

Herbal extract boosts fruit fly lifespan by nearly 25 percent, study finds

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Rhodiola rosea has been used for centuries by Scandinavians and Russians to reduce stress. Credit: Wikimedia Commons

The herbal extract of a yellow-flowered mountain plant long used for

stress relief was found to increase the lifespan of fruit fly populations by an average of 24 percent, according to UC Irvine researchers.

But it's how *Rhodiola rosea*, also known as golden root, did this that grabbed the attention of study leaders Mahtab Jafari and Sam Schriener. They discovered that *Rhodiola* works in a manner completely unrelated to dietary restriction and affects different molecular pathways.

This is significant, said Jafari, associate professor of pharmaceutical sciences, because dietary restriction is considered the most robust method of improving lifespan in laboratory animals, and scientists have been scrambling to identify compounds that can mimic its effects.

"We found that *Rhodiola* actually increases lifespan on top of that of dietary restriction," Jafari said. "It demonstrates that *Rhodiola* can act even in individuals who are already long-lived and healthy. This is quite unlike [resveratrol](#), which appears to only act in overfed or unhealthy individuals."

The researchers proved this by putting flies on a calorie-restricted diet. It has been shown that flies live longer when the amount of yeast they consume is decreased. Jafari and Schriener expected that if *Rhodiola* functioned in the same manner as dietary restriction, it would not work in these flies. But it did. They also tested *Rhodiola* in flies in which the [molecular pathways](#) of [dietary restriction](#) had been genetically inactivated. It still worked.

Not only did *Rhodiola* improve lifespan an average of 24 percent in both sexes and multiple strains of flies, but it also delayed the loss of [physical performance](#) in flies as they aged and even extended the lives of old flies. Jafari's group previously had shown that the extract decreased the natural production of reactive [oxygen species](#) molecules in the fly mitochondria and protected both flies and [cultured human cells](#) against

oxidative stress.

Jafari and Schriener, an assistant project scientist in Jafari's laboratory, are not claiming that *Rhodiola* supplements will enable humans to live longer, but their discovery is enhancing scientific understanding of how supplements believed to promote longevity actually work in the body.

Rhodiola has already shown possible health benefits in humans, such as decreasing fatigue, anxiety and depression; boosting mood, memory and stamina; and preventing altitude sickness. Grown in cold climates at high elevations, the herb has been used for centuries by Scandinavians and Russians to reduce stress. It's also thought to have antioxidant properties.

Jafari's research group is currently exploring the plant's potential to kill cancer cells, improve Alzheimer's disease and help stem cells grow.

Rhodiola is readily available online and in health food stores. Jafari, though, has analyzed several commercial products and found them to not contain sufficient amounts of the reputed active compounds – such as rosavin and salidroside – that characterize high-quality products.

More information: Study results appear online in *PLOS ONE* at www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0063886

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