Stressed by Wall Street woes?
Explore natural actives that help to boost your resilience…

INTRODUCTION

In the 1950’s endocrinologist Hans Selye described stress as “the consequence of the failure to adapt to change, specifically the inability to respond appropriately to emotional or physical threats to the organism, whether actual or imagined” (1). It is a logical inference, therefore, that coping with stress involves approaches that boost an individual’s adaptability to change. Nature provides a number of phytoneutrients that function as relaxants, “adaptogens” or “revitalizers”, with a positive influence on the symptoms of stress including anxiety, insomnia, depression and irritability.

The resultant “fight-or-flight” response by the autonomous nervous system culminates in cardiovascular, respiratory, gastrointestinal, renal, and endocrine effects. The hypothalamic-pituitary-adrenal axis (HPA), a major part of the neuroendocrine system, is also activated by release of CRH and AVP. Adrenocorticotropic hormone (ACTH) is released from the pituitary gland into the general bloodstream. This results in secretion of cortisol and other glucocorticoids that carry the stress response to various body tissues and organs, and ultimately contribute to the termination of the response via feedback inhibition. Stress significantly affects the body’s immune response as well and compromises resistance to microbial infection and other environmental stressors.

STRESS AND ADAPTOGENS

Several plants inherently harbor “adaptogenic” properties, and the substances enabling these properties have been termed “Adaptogens”. Adaptogens are well established in the traditional systems of medicine. For example, Charaka Samhita (1000 B.C.), a renowned Ayurvedic text,
HERBS FOR STRESS MANAGEMENT SUPPORT

1. ASHWAGANDHA

The roots of *Withania somnifera* (Ashwagandha) are used extensively in Ayurveda, the classical Indian system of medicine, and the herb is categorized as a rasayana, used to promote physical and mental health, to provide resistance against disease and adverse environmental factors and to arrest the aging process (adaptogenic functions). Ashwagandha has been traditionally used to stabilize mood in patients with behavioural disturbances.

Bioactives isolated from the root of *W. somnifera* have been shown to be effective in attenuating experimentally induced stress responses including anxiety, depression, analgesia, thermic change, gastric ulceration, convulsions and adrenocortical activation in experimental animals. These findings support the reference to Ashwagandha as “Indian Ginseng”.

One study investigated the anxiolytic and antidepressant actions of the bioactive glycowithanolides (WSG), isolated from Ashwagandha roots, in rats. WSG (20 and 50 mg/kg) was administered orally once daily for five days and the results were compared to those elicited by the benzodiazepine lorazepam for anxiolytic studies, and by the tricyclic anti-depressant, imipramine, for the antidepressant investigations. Both these standard drugs were administered once, 30 min prior to the tests.

WSG induced an anxiolytic effect, comparable to that produced by lorazepam, in the standard tests. Further, both WSG and lorazepam, reduced rat brain levels of biochemical markers of clinical anxiety, when the levels were increased following administration of the anxiogenic agent. WSG also exhibited an antidepressant effect, comparable with that induced by imipramine, in the forced swim-induced ‘behavioral despair’ and ‘learned helplessness’ tests. The investigations support the use of Ashwagandha as a mood stabilizer in clinical conditions of anxiety and depression in Ayurveda (7).

From a global perspective, depression is the most common mental health problem reported. There is also much controversy surrounding the current regularly prescribed anti-depressants, with regard to safety and side effects. Ashwagandha has historically been prescribed in Indian traditional medicine for its “sedative” and “tranquilizing” effects. Clinical studies with Ashwagandha in combination with other herbs, have established its beneficial role in supporting the management of depression.

2. BACOPA MONNIERA

*Bacopa monniera* Wettst (syn. *Herpestis monniera*), commonly known as Indian water hyssop, or Brahmi, belonging to the family Scrophulariaceae. Brahmi has been used by Ayurvedic medical practitioners in India for...
4. MELISSA OFFICINALIS

Lemon balm (Melissa officinalis), is a perennial herb in the mint family Lamiaceae, native to southern Europe and the Mediterranean region. Lemon balm is used as a flavoring agent foods and herbal teas, often in combination with other herbs mint or spearmint.

A lyophilized hydroalcoholic extract of M. officinalis L. (Lamiaceae) has been evaluated for behavioral effects in mice. According to the traditional use of M. officinalis, sedative properties have been confirmed for low doses by the decrease of behavioral parameters measured in a non-familiar environment test (staircase test) and in a familiar environment test (two compartment test). With high doses, a peripheral analgesic activity was obtained by reducing the acetic acid-induced pain (writhing test); moreover, the plant extract induced the sleep in mice after treatment with pentobarbital, and potentiated the sleep induced by pentobarbital (11).

