

Rhodiola

Rhodiola rosea L.; golden root, arctic root, roseroot. Clinically studied extracts SHR-5 and WS 1375 — standardized to 3% rosavins and 1% salidroside.

Rhodiola has the most credible short-term fatigue trials among the classical adaptogens and one of the least trustworthy supply chains in the aisle. Trials in night-duty physicians, cadets and burnout patients show reduced fatigue within one to two weeks, and a meta-analysis of 26 trials in 668 participants published September 25, 2025 found small but consistent endurance benefits. Then a January 2026 analysis of US products found rosavin content from 0.01% to 3.08%, biomarker ratios consistent with species substitution, and trace lead, arsenic and cobalt in every capsule tested.

SUMMARY TABLE

ATTRIBUTE	SUMMARY
What it is	A high-altitude Crassulaceae root used in Scandinavian and Russian traditional medicine. Markers: rosavins, near-unique to <i>R. rosea</i> , and salidroside, common across the genus.
Best-evidenced use	Short-term stress-related and shift-work fatigue; secondarily, endurance performance. Not established for depression or anxiety disorders.
Clinical dose	170–680 mg/day of 3% rosavins / 1% salidroside extract, once in the morning. Fatigue trials used 170–576 mg/day; the 2025 endurance analysis favored >600 mg/day for VO2max.
Time to effect	Fast for a botanical: anti-fatigue effects appeared within 1–2 weeks in the night-duty and cadet trials.
Evidence grade	Moderate for short-term fatigue and endurance; low for mood. Fatigue-trial quality has been repeatedly graded poor and positive trials are small.
Key risks & interactions	Mild: dizziness, dry mouth, restlessness, insomnia if taken late. In vitro CYP3A4 and P-glycoprotein inhibition — caution with narrow-therapeutic-index drugs. Avoid in bipolar disorder, with MAOIs, and in pregnancy (no data).
Product quality note	Decisive. Rosavins should exceed salidroside in authentic <i>R. rosea</i> ; the reverse suggests substitution with <i>R. crenulata</i> or added synthetic salidroside.

FATIGUE AND STRESS: THE CORE TRIALS

Darbinyan and colleagues (Phytomedicine, 2000) ran a double-blind crossover in 56 physicians on night duty at 170 mg/day of SHR-5; a composite fatigue index improved significantly over two weeks. Shevtsov et al. (Phytomedicine, 2003) tested single 370 mg and 555 mg doses in 161 cadets and found anti-fatigue effects at both. Olsson et al. (Planta Medica, 2009) randomized 60 adults with stress-related fatigue to 576 mg/day for 28 days, reporting improved burnout and attention scores with a blunted cortisol awakening response.

The counterweight is methodological. Ishaque et al. (BMC Complementary and Alternative Medicine, 2012) reviewed 11 randomized trials and found the results promising but the methodological quality generally poor — small samples, incomplete reporting, inconsistent instruments. A 2014 PLOS One trial in nursing students was mixed and partly negative. The pattern: real short-term effects, imprecisely measured, in small groups.

PERFORMANCE, MOOD, AND WHERE THE EVIDENCE STOPS

The strongest recent synthesis, published in Frontiers in Nutrition on September 25, 2025, pooled 26 randomized trials in 668 healthy participants (mean age 22, mean 33 days of supplementation). It found improvements in VO2max (ES 0.32), time to exhaustion (ES 0.38) and time-trial performance (ES –0.40), with reduced lactate (–0.87), malondialdehyde (–1.21) and creatine kinase (–0.84). Inflammatory markers did not change. These are small-to-moderate effects in young, mostly trained subjects.

Mood is weaker ground. Mao et al. (Phytomedicine, 2015) randomized 57 adults with major depressive disorder to *R. rosea*, sertraline, or placebo for 12 weeks: sertraline produced the larger symptom reduction, Rhodiola's improvement did not reach

significance, and *Rhodiola* caused fewer adverse events. The trial was underpowered — a case for a larger study, not for substituting a supplement for treatment.

IDENTITY, ADULTERATION, AND CONTAMINATION

A quality and safety analysis of ten US-market products published in PLOS One on January 16, 2026 measured biomarkers, heavy metals and pesticides in seven capsules and three tinctures. Rosavin ranged from 0.01% to 3.08% and salidroside from 0.07% to 2.91%. Three capsules contained less rosavin than salidroside — a ratio inconsistent with authentic *R. rosea* — and one showed a fifteen-fold salidroside excess, consistent with species blending or synthetic addition.

Contamination was not trivial. All seven capsules contained trace arsenic, cobalt and lead; two were notably elevated, one at fourteen times the median cobalt concentration. Tinctures showed no detectable heavy metals. For a slow-growing root that is largely wild-harvested and under sustained demand, this is the predictable outcome — and the reason product selection matters more here than dose.

BOTTOM LINE

Worth buying, on a product-specific basis, for a short-term purpose: stress-related or shift-work fatigue and endurance support. Take 200–600 mg once daily before noon — it is stimulating and disrupts sleep taken late — and judge it within two weeks, which is when the trial effects appeared. No efficacy or safety data exists beyond roughly twelve weeks.

Buy on the label ratio, not the price: 3% rosavins / 1% salidroside with rosavins exceeding salidroside is the species check, and a named clinical extract (SHR-5, WS 1375) is safer still. Require third-party heavy-metal testing. Skip it in pregnancy, lactation and bipolar disorder, and with MAOIs. It is not a treatment for major depression.

SOURCES

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2. Shevtsov VA, et al. Two doses of SHR-5 *Rhodiola rosea* extract and capacity for mental work. *Phytomedicine*. 2003;10(2–3):95–105 (n=161).
3. Olsson EMG, et al. Randomised, double-blind, placebo-controlled study of SHR-5 in stress-related fatigue. *Planta Medica*. 2009;75(2):105–112 (n=60).
4. Ishaque S, et al. *Rhodiola rosea* for physical and mental fatigue: a systematic review. *BMC Complement Altern Med*. 2012;12:70 (11 trials).
5. *Rhodiola rosea* supplementation and endurance performance: systematic review and meta-analysis. *Frontiers in Nutrition*. September 25, 2025 (26 RCTs, 668 participants).
6. Quality and safety of *Rhodiola rosea* supplements on the U.S. market. *PLOS One*. January 16, 2026;21(1):e0341070.
7. Mao JJ, et al. *Rhodiola rosea* versus sertraline for major depressive disorder. *Phytomedicine*. 2015;22(3):394–399 (n=57).

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