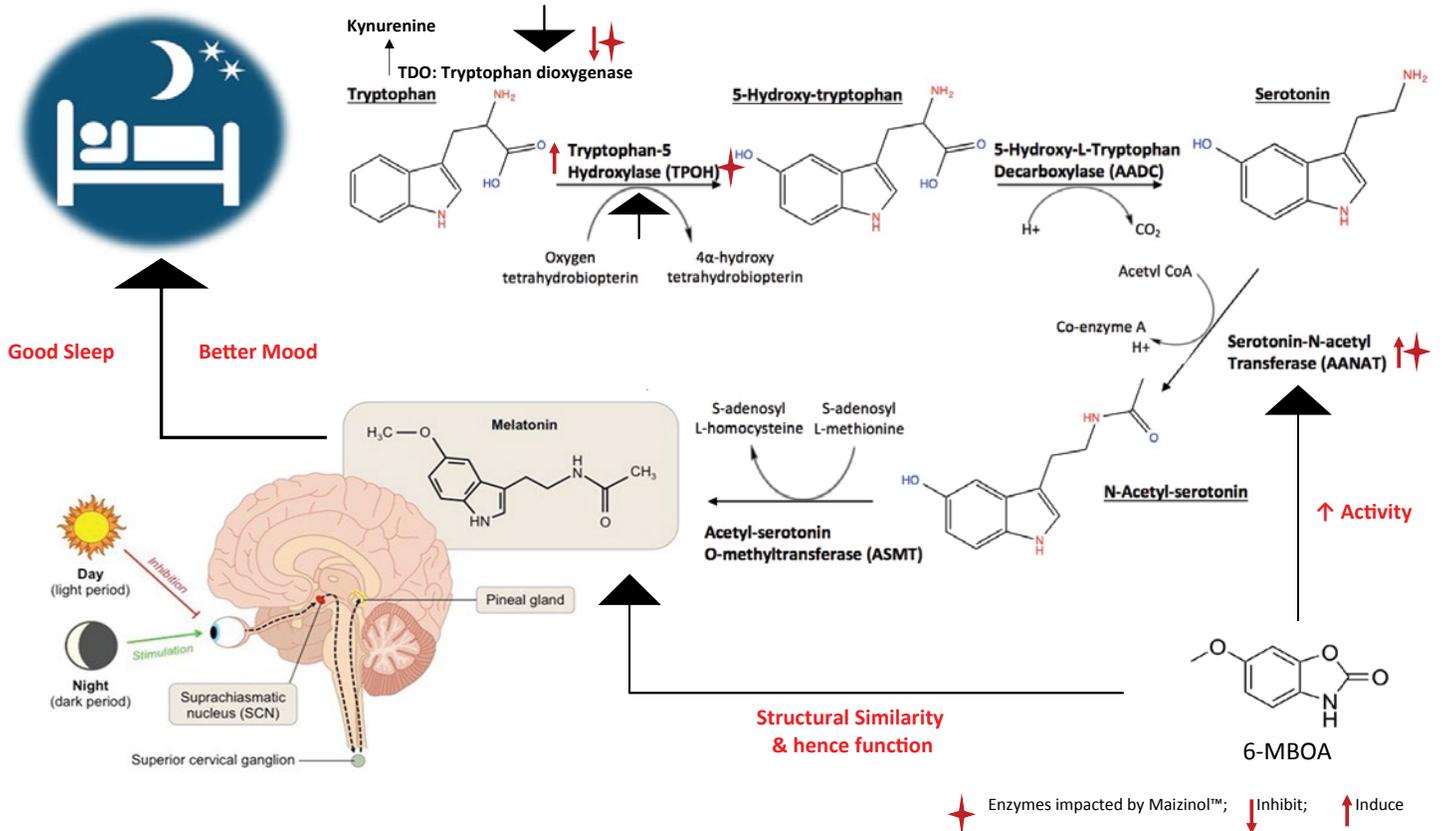


Fig. 3: The serotonin-Maizinol™-melatonin-sleep/mood axis

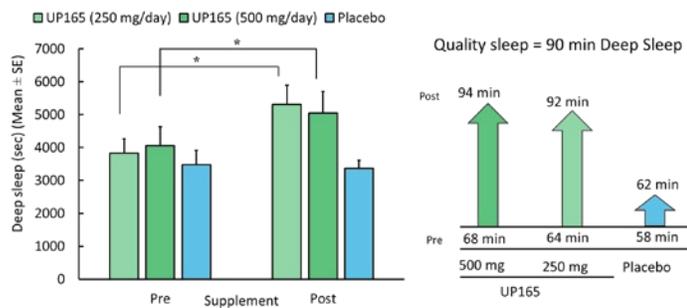


Clinical Data on Sleep Quality and Mood

Summary Highlights

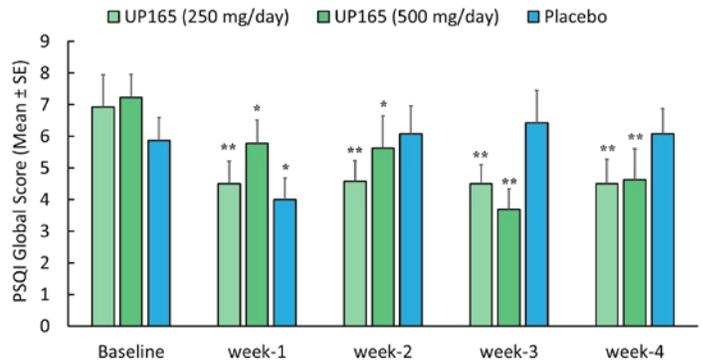
- Maizinol™ supplementation improved the state of deep sleep and hence quality of sleep in a dose-correlated manner.*
- Maizinol™ showed a statistically significant increase in total sleep time compared to baseline.*
- Maizinol™ supplementation improved sleep quality and efficiency as measured by Pittsburgh Sleep Quality Index.*