A human study further validated the calming effects of lemon balm (12). In this double-blind, placebo-controlled, randomized, balanced crossover experiment, 18 healthy volunteers received two separate single doses of a standardized M. officinalis extract (300 mg, 600 mg) and a placebo, on separate days separated by a 7-day washout period. Modulation of mood was assessed during pre-dose
sleep quality improved significantly (p<0.001), but no statistically significant difference could be found between groups (p=0.70) (15).

Melissa–valerian combinations have been equated to benzodiazepine by researchers (16).

6. L-THEANINE

Theanine is a unique amino acid found in tea. Laboratory studies have established its beneficial role in mental relaxation. Theanine was found to act as a neurotransmitter in the brain and to decrease blood pressure significantly in hypertensive rats. Weak electric pulses called brain waves are generally generated on the surface of the animal brain. Four types of brain waves are generated, viz α, β, δ, θ, depending upon the mental state of the subject. The α-waves are an index of relaxation. In human volunteers, α-waves were generated on the occipital and parietal regions of the brain surface within 40 min after the oral administration of theanine (50-200 mg), signifying relaxation without causing drowsiness (17).

7. MUCUNA PRURIENS

Mucuna pruriens, from the botanical family Fabaceae, commonly known as velvet bean or cowitch is a plant indigenous to India. Ayurvedic practitioners have used the seeds for centuries, in the management of Parkinson’s disease and nervous debility. The herb has also been used in formulations to control depression and improve mental alertness (18). The long record of safe and effective use prompted detailed research into the phytochemistry and pharmacological effects of this plant. The endocarp of the beans was found to contain about 5% levodopa (L-dihydroxy-phenyl-alanine, L-DOPA), which is used in conventional medical practice in the treatment of Parkinson’s disease (19) and its beneficial effects were demonstrated in a clinical study.

The herb is used in combination with Ashwagandha in the management of depression. In one clinical trial (18), twenty-five patients diagnosed with either endogenous or reactive (neurotic) type depression volunteered to participate in an evaluation of Ashwagandha and M. pruriens (Kapikacchu) in relieving depressive symptoms. Basal and post-treatment assessments were made for severity of depression and anxiety, symptoms profile, sleep disturbance, and appetite. Patients consumed one pill containing 6 g of powdered M. pruriens (Kapikacchu)
in the morning and one pill containing 6 g of powdered Withania somnifera (Ashwagandha) in the evening for two months. At the end of 2 months all twenty-five patients had completed the study. Significant improvements were reported in the symptoms profile, anxiety, and depression scores were observed (Figure 2).

Most patients reported improved appetite and sleep patterns, as well as an overall feeling of well-being. Evaluations of the overall efficacy indicated that 48% of the patients were free of any symptoms of depression, 36% were improved, and only 8% of the subjects reported no improvement in symptoms. No side effects were reported. Evaluation of the possible toxic side effects indicated that there were no significant changes in liver enzyme functions. However, in several patients there was a reduction in fasting and post-prandial blood sugar levels, suggesting a hypoglycemic effect of the herbal preparation.

8. PASSIFLORA EXTRACT (CHRYSIN)

Chrysin is chemically 5,7-Dihydroxy-2-phenyl-4H-1-benzopyran-4-one (5,7-dihydroxyflavone). The compound has been isolated from Passiflora plants such as Passiflora coerulea (used as a sedative in folklore medicine) and P. incarnata (maracuja “passion flower”) is well known in traditional medicine for its diverse biological effects. The anti-anxiety effects of chrysin (1 mg/kg dose level) were studied in mice (22). It was found that mice treated with chrysin showed anti-anxiety effects comparable to those produced by the known drug diazepam. No associated sedation or muscle relaxation was observed in the chrysin-treated mice. The authors of this study concluded that chrysin is a partial antagonist of the central BDZ (benzodiazepine) receptors and thereby functions as an anxiolytic agent.

One group of researchers reported that chrysin is a ligand for both central and peripheral BDZ receptors. When administered to mice by the intracerebroventricular route, chrysin was able to prevent the expression of tonic-clonic seizures induced by a known convulsant, pentylenetetrazol. Chrysin was also shown to exert a muscle relaxant action under these conditions (20).

CONCLUSIONS

This paper presents an overview of some herbs that support stress management. Dietary interventions including probiotics, mineral supplements such as selenium and magnesium, amino acids, and other nutrients also benefit stress management.

Contact Sabinsa Corporation for further information, and formulation guidelines.

REFERENCES

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