Rhodiola has become a well known adaptogenic botanical in the West after much of the original research conducted by Soviet scientists got translated into English.

It is certainly one of our personal favourite adaptogens for mental and physical fatigue during times of stress, athletic performance enhancement, nervous system health and its many other inherent benefits.

In our current newsletter article we will review some of the documented health benefits of Rhodiola, introduce you to some of the its more recently identified benefits and share with you some key sources for comprehensive information on Rhodiola (including one excellent monograph which was published by the American Herbalists Guild).

**Rhodiola: Documented Benefits**

- Improves the body’s response to stress
- Provides both “cognitive stimulation” and “emotional calming,” which lead to improvement in cognitive and memory function, as well as contributing to the long-term upkeep of brain function
- Antioxidant
- Antiviral
- Immune system stimulant
- Nervine
- Mild CNS stimulant
- Antiarrhythmic
- Cardioprotective
- Anticarcinogenic
- Enhances nervous system health
- Boosts physical performance
- Helps protect muscle tissue during exercise by reducing levels of C-reactive protein and creatinine kinase
- Can dramatically reduce mental and physical fatigue under stressful conditions, by increasing energy levels
- Helps to maintain or restore balance between sympathetic and parasympathetic states
- Helps to increase attention to detail-oriented tasks by improving concentration over a prolonged period
- Rhodiola-treated rats have been shown to be able to swim for 25% longer before becoming exhausted, compared with animals that did not receive rhodiola
Integrative Practitioners Praise Rhodiola’s Benefits

From the Life Extension article, here is what some Practitioners say about Rhodiola in clinical practice:

“Naturopathic physician and author Tori Hudson, ND, says: “I typically use rhodiola for: infertility, lack of ovulation, irregular and/or infrequent menses, adrenal fatigue, poor stress adaptation, decreased memory, chronic sleep disorders, chronic fatigue syndrome, mild depression, shortening the recovery time between bouts of exercise, [and] enhancement of athletic performance.”

Naturopathic physician and registered nurse Holly Lucille, ND, RN, adds that she has successfully used rhodiola for patients with adrenal dysfunction, amenorrhea, mild depression, anxiety, stress, and weight loss. “It is just so effective from a medicinal perspective and can be used in such a variety of clinical situations,” says Lucille.

Patricia L. Gerbarg, MD, has recommended rhodiola to women suffering from the symptoms of menopause. “Particular women in the perimenopausal stage of life, they get a combination of things that change,” she explains. “With hormonal changes, they have a loss of energy, they get a brain fog, they can’t multi-task well, their libido is down; they get depressed. It’s just when their careers are peaking. They’re supposed to be at their best and go downhill.” After taking R. rosea, Gerbarg says, these patients have increased energy and mental clarity. And they feel sexier. “They’re very happy customers,” she says.

“Any patient who has a problem with fatigue—almost regardless of the cause (because of medication, fatigue related to aging or depression, post-infection disease)—rhodiola can be like the magic bullet,” Gerbarg says. “I’ve had cases of amazing recovery with rhodiola, a lot of residual symptoms with these people—loss of energy, loss of strength, their brain slows down—sometimes these will improve quickly and dramatically with rhodiola.”

Dr. Gerbarg also notes that her patients have reported improved sexual function with rhodiola. “Increasing energy in general can improve people’s sexual interest and performance,” she says. “When people are fatigued they tend to have less sexual interest and more performance difficulties.” Rhodiola rosea’s work as a stress reliever may improve sex for the people who find sex “stressful mentally or physically,” she adds.

Chris Kilham, best known as the “Medicine Hunter” and the author of Hot Plants (St. Martin’s Griffin, 2004) has called R. rosea the “single most beneficial medicinal plant in the world.” He notes, “If people will take an effective dose of real standardized R. rosea extract, they will experience an effect. They won’t say, ‘Gee, yeah, I think it’s doing something.’ They’ll experience something.”
In an article published in the Life Extension Foundation magazine, some newly identified health benefits provided by Rhodiola were documented:

- May provide benefits for those challenged with elevated blood sugar or diabetes
- Protecting the nervous system against oxidative stress
- Enhancing healthy sleep
- Antidepressant and anxiolytic properties
- Maintaining blood sugar within a healthy range

The American Botanical Council published an excellent monograph on Rhodiola several years ago: [Here is the link](#)

From that monograph, here is a diagram which indicates the possible actions of Rhodiola on the brain:
Also from this monograph is some key documentation which discusses some of the potential adaptogenic benefits to the generalized stress response mechanism:

“In higher animals and humans, nonspecific resistance may also be enhanced by improvements in the neurological mechanisms of dealing with stress (catecholamines, serotonin, and endorphins). The serotonin system is necessary for the stress response reaction, adaptation to new environmental conditions, and tolerance of hypoxia. Numerous stressors decrease serotonin in the hypothalamus.

