



## Rhodiola Rosea Case Study

### RHODIOLA: STRESS, FATIGUE, MEMORY, MOOD, REPRODUCTIVE HEALTH

by Tori Hudson, N.D.

Fatigue, stress, depression, and poor memory are some of the most common problems seen by practitioners. A little-known herb, rhodiola (*R. rosea*) could be an excellent solution for these common problems of modern life.

Also known as “golden root”, rhodiola has enjoyed centuries of use in Eastern Europe, Scandinavia, and Asia, even though it remained largely unknown in the West until recently. Traditionally, this herb was used in folk medicine to increase physical endurance, work productivity, longevity, and resistance to high altitude sickness, fatigue, depression, anemia, impotence, gastrointestinal ailments, infections, and disorders of the nervous system. It was thought that rhodiola could enhance fertility, and young Siberian couples carried rhodiola roots in bouquets prior to marriage. A tea of Rhodiola was recommended for colds and flu during the harsh Asian winters. Highly coveted in trade, this herb was exchanged for fine wines, fruits, and honey. The famous physical strength and endurance of the Vikings was attributed to rhodiola.

The tradition and folklore surrounding rhodiola led to the first investigations into its phytochemistry in the early 1960s when scientists identified adaptogenic compounds in its roots. These adaptogens, (believed to help the body adapt to stress by supporting the adrenal glands and endocrine system), as well as the antioxidant and stimulating compounds that were later discovered in rhodiola, are responsible for its medicinal properties.

#### Active Ingredients

The root of *R. rosea* has six distinct groups of chemical compounds, but most would agree that the most important are the rosavins which include rosavin, rosin and rosarin. These compounds are specific to the root from the species *Rhodiola rosea*.

The rosavins are the constituents currently most often selected as the marker compounds for standardization of extracts, although they are not necessarily the only pharmacologically active ingredients for its medicinal properties.

#### Mechanism of Action

This herb helps the body adapt to stress by affecting the levels and activity of serotonin, dopamine, and norepinephrine, neurotransmitters found in different structures in the brain and influencing the central nervous system. It appears that rhodiola inhibits the breakdown of these chemicals and facilitates the neurotransmitter transport within the brain. In addition to its impact on the central nervous system,

rhodiola can increase the chemicals that provide energy to the muscle of the heart and prevent the depletion of adrenal hormones induced by acute stress.

While much of the scientific research on this herb has yet to be translated into English, a number of laboratory, animal, and human studies suggest important activities in a variety of bodily systems including the central nervous system, the cardiovascular system and the endocrine/reproductive system.

#### Central Nervous System Effects

Historically, Rhodiola was observed to act as a tonic, increase attention span, memory and work performance. Two human studies were able to show that individuals with fatigue, irritability, insomnia and decline in work capacity responded favorably to a Rhodiola dose of 50 mg three times a day.

In another human study of 128 patients aged 17-55, Rhodiola alleviated fatigue, irritability, distractibility, headache and weakness in 64 percent of the cases. In a study of students, physicians and scientists, Rhodiola was given for 2-3 weeks beginning several days before intense intellectual work such as final exams. The extract improved the amount and quality of work and prevented decrease performance due to fatigue. Using Rhodiola during final exams appears to be beneficial as well. Medical students took a Rhodiola extract for 20 days and had significant improvements in mental fatigue, general well-being, final exam grades and physical fitness.

Case studies have reported that Rhodiola rosea can help with depressive syndromes, memory loss, anxiety, cognitive dysfunction and menopause related symptoms.

### **Cardioprotective Effects & Effects Of Work Capacity**

Several studies have shown that Rhodiola increased physical work capacity and significantly shortened the recovery time between bouts of intense exercise. In one study, work capacity was increased by 9 percent and the pulse slowed to normal much more quickly. Biathlon athletes given Rhodiola also have shown statistically significant increased shooting accuracy, less arm tremor and better coordination. Improved recovery time, strength, endurance and cardiovascular measures were also significantly better in those who took Rhodiola. We're not really sure what is responsible for these effects, but animal studies suggest that Rhodiola increases essential energy metabolites in the muscle and brain cells. It may also increase metabolism of fats.

### **Endocrine System**

Animal studies looking at the effect of rhodiola on thyroid function, adrenal function and ovarian egg maturation has raised interest in Rhodiola for endocrine problems in humans. Forty women suffering from amenorrhea (loss of menstrual cycles) were given 100 mg of Rhodiola twice daily for 2 weeks or an injection for 10 days. In some women, the regimen was repeated 2-4 times. Remarkably, normal menses were restored in 25 women, 11 of whom became pregnant. Physicians have reported cases of women who had failed to conceive with standard fertility drugs, who then became pregnant within several months of beginning Rhodiola rosea extract. This would be truly a remarkable contribution to women's health, if follow-up controlled clinical trials confirmed these findings.

### **Safety**

Rhodiola has a very low level of toxicity in animal studies. The toxic dose for humans is calculated to be about 235,000 mg while the typical daily dose for chronic problems is 360-600 mg per day when standardized for 1% rosavin, 180-300 mg when standardized for 2% rosavin, or 100-170 mg when standardized for 2.6% rosavin. This provides a large margin of safety. Overall, very few side effects have been reported. Some anxious individuals may be over activated and become agitated with rhodiola. It may also interfere with sleep in some individuals, so is best taken early in the day. Rhodiola is not recommended for individuals with bipolar disorder.

Since no research has been conducted during pregnancy and lactation, it is not recommended during those times.

### **Conclusion**

Rhodiola is surprising in its versatility within the nervous system, cardiovascular system, endocrine system, and musculoskeletal system. At a time of increasing emotional stress thanks to political, economic, and social pressures as well as heavier workloads and greater exposure to environmental stressors such as an increasingly toxic environment and rising health care costs, it's worth considering such a multipurpose, inexpensive herb.

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