



# Maizinol™

## Natural Alternative to Melatonin for Enhanced Sleep Quality

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### What is Maizinol™?

Maizinol™ is a Zea mays (corn leaf)-derived, patented, clinically proven natural sleep aid ingredient that contains proprietary standardized natural compounds known to bind to melatonin receptors and produce melatonin-like effects for better sleep quality. \*

### Applications

- Sleep aid

### Key Benefits

- Once-a-day dosing increases consumer compliance
- High compatibility in formulating with other ingredients
- Natural plant source with a long history of safe human use \*
- Extensive in vivo safety testing with no adverse effects \*
- Patent protected

### Formulation

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

### Plant Origin

Zea mays (corn or maize) leaves.

### Physical Properties

Brown powder.

## What Makes Maizinol™ Unique?

- Maizinol™ is a hormone free natural supplement clinically proven to increase the restorative stage of sleep. \*
- Maizino™ 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 sleep quality as it was measured by the Pittsburgh Sleep Quality Index (PSQI) in human clinical studies. \*
- Maizinol™ is known to contain biologically active compounds proven to bind to melatonin receptors with a 4-fold higher affinity for MT2 Receptor. \*

## Mechanism of Action

The sleep quality 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 (Sweet & Berger, 1988).

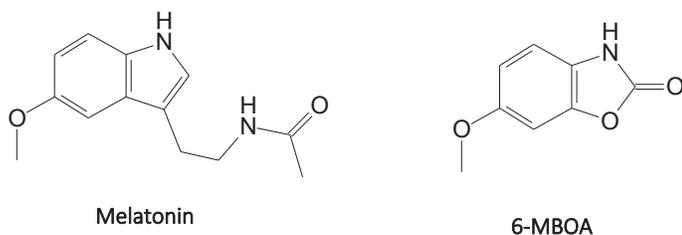


Fig. 1: Similar structure between melatonin and 6-MBOA



Fig. 2: Maizinol™ mechanism of action

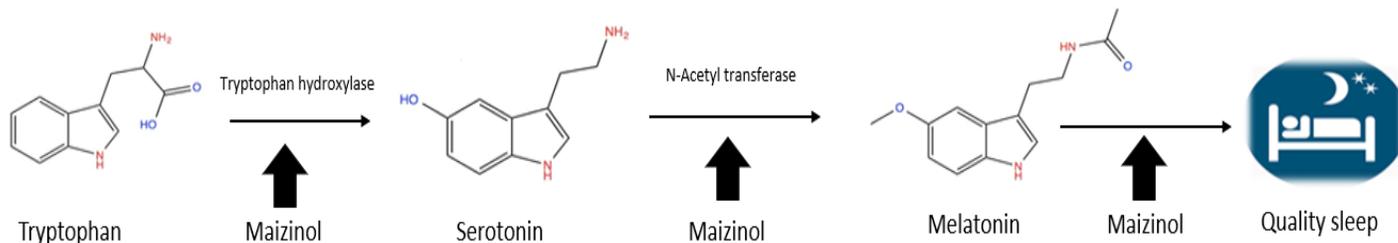
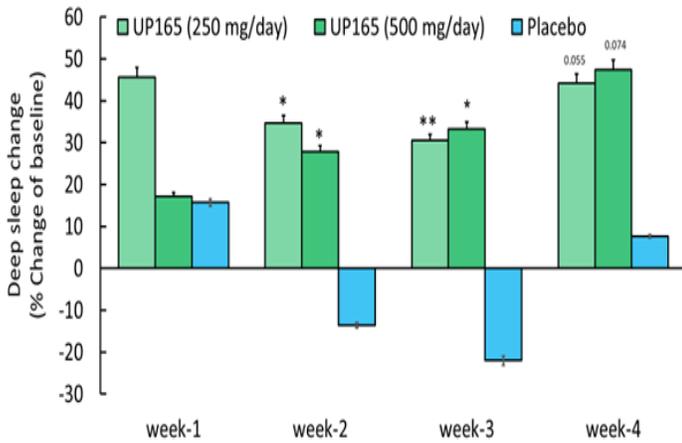