Theoretically, the ability of \textit{R. rosea} to increase the nonspecific resistance of animals may be related to its capacity to increase serotonin in the hypothalamus and midbrain. Additional research showed that an intact hypothalamic pituitary adrenal axis and participation of the gonads and thymus were necessary for this anti-stress effect. Furthermore, \textit{R. rosea} reduces the activation of several components of the stress response system. For example, it modestly increased serum beta-endorphins that protected rats against subsequent stress-induced excess endorphin elevation.

In addition, \textit{R. rosea} moderates the release of opioid peptides that occurs as part of the pituitary adrenal axis response to stress. This reduced release protects against sudden excess opioid and catecholamine (NE and DA) levels (which interfere with normal brain functions and can lead to heart damage), while allowing a more moderate release that increases stress tolerance without damaging the central nervous system or the cardiovascular system (see Diagram 2). \textit{R. rosea} extracts also protect the brain and heart by reducing the secretion of corticotrophin releasing factor (CRF) under stress.

\textbf{Biotics offers two formulations which incorporate Rhodiola into the formulations, including ADB5-Plus, the high potency Adrenal Support formulation}

\textbf{BioPause-AM}

\textbf{ADB5-Plus}

\textbf{Categories:} Adrenal-Support, AntInflammatory, Emotional-Support, Energy-Boost, Female-Support, Glandulars, Male-Support, Memory-Support, NPN, NeoNatal-Glandulars, Sleep, Stamina, Thyroid-Support

\textbf{Description:} Adrenal Support Stress and/or Fatigue

\textbf{Indications:} Vitamin, Mineral and Glandular support for adrenal hyper and hypo-function. The Adrenals and the hormone cortisol can influence, sleep, thyroid function, blood sugar blood pressure and weight loss. It is very important to address the Adrenals when addressing the thyroid function (hypothyroid or hyperthyroid). Emotional stress can excite or deplete the Adrenal glands (fight or flight).

OVER ACTIVE: Too open to all inputs and therefore not being able to control the contents of the mind. Engaging in irratibility, anger, frustration, impatience, overly demanding and too controlling.
UNDER ACTIVE: On a psychological level when the Adrenals are exhausted, “running on empty”. Too much stress and over-responsibility, can no longer “carry the load.” Drained of life force. Suffering from overload, threats to well-being, fear, anxiety and stress to the point where one can no longer care for themselves. Blood Pressure will be low.

Ingredients:

Each Tablet contains:
Vitamin C 37.5 mg
Thiamin (B1) (as cocarboxylase) 2.5 mg
Riboflavin (B2) (as riboflavin-5-phosphate) 2.5 mg
Niacin (as niacinamide) 12.5 mg
Vitamin B6 (as pyridoxal-5-phosphate) 2.5 mg
Folate 100 mcg
Vitamin B12 (as cobalamin) 3 mcg
Pantothenic acid (as calcium pantothenate) 37.5 mg
Iron (as ferrous gluconate) 250 mcg
Magnesium (as magnesium malate) 155 mg
Zinc (as zinc citrate) 1.25 mg
Manganese (as manganese glycinate) .5 mg
Malic acid (as magnesium malate)
Adrenal gland concentrate (porcine) 62.5 mg
Porcine Brain 3.75 mg
Citrus bioflavonoids 40 mg
Choline (as choline bitartrate) 37 mg
Catalase (vegetable culture source) 5 mcg
N-acetyl-L-cysteine 18mg
Parotid tissue (bovine) 1.25
Copper (as copper gluconate) 40 mcg
Roserooot (Rhodiola Rosea) 50 mg

Suggestion: 2 tablets twice daily with food before 12 noon.

Rhodiola is one of the top botanicals for conditions such as generalized stress (including adrenal stress), athletic performance and recovery, mental function and many other health benefits.

In our opinion, there is a case to be made for consuming adaptogens on a periodic or ongoing basis to help to deal with the stressors of modern society, and Rhodiola is certainly one of the key adaptogens to be considered for this application.
Following is the Life Extension article.

