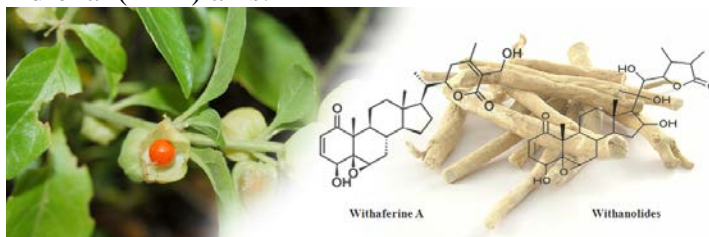


Effects of Adaptogens on the Central Nervous System and the Molecular Mechanisms Associated with Their Stress—Protective Activity

Herbal medicine is the use of medicinal plants for prevention and treatment of diseases: it ranges from traditional and popular medicines of every country to the use of standardized and titrated herbal extract. One of the groups of herb is called “Adaptogen.” Adaptogen are group of natural herbs that work with a person’s body and help them adapt; most notably, to stress and fatigue because they help in regulating important hormones. Well-known adaptogens are: ginseng, **Ashwagandha**, **Holy Basil**, **Licorice**, **Rhodiola**, **Eleuthero root**, **Astragalus**—all have stabilizing effects on the Hypothalamus-Pituitary-Adrenal (HPA) axis.



Indeed, recent pharmacological studies of a number of adaptogens have provided a rationale for these effects also at the molecular level. It was discovered that the stress—protective activity of adaptogens was associated with regulation of homeostasis via several mechanisms of action, which was linked with the hypothalamic-pituitary-adrenal axis and the regulation of key mediators of stress response.

Today, research into adaptogens comprises the following four areas:

- (a) Photochemistry: isolation and structure elucidation of active constituents of adaptogenic plants;
- (b) Biochemistry and molecular biology: mechanisms of stress protective activity of adaptogens on the molecular and cellular levels;
- (c) Experimental and clinical pharmacology: efficacy and safety
- (d) Pharmaceutical development of herbal preparations/products that have well-established medicinal use in evidence based medicine.

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