- Maizinol™ showed a statistically significant dose-correlated reduction in salivary cortisol level compared to baseline and placebo.*
- Maizinol™ supplementation improved overall well-being as measured by Profile of Mood States (POMS) scale.*

Fig. 4: Maizinol showed up to ~ 30 min increase in deep sleep time



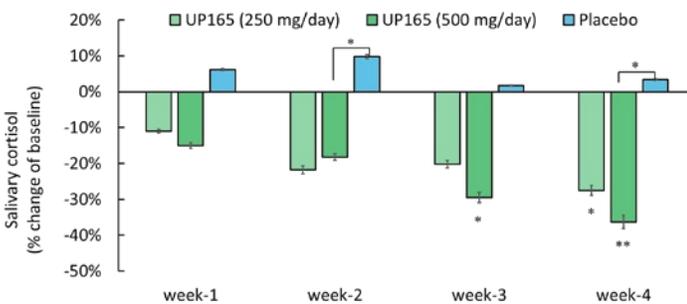
* P < 0.05 vs Baseline **p ≤ 0.001 vs Baseline; *p ≤ 0.05 vs Baseline

Fig. 5: PSQI global scores for 3 supplement groups



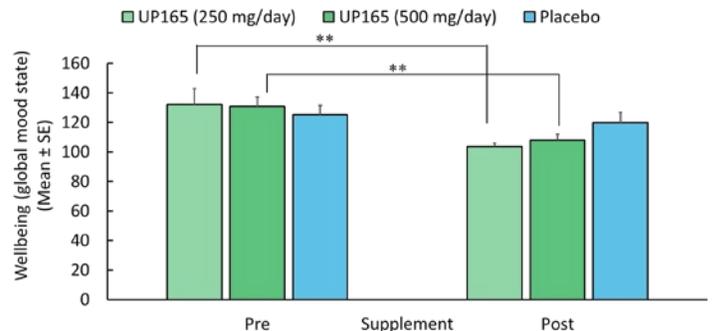
**p ≤ 0.001 vs Baseline; *p ≤ 0.05 vs Baseline