Additional sources for content for this article include the The American Botanical Council’s monograph on Rhodiola

Content from the book “Adaptogens: Herbs for Strength, Stamina and Stress Relief” by David Winston and Steven Maimes

Regards,

Rob Lamberton

Robert Lamberton Consulting

Functional Medicine Consultant - Biotics Canada Products

Author of the Biotics Newsletter Articles

Nutritional Therapy Practitioner (NTP) (c)

Certified Light/Darfield Microscopy Nutritionist

Formulator of Professional Nutraceutical Products

Contributing Writer / Advisory Board Member:

Nutricula: The Science of Longevity Journal

Healthy Organic Woman Magazine

Twitter: rob_lamberton  Skype: larch60  Facebook: r lamberton

LinkedIn ID

Email: rob@bioticscan.com

Phone: 778-227-4952

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Life Extension Foundation Article

A unique herbal remedy, rhodiola grows and thrives in dry, sandy ground at high altitudes in Arctic areas of Europe and Asia.1 Soviet scientists have long known that this native herb—particularly the species known as Rhodiola rosea—can boost energy and treat mental fatigue, along with other conditions. Now that the Cold War has ended, so have the barriers to our knowledge of rhodiola’s benefits. News about this versatile herb is spreading around the world, prompting scientists to take a closer look at the herb’s many applications. Their new findings confirm the multiple physiological and psychological benefits of rhodiola, demonstrating that the herb indeed offers a powerful antidote to the stresses of modern-day life.

Improving the Body’s Response to Stress

Stress is an inevitable fact of life, but it can have serious consequences on our mental and physical health. Effective strategies for managing stress are therefore essential to thrive in a fast-paced world. Research suggests that rhodiola may offer a practical, natural solution for overcoming many stress-related complaints.

Rhodiola rosea relieves stress by balancing the body’s stress-response system. This consists of the sympathetic nervous system (which prepares the body to expend energy during crises, often described as the “fight or flight response”) and the counterbalancing parasympathetic nervous system (which recharges and heals the body, returning it to a relaxed state). With constant stress, the system becomes unbalanced, making us feel edgy, tired, or depressed. Rhodiola rosea helps re-establish balance by acting as an adaptogen—an agent that strengthens the body’s response to physical, mental, and emotional stressors.

It is believed that rhodiola enhances the body’s tolerance to stress by influencing key brain chemicals, such as serotonin and norepinephrine, and natural feel-good opioids such as beta-endorphins.2,3

Enhancing Nervous System Health

Rhodiola’s effects are particularly remarkable in the nervous system. According to Dr. Richard Brown of Columbia University, rhodiola is exceptionally beneficial because it “enhances the healing properties of one’s own nervous system.” He notes that the herb provides both “cognitive stimulation” and “emotional calming,” which lead to improvement in cognitive and memory function, as well as contributing to the long-term upkeep of brain function.1

A number of studies have shown that rhodiola can dramatically reduce mental and physical fatigue under stressful conditions, by increasing the body’s energy levels. In one study, a low dose (170 mg/day) of a R. rosea extract was given to 56 young physicians on night call, when there is notable decrease in physical and mental performance.4
Using measures of cognitive and memory function, such as associative thinking, short-term memory, calculation, and speed of audiovisual perception, the researchers found a statistically significant reduction of stress-induced fatigue after just two weeks of supplementation with rhodiola. No side effects of rhodiola were reported.

In another study of rhodiola’s effects on work capacity, researchers gave 10 drops of R. rosea tincture (equivalent to 100-150 mg R. rosea extract) once or twice a day for two to three weeks to 27 healthy students, physicians, and scientists aged 19-46 years for several days before embarking on intense intellectual work, such as final exams.1 The group found improvements in the amount and quality of work, and in all cases rhodiola prevented a loss of work capacity because of fatigue.

Research has also revealed another benefit of rhodiola in helping to increase attention to detail-oriented tasks by improving concentration over a prolonged period. A series of studies using a proofreading test showed that a one-time dose of R. rosea of 300 mg or more significantly decreased the percent of errors made, particularly over an eight-hour period.1

**Boosting Physical Endurance**

As well as enhancing memory, rhodiola also helps strengthen the body, making it more resilient to challenges such as exercise and fatiguing tasks.

In one study, the energy-boosting effect of small and medium doses of rhodiola was observed in animals that demonstrated greater strength to endure the “swim test”—a physically and mentally stressful test in which a rodent is put into a beaker of water and observed to see how long it can keep its head above water.1,5

These findings were verified in another study in which rhodiola-treated rats were able to swim for 25% longer before becoming exhausted, compared with animals that did not receive rhodiola. As adenosine triphosphate (ATP) is the main energy currency of the body, the researchers concluded that rhodiola enhances exercise capacity by activating the synthesis or re-synthesis of this vital energy source and stimulating energy-repair processes after intense exercise.6

Rhodiola also helps improve exercise performance in humans. In an intriguing report, healthy young adults who consumed 200 mg of rhodiola extract one hour before exercise significantly increased their capacity for endurance exercise.7

As well as liberating more energy for exercise, rhodiola also helps protect muscle tissue during exercise. This effect was seen in a study of healthy untrained volunteers after exhausting exercise, in whom rhodiola extract reduced levels of C-reactive protein, an inflammatory marker, and creatinine kinase, a marker of muscle damage.8
New Research Highlights Diverse Benefits

In just the past two years, new evidence has revealed even more diverse benefits of rhodiola. These include protecting the nervous system against oxidative stress, enhancing healthy sleep, lifting depressed mood, relieving anxiety, and maintaining blood sugar within a healthy range.