Fig. 3: Induction of rate limiting enzymes in melatonin biosynthesis

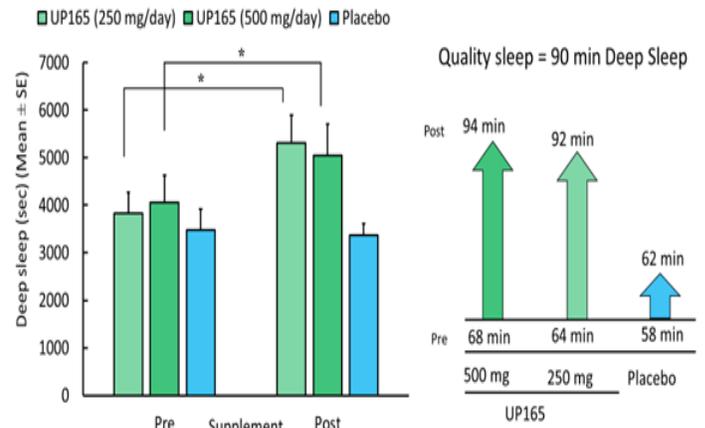
# Clinical Data on Sleep Quality

## Summary Highlights

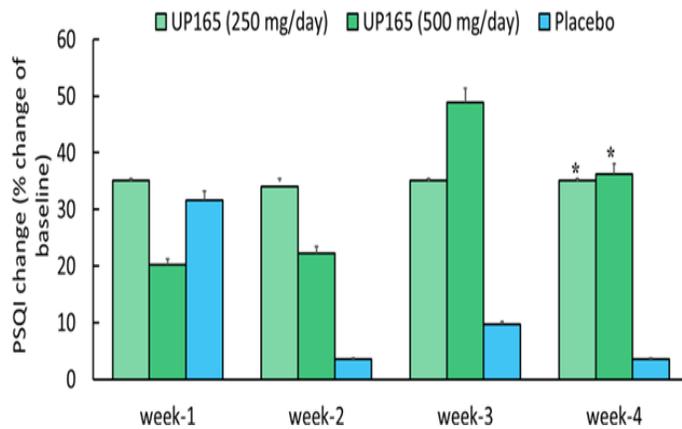
- Maizino™ supplementation improved the state of deep sleep and hence quality of sleep in a dose-correlated manner.\*
- Maizino™ showed a statistically significant increase in total sleep time compared to baseline.\*
- Maizino™ supplementation improved sleep quality and efficiency as measured by Pittsburgh Sleep Quality Index.\*



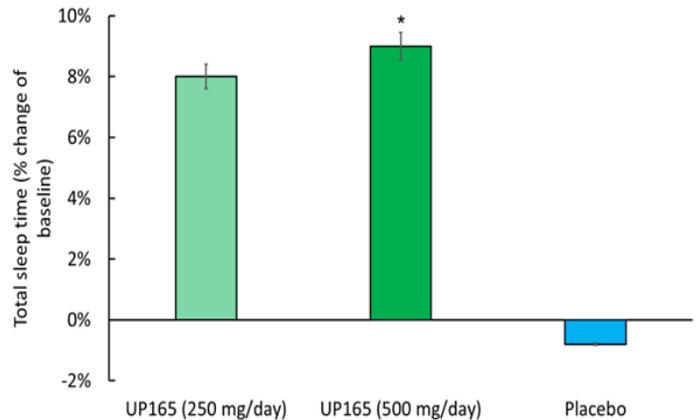
**Fig. 4:** Maizino™ showed progressive increase in deep sleep time. \*\*p ≤ 0.001 vs placebo; \*p ≤ 0.05 vs placebo



**Fig. 5:** Maizino™ showed up to ~30 min increase in deep sleep time. \*p ≤ 0.05 vs baseline



**Fig. 6:** PSQI global scores for 3 supplement groups. \*p ≤ 0.05 vs placebo



**Fig. 7:** Maizino™ showed a 34- and 42-minutes increase in total sleep time per night. \*p ≤ 0.05 vs baseline

**Conclusion:** There was a clear and consistent benefit of Maizino™ (UP165) on Sleep Quality improvement, particularly showing that subjects spent more time in deep sleep stages with Maizino™ supplementation. Improvements in sleep quality were reflected in both subjective and objective measures. Data from this double-blind placebo controlled clinical trial have shown that supplementation of subjects with Maizino™ to produce a statistically significant improvement in sleep quality compared to the placebo group. By the end of the 4-week supplementation period, subjects in the Maizino™ group benefited significantly more than those in the Placebo group.\*

# References

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