



## **Relora: *Magnolia officinalis* & *Phellodendron amurense***

### **Common Indications:**

- Stress, including anxiety, cortisol imbalance and eating disorders
- Weight control
- Depression

### **General Comments:**

Relora is a proprietary blend of plant extracts from *Magnolia officinalis* and *Phellodendron amurense*. This combination has a long history of use for centuries, dating back to Asian influence. Its impact is as an adaptogen and modulates the stress response while reducing anxiety. It is not typically sedating but can be used to improve sleep patterns and even sugar craving patterns due to its beneficial impact on cortisol normalization.

### **Benefits & Mechanism of Action:**

Stress, including anxiety, cortisol imbalance and eating disorders

Based on clinical studies, Relora may help control occasional, mild anxiety and the associated symptoms: irritability, emotional ups and downs, restlessness, tense muscles, poor sleep, and concentration difficulties. Relora is a natural stress management ingredient that helps control stress-related eating and has the added value of being non-sedating.<sup>1,2,3,4</sup> In central nervous system receptor binding assays the plant extracts in Relora binds to several important targets associated with stress.<sup>5,6,7,8</sup> Relora does not appear to bind to the benzodiazepine receptors that would cause sedation, yet has the relaxing qualities that have been demonstrated in both animal and human studies. In addition, it normalizes hormone levels associated with stress-induced weight gain and eating behavior. Stress has been shown to play a significant role in a variety of conditions.

One of the ingredients in Relora, *Magnolia officinalis*, has been found in laboratory studies to have anti-anxiety and neuroprotective effects. The other ingredient in Relora, *Phellodendron amurense*, has been reported in laboratory studies to have anti-inflammatory effects. Relora has been reported to be an effective non-sedating anti-stress product in an animal model known as the "Chick Social Separation Stress

Procedure".<sup>9</sup> An acute toxicity study in rats (5g/kg) with 14-day observation revealed no untoward effects of the individual extracts or the combination in Relora except mild diarrhea and slight sedation in female rats. No side effects have been reported at the recommended human dosage.

### Weight control

A large percentage of overweight adults have excessive abdominal fat due to stress-related over eating.<sup>10,11</sup> Relora® appears to maintain healthy hormone levels in stressed individuals and act as an aid in controlling weight and stress-related eating.

The results of a 2006 placebo-controlled clinical trial looking at body weight management in overweight, otherwise healthy, premenopausal, female adults who typically eat more in stressful situations showed benefit from taking a dietary supplement ingredient containing proprietary extracts of *Magnolia officinalis* and *Phellodendron amurense*. The mechanism of action appeared to be through reduction of cortisol levels and possibly perceived stress, thereby helping participants maintain body weight.<sup>12</sup>

**Dose:** 250mg, 3 times daily

**Cautions & Side Effects:** Relora has been reported to be safe in recommended doses.

Relora may cause drowsiness in sensitive individuals. Relora should be used with caution in those driving automobiles or operating heavy machinery. Consuming alcohol may increase the sedative effects of Relora.

### Medication interactions

Medications with increased effects while taking Relora include:

- Anticoagulant/antiplatelet medications
- Barbiturates
- Benzodiazepines
- CNS depressants
- Cyclosporine

### References:

Stress, including anxiety, cortisol imbalance and eating disorders

1. Kuribara H, Kishi E, Hattori N, Okada M, Maruyama Y. The anxiolytic effect of two oriental herbal drugs in Japan attributed to honokiol from magnolia bark. *J Pharm Pharmacol.* 2000;52(11):1425-9.
2. Maruyama Y, Kuribara H, Morita M, Yuzurihara M, Weintraub ST. Identification of magnolol and honokiol as anxiolytic agents in extracts of saiboku-to, an oriental herbal medicine. *J Nat Prod.* 1998;61:135-8.

3. Epel E, Lapidus R, McEwen B, Brownell K. Stress may add bite to appetite in women: a laboratory study of stress-induced cortisol and eating behavior. *Psychoneuroendocrinology*. 2001;26:37–49.
4. LaValle J. The Effect Of Relora™ On Salivary Cortisol and DHEA Levels In Patients With Mild To Moderate Stress. 2002, Unpublished.
5. Lin YR, Chen HH, Ko CH, Chan MH. Neuroprotective activity of honokiol and magnolol in cerebellar granule cell damage. *Eur J Pharmacol*. 2006;537(1-3):64-9.
6. Watanabe K, Watanabe H, Goto Y, et al. Pharmacological properties of magnolol and honokiol extracted from *Magnolia officinalis*: Central depressant effects. *Planta Med* 1983;49:103–108.
7. Watanabe H, Watanabe K, Hagino K. Chemostructural requirement for centrally acting muscle relaxant effect of magnolol and honokiol, neolignane derivatives. *J Pharmacobiodyn*. 1983;6(3):184-90.
8. Talbott SM. Effect of *Magnolia officinalis* and *Phellodendron amurense* (Relora®) on Cortisol and Psychological Mood State in Moderately Stressed Subjects. Unpublished Data, 2012.
9. Sufka KJ, Roach JT, Chambliss WG Jr, et al. Anxiolytic properties of botanical extracts in the chick social separation-stress procedure. *Psychopharmacology (Berl)*. 2001;153(2):219-24.

#### Weight control

10. Epel, E.S., B. McEwen, T. Seeman, et al. Stress and body shape: stress-induced cortisol secretion is consistently greater among women with central fat. *Psychosomatic Medicine*. 2000;62:623-632.
11. Nick GL. Stress-related eating and metabolic syndrome: an important cause of obesity among women. *Townsend Letter*. 2002:50–52.
12. Garrison R, Chambliss WG. Effect of a proprietary Magnolia and Phellodendron extract on weight management: a pilot, double-blind, placebo-controlled clinical trial. *Altern Ther Health Med*. 2006;12(1):50-4. Kalman DS, Feldman S, Feldman R, et al. Effect of a proprietary Magnolia and Phellodendron extract on stress levels in healthy women: a pilot, double-blind, placebo-controlled clinical trial. *Nutr J*. 2008;7(1):11.