Recent research confirms that rhodiola has potent antioxidant effects that protect nervous system cells. A study at the Jiangsu Institute of Nuclear Medicine in China showed that salidroside, an active constituent found in rhodiola, protects human neuron cells from oxidative stress in several ways, including inducing several antioxidant enzymes. By protecting cells of the nervous system against oxidative stress-induced cell death, salidroside could be used “for treating or preventing neurodegenerative disease implicated with oxidative stress,” the scientists noted.9

Rhodiola may also help soothe feelings of agitation and sleeplessness, according to a preliminary study at Heilongjiang University of Chinese Medicine. When rhodiola-derived salidroside was administered to mice along with the sedative pentobarbital sodium, it enhanced the drug’s sedative (calming) and hypnotic (sleep-inducing) effects. “Salidroside could obviously shorten the sleep latency and prolong the sleeping time of mice... [It] produces significant sedative-hypnotic effect. The dose-effect relationship is remarkable,” noted the scientists. 10

In addition, rhodiola may help support good mental health by lifting mood, relieving anxiety, and supporting a healthy response to stress. When investigators at the University of Camerino in Italy administered a water-alcohol extract of rhodiola to mice, they found that the extract “significantly, but not dose dependently, induced antidepressant-like, adaptogenic, anti-anxiety-like, and stimulating effects in mice.”11

Furthermore, new evidence suggests that rhodiola may help offset another troubling manifestation of stress: anorexia, or discontinuation of eating. Scientists induced stress-related anorexia in rats either through immobilization or through injection of corticotrophin-releasing factor (the major mediator of stress responses in animals). At doses of 15 and 20 mg/kg, rhodiola extract reversed these anorectic effects. The researchers concluded that this study provides “functional evidence of claimed adaptogen and anti-stress properties of R. rosea.”12

Rhodiola may even hold benefits for those challenged with elevated blood sugar or diabetes, according to new evidence. Scientists investigated the effects of R. rosea and Cinnamomi cassiae (cinnamon), both of which have been used as folk remedies for diabetes, in 10 rats with the disease. Each animal received each remedy for 12 weeks. “Cinnamomi cassiae and R. rosea extracts significantly decreased blood glucose, increased levels of reduced glutathione and the activities of glutathione reductase, glutathione S-transferase, glutathione peroxidase, catalase, and superoxide dismutase in the liver.”
Based on these impressive findings, the researchers concluded that R. rosea extracts could be beneficial in “correcting hyperglycemia and preventing diabetic complications.”

These recent results reaffirm earlier studies and anecdotal evidence demonstrating rhodiola as a comprehensive adaptogen that helps the body withstand the accumulating effects of stress and advancing age.

**Integrative Practitioners Praise Rhodiola’s Benefits**

Natural health practitioners in the United States are well aware of the herb’s many benefits. They have used R. rosea for years to help manage a wide variety of conditions.

Naturopathic physician and author Tori Hudson, ND, says: “I typically use rhodiola for: infertility, lack of ovulation, irregular and/or infrequent menses, adrenal fatigue, poor stress adaptation, decreased memory, chronic sleep disorders, chronic fatigue syndrome, mild depression, shortening the recovery time between bouts of exercise, [and] enhancement of athletic performance.”

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**Using Rhodiola**

The average dose of R. rosea is between 200 mg and 400 mg per day of an extract that is standardized to contain rosavins and salidrosides in a 3:1 ratio. This mimics the ratio of these compounds that naturally occur in R. rosea root.

Purchasing only R. rosea is important, as it is this species of rhodiola that has been the predominant subject of phytochemical, animal, and human studies. While salidrosides are found in all species of rhodiola, only R. rosea contains rosavins (rosavin, rosin, and rosarin). “Approximately 51% of all animal studies and 94% of all human studies conducted on plants in the genus rhodiola are on the species R. rosea,” notes health journalist Carl Germano, RD, CNS, LDN. He adds, “Only R. rosea has passed extensive toxicological studies and has been certified safe for both animals and humans.”

Rhodiola is generally considered safe and well tolerated, although high doses (1.5-2.0 g/day) have been associated with irritability. Rhodiola rosea may have a mild energizing effect, so it should be taken first thing in the morning or during midday. The herb is best taken without food. Rhodiola’s effects in pregnant and nursing women have not yet been studied, so these women should not use the herb until more information is available.3

**References**


