Adaptogens in Medical Herbalism

Elite Herbs and Natural Compounds for Mastering Stress, Aging, and Chronic Disease

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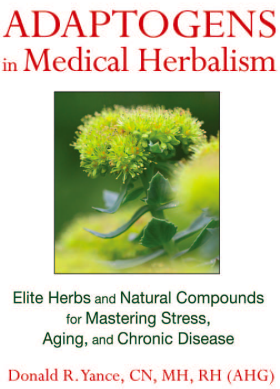

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ADAPTOGENS, THE ULTIMATE EVIDENCE-BASED MEDICINE

From Surviving to Thriving

All living organisms—including animals, plants, and even bacteria—survive because of their innate or acquired abilities to respond appropriately to the ever-changing environment. Remarkably, many compounds that are vital to a plant's ability to adapt also help humans adapt to life stressors through an ancient and beneficial relationship that we are just beginning to understand.

Adaptation can be broadly classified into two categories: *functional adaptation,* which helps the organism to survive, and *reproductive adaptation,* which ensures the survival of the organism's genetic material—an organism cannot be considered successful if its type goes extinct. Although the process of adaptation may be easier to observe in animals, adaptation is essential for all living things. Plants have undergone adaptation since they first appeared on Earth, and their survival strategies are exemplified by their amazing variability of adaptive changes. One easily observable example is the changing colors of leaves in the fall. Chlorophyll, the green pigment responsible for photosynthesis, disappears as the days grow shorter. This allows an array of flavonoids, which are always present in the leaves, to appear. Flavonoids give leaves their beautiful fall colors. But these colors provide more than just beauty. Plants produce these compounds as an adaptive measure as sunlight diminishes and the weather cools to aid in the storage of nutrients and to ward off damaging insects.

These strategies are an illustration of adaptation that originates in organically coded information within the organism. What is most remarkable is that this plant-based information can be directly communicated to the human genome. For example, instead of having to live on the frozen tundra in order to increase our

capacity for hardiness, adaptive capacity can be conveyed directly to us through the use of appropriate botanical medicines—specifically, by a unique class of herbs known as *adaptogens*. Revered in traditional medical systems, these herbs are often referred to as "elite," or "kingly," because they enhance one's inner vitality, encourage a state of balance, and increase endurance. In recent history Soviet researcher Dr. Israel Brekhman gave this category of plants the name *adaptogens* for their unique ability to help the organism adapt to the changing conditions of life.

ADAPTOGENS DEFINED

The core essence of adaptogens is that they combat the negative effects of stress and improve resistance, thereby improving our health and well-being. Essentially, adaptogens help us to live with greater mental and physical endurance and vitality, while mitigating the cost of stressors and building our reserves through enhancing our regenerative (anabolic) capacities.

An adaptogenic herb is traditionally regarded as one that meets the classical definition as described by Brekhman.

- Adaptogens are safe with no significant side effects or contraindications.
- Adaptogens have a general, nonspecific action to improve resistance to stress.
- Adaptogens have a balancing, normalizing effect on body functions, regardless of the origin of disruption or the direction of the homeostatic disturbance.

In my clinical practice I distinguish three main categories of adaptogens and use herbs from each of these categories in all of my formulations to achieve the best possible results.

Primary adaptogens: Meet the classical definition of adaptogens.

Secondary adaptogens: Meet most of the traditional criteria or have met all of the criteria but lack sufficient scientific validation.

Adaptogen companions: May not meet all of the traditional criteria but play a supporting role by enhancing the HPA axis and anabolic metabolism.

Primary Adaptogens

Primary adaptogens meet very specific criteria, have solid scientific research validating their use as adaptogens, enhance the general resistance of the entire body, act in a nonspecific manner, and have a normalizing effect against all forms of stress.

The activity of primary adaptogens is focused on metabolic regulation through their proven effects on the hypothalamic-pituitary-adrenal (HPA) axis during stress-adaptation responses. They have an ability to maintain or restore homeostasis and allostasis and encourage anabolic restoration. Primary adaptogens enable better response and recovery because they help to smooth out the highs and lows of the neuroendocrine stress response by regulating and normalizing the hormones involved. Primary adaptogens strengthen all systems, promote optimal response and hasten recovery of function, and help to regulate energy use by enhancing cellular energy transfer. Adaptogens enable us to make more efficient use of oxygen, glucose, lipids, and proteins.

Some specific positive results of the HPA regulation provided by primary adaptogens include the following:

- Increasing and modulating the flow of energy throughout the day
- Decreasing feelings of stress
- Increasing endurance
- Supporting mental alertness
- Promoting deep, restful sleep

Secondary Adaptogens

I classify herbs as secondary adaptogens when they meet most, but not all, of the criteria of primary adaptogens. Although secondary adaptogens demonstrate some normalizing activity, especially of the immune, nervous, and hormonal systems, they may not directly support the HPA axis.