Fig. 6: Percentage changes of salivary cortisol levels from supplements of 3 test articles



* P < 0.05; ** P ≤ 0.001 vs Placebo or Baseline

Fig. 7: Maizinol™ improved overall well-being



** P ≤ 0.001 vs Baseline

Table 1: Percent difference of POMS from baseline

Group	N	Psychological Mood State Subscales (POMS) (% difference from baseline)					
		Vigor	Anger	Confusion	Fatigue	Depression	Tension
UP165 (250 mg/day)	14	+2%	-37%	-40%*	-43%*	-58%*	-37%*
UP165 (500 mg/day)	13	+5%	-23%	-38%*	-42%*	-36%*	-36%*
Placebo	15	-2%	-19%	-15%	-9%	-14%	-14%

Conclusion: There was a clear and consistent benefit of Maizinol™ (UP165) on **Sleep Quality** improvement, particularly showing that subjects spent more time in **deep** sleep stages (~+30%) and **REM** sleep stages (~+20%) with Maizinol™ supplementation. Improvements in sleep quality were reflected in both subjective and objective measures. In addition, Maizinol™ supplementation resulted in lower stress hormone exposure (salivary cortisol - indicating improved **stress resilience**) and improved feelings of **mental well-being**, particularly with 36%-58% less tension, fatigue, confusion, and depression from subjects orally supplemented with UP165 at about 60 minutes before sleep.*

Clinical Data on Mood State

Summary

- Maizinol™ shows significant mood improvement in healthy adults.*
- Maizinol™ is effective at supporting mood and well-being at a small serving size and once-a-day dosage.*
- Safe for human consumption at the recommended daily dosages.
- Non-habit forming and safe natural mood ingredient.*

Fig. 8: Maizinol™ shows significant improvement in improving mood*

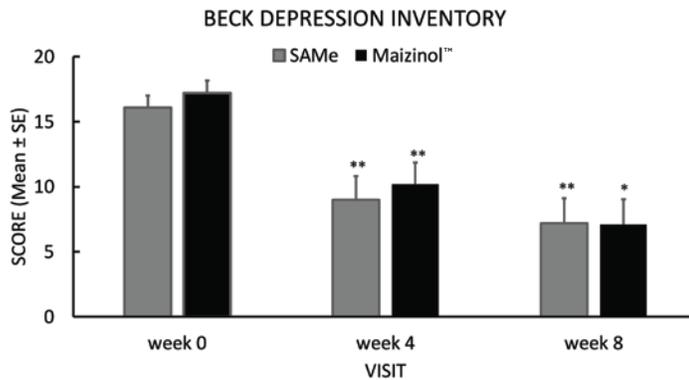
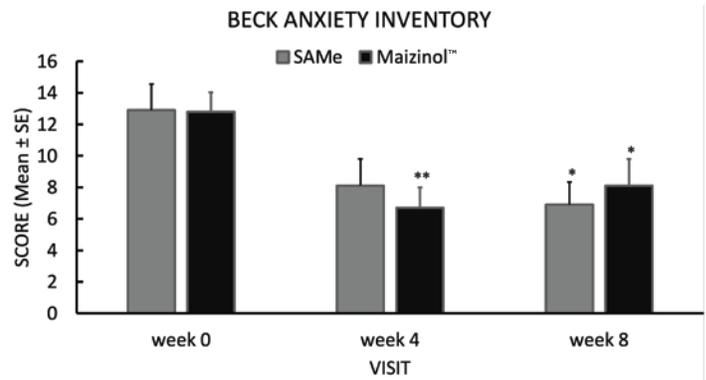


Fig. 9: Maizinol™ shows significant improvement in reducing feelings of minor anxiety*



Note: Maizinol™ showed a change from baseline to Week 4 of -6.1 with a p value of $p < 0.001$ versus SAMe's change of -4.8 with a p value of $p = 0.092$. Maizinol's change from baseline at Week 8 was -4.7 with a p value of $p = 0.010$ compared to SAMe's change of -2 with a p value of $p = 0.026$.

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