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FILE: ■ *Rhodiola rosea*

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RE: Overview of *Rhodiola rosea*

Rhodiola rosea. *Alternative Medicine Review* 2002;7(5):421-423.

This monograph gives a concise description of rhodiola's (*Rhodiola rosea*; aka golden root, Arctic root) traditional uses, active constituents, mechanisms of action, clinical indications, side effects, toxicity, and dosage.

Categorized as an adaptogen due to its ability to increase resistance to stressors, rhodiola is used traditionally in Eastern Europe and in Asia to stimulate the nervous system, reduce depression, enhance performance, improve sleep, reduce fatigue, and prevent altitude sickness. It is believed to have cardiopulmonary protective effects; however, these are not discussed in this article.

Rhodiola's stimulating and adaptogenic effects are attributed to p-tyrosol, one of several antioxidants, along with organic acids and flavonoids, and to compounds such as salidroside (syn: rhodiolide and rhodosin), rhodioniside, rhodiolin, rosin, rosavin, rosarin, and rosiridin. The molecular structure of rosavin, to which rhodiola extracts are currently standardized, is illustrated. Rhodiola is believed to influence levels of biogenic monoamines such as serotonin, dopamine, and norepinephrine in the cerebral cortex, brain stem, and hypothalamus. It has been reported to prevent both catecholamine release and subsequent cyclic AMP elevation in the myocardium and the stress-induced depletion of adrenal catecholamines. Rhodiola's adaptogenic activity may also rely on induction of opioid peptide biosynthesis and activation of central and peripheral opioid receptors.

In summarizing rhodiola's effects on chronic stress, the monograph reports positive results in animals and humans. It is suggested that the plant is useful in treating asthenic conditions subsequent to intense physical or intellectual strain, influenza or other viral illness, and other illness. The monograph reports that "average exam scores between students receiving a rhodiola extract and placebo were 3.47 and 3.20."

Anticancer research on rhodiola has begun in animal models. It has inhibited tumor growth and decreased metastasis in rats. In combination with cyclophosphamide, rhodiola extract enhanced the anti-tumor and anti-metastatic effects of drug treatment and reduced drug-induced toxicity. Combined with Adriamycin®, it improved inhibition of tumor dissemination and prevented liver toxicity.

High doses of rhodiola may cause irritability and insomnia. Suggested doses for different levels of rosavin content are suggested. Chronic administration is usually begun several weeks prior to expected stress and continued through the challenging event. In a single dose for acute purposes, the suggested dose is three times that used for chronic supplementation. Rhodiola has been used daily for up to four months. It is recommended that, as with other plant adaptogens, periodic intervals of abstinence should be scheduled.

— *Mariann Garner-Wizard*

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