The protective effects of secondary adaptogens come with regular use when combined with primary adaptogens. Secondary adaptogens share the following attributes:

- Their normalizing activity focuses on the immune, nervous, or endocrine systems.
- Their activity may not directly support the HPA axis.
- While they may meet some, or most, of the qualifications of primary adaptogens, they have yet to be studied extensively.
- Many of these plants are rich in fatty acids, sterols, and phenolic compounds.
- Many of these plants enhance anabolic metabolism.

Herbal Adaptogen Companions

While this third group of herbs has demonstrated enormous general health benefits similar to those of primary and secondary adaptogens, they do not meet the criteria to be officially termed adaptogens. Thus, I call them adaptogen companions, because their actions enhance or synergize the effects of primary and secondary adaptogens. An herb such as green tea falls under this classification. I also include specific nutritional agents in this classification.

This elite group of herbs and nutritional compounds is used in a supporting role to potentiate primary herbs, harmonize formulations, and, most often, to add high nutritive value. When combined with primary and secondary adaptogens they will significantly increase life span and quality of life.

Elderberry

Sambucus nigra, Sambucus spp.

Plant family: Adoxaceae

Other common names:

Elder, Black Elderberry

Parts used:

Ripe berries (Adaptogen companion), both flowers and leaves can be used as diaphoretics and mild diuretics

Overview and Author's Commentary

Elderberry (*Sambucus* spp.) grows all over the American Northwest where I live and has long been used in traditional Western medicine. Elder flower and elder leaf are in classic diaphoretic teas, and together with elder berries are ingredients in my Flew Away formulation, a classic formula for colds and flu. Elderberry is also in Vital Adapt, my general adaptogenic tonic formula.

Elderberry is used as a general nutritive tonic, providing a high concentration of flavonoids. It is also used as an immune tonic to prevent and alleviate many cold and flu symptoms, including runny nose, cough, sore throat, fever, and muscle pain. Elderberry is especially great for children in the fall and winter as an overall immune tonic.

Therapeutic dosing range

- Fluid extract 1:1: 2 to 5 ml, once or twice daily
- Standardized extract (5 percent total flavonoids): 500 to 2000 mg daily
- Tea (may be mixed with elder leaf and elder flower): 2 to 6 cups daily

Safety Profile

There are no known adverse reactions to ripe elderberries and elder flowers. The leaves, bark, and unripe berries contain a toxic cyanide-producing glycoside and ingestion should be avoided. However, there are certain instances where they may be used, generally under the supervision of a qualified healthcare provider, such as the leaves in tea form or in certain topical applications.

Habitat and Cultivations

Elderberry grows widely throughout the U.S., generally in large, dense stands in moist habitats. The black or common elder (*S. Canadensis, S. mexicana*) is a small tree or shrub bearing large clusters of lacy white or creamy flowers, followed by tiny dark purple berries. It blooms in June and July, and the berries mature in September and October. The flowers, berries, and inner bark are used as medicine. *S. nigra* is indigenous to Europe, growing in conditions similar to those in which the American variety. The plants possess similar medicinal properties.

Key Constituents

The berries are rich in vitamin C and a wide range of important flavonoids, including quercetin and anthocyanins, which are believed to account for the therapeutic effects. The leaf and flowers contain flavonoids, anthocyanins, carotenoids, essential oil, mucilage, and tannins. The main active compounds include anthocyanins cyanidin 3-glucoside and cyanidin 3-sambubioside as well as, quercetin and kaempferol .[1]

(K. Brønnum-Hansen, S.H. Hansen: Highperformance liquid chromatographic separation of anthocyanins of Sambucus nigra L. J Chromatogr 1983; 262: 385 – 392).

Traditional Use

Elderberries have long been used as food, particularly in dried form. Elderberry wine, pie, and lemonade are some of the popular ways to prepare this plant. The leaves are touted as being pain-relieving and they promote healing of injuries when applied as a poultice. Native Americans have traditionally used the plant for infections, coughs, and skin conditions. In a warm infusion elder flowers are diaphoretic and gently stimulating. In a cold infusion they are diuretic, alterative, and cooling. The flowers and expressed juice of the berries have been beneficially employed in scrofula, cutaneous diseases, syphilis, and rheumatism. The inner bark of *Sambucus nigra* is an emetic and cathartic and has been successfully used to treat epilepsy.[2]

Modern Research

- Elderberry extract possesses significant antioxidant activity and has been shown to impair angiogenesis.[3]
- *Sambucus nigra* provides nonspecific immune enhancement and boosts cytokine production.[4] A unique protein found in elderberry acts as a messenger, regulating immune response.[5]
- Elderberry is a potent viral inhibitor. Its anti-influenza ability has been much researched in both Israel and Switzerland. As well, elderberry extract has demonstrated an ability to inhibit herpes virus and HIV in cell culture.[6]

The H1N1 inhibition activities of the elderberry flavonoids compare favorably to the known anti-influenza activities of oseltamivir (Tamiflu®) and amantadine.[7]

• The anthocyanins present in elderberries protect vascular epithelial cells against oxidative insult, preventing vascular disease. Elderberry has been shown to reduce LDL cholesterol and atherosclerosis.[8]

• Elderberry could improve bone properties by inhibiting the process of bone resorption and stimulating the process of bone formation.[9]

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