Focus | FRUIT FLIES

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UC Irvine Director of Pharmaceutical Sciences Mahtab Jafari studies Rhodiola rosea, an herb that has been found by a team of UCI researchers to extend life span in a population of fruit flies.

Siberian herb could extend lives, UCI researchers say

By AYAN KUSARI
ORANGE COUNTY REGISTER

A stubby little plant from the icy permafrost of Siberia just might help you feel better and live longer, UC Irvine researchers say. They found fruit flies fed extracts of Rhodiola rosea, or "golden root," live 24 percent longer than their otherwise healthy peers.

The research itself is a sign of the times: Today's physicians are becoming more open to the idea of using herbal remedies to treat their patients, and they need the science to back it up.

"Potentially, humans – healthy or not – could live longer by consuming this root," said the study's lead investigator, Mahtab Jafari, of the department of pharmaceutical sciences at UCI. "So far, we've only seen the effect in flies, worms and yeast. But nothing quite like this has been observed before."

Drugs today are typically designed to treat deficiencies or illnesses – to fix things once they're broken.

"Currently, the main drug that's been shown to extend life span, Resveratrol, only *really* works if you're diabetic or overweight – that is, if you're unhealthy to begin with."

Resveratrol, found in red wine, limits the body's access to calories and fat. It's been shown to extend the life span of obese mice by about 30 percent. Researchers think they'll find similar life-extending properties in obese humans, but the drug probably won't do much for humans who are already slim.

But people of all weights and waistlines could benefit from the extracts of Rhodiola rosea, Jafari's findings suggest.

"It's always a jump from animal model to human, but we share 75 percent of our disease genes with fruit flies," Jafari said. "And if you look at the molecular pathways we study in flies, they're also highly conserved. You can find the same pathways in nearly all living things: flies, worms, rats, humans. It's scientific to think that if Rhodiola works in flies, it may also work on humans."

The researchers aren't sure how Rhodiola rosea is keeping the flies alive, but the answer probably lies in the snowy barrens of the Baikal Mountains. Herbalists have used the plants for hundreds of years to treat the seasonal depression that's rampant there.

At some point, the herb found its way across the Altai Mountains into Mongolia and northern China, where it's commonly used in salads or brewed into tea.

But Western doctors only began to pay attention in 2007, when an Armenian clinical trial showed 500 milligrams of Rhodiola rosea extract helped treat mild to moderate depression.

Student researcher Terry Lopez separates anesthetized fruit flies by gender.

It's also recently gained recognition among practitioners of "naturopathic" or herbal medicine in the U.S. Dayna Kowata, a naturopath and acupuncturist at UCI's Susan Samueli Center for Integrative Medicine, said she hadn't heard of it until last year.

"I was exposed to it at a lecture for naturopaths and got the chance to try it afterward," Kowata said. "The effects on me were immediate and pronounced, so it's become a part of my tool kit since then."

Modern medicine owes a lot to plant extracts. Plant-derived medicines – including aspirin, digoxin and codeine – accounted for more than a quarter of all prescriptions filled last year.

Still, many American doctors remain leery of natural remedies. Harriet A. Hall, a retired physician and regular columnist in Skeptic magazine, wrote that she doesn't like the way herbal medicine is marketed today.

"In pharmacology, we start with plants and go on to test and purify the components found there," she wrote. "(However) there have been many, many reports of herbal remedies being contaminated with heavy metals, carcinogens, insect parts, toxins, pharmaceutical drugs and other contaminants."

Kowata said she has never faulted Western doctors for dismissing Eastern remedies.

"It's the way they've been trained," she said. "They don't approach the problem from a holistic approach by default."

When presented with anecdotal evidence about herbal remedies, practitioners of mainstream medicine often point to psychological factors such as the placebo effect.

"Personal experience and testimonials are notoriously unreliable; that's why we do science," Hall wrote.

But UCI researchers didn't use humans to reach their conclusions.

"I admit the placebo effect is powerful – but on humans. Flies don't lie!" Jafari said.

That's because the placebo effect is based on emotion and cognition, and as far as scientists know, fruit flies don't have either.

"I came into this work as a skeptic like all of my colleagues," Jafari said.

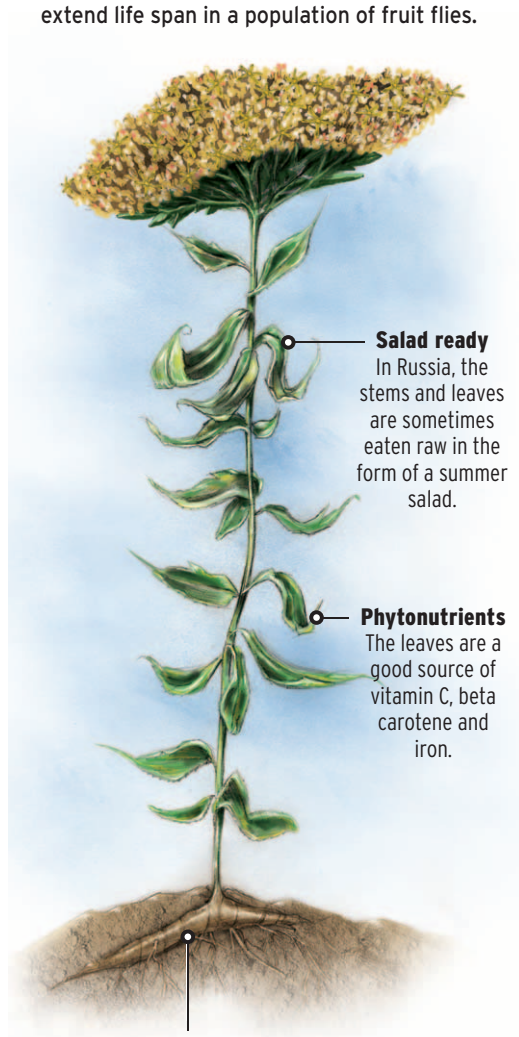
"But I'm a big believer now. Our science just isn't advanced enough to understand all they do and how they do it."

WHY IT MATTERS

The biggest news may not be that researchers have found something that can make you – well, fruit flies – feel better and live longer. The fact that scientists found the substance in an herbal form of Rhodiola rosea signals that doctors are willing to resort to herbal remedies to treat their patients.

A longer life?

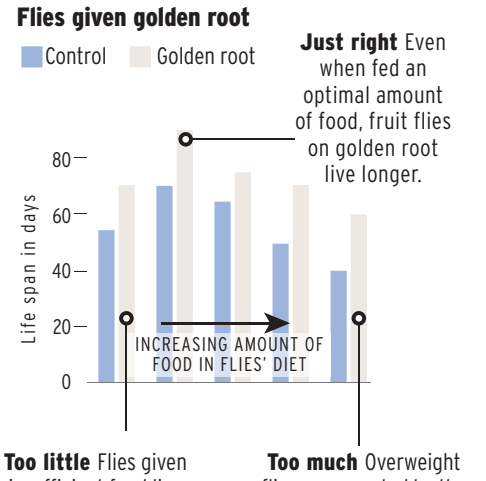
An Eastern European herb, Rhodiola rosea, has been found by a team of UCI researchers to extend life span in a population of fruit flies.



Tuberous root Today, researchers are paying attention to the plant's fleshy root, which is full of unique compounds that may one day serve as precursors to drugs.

Extra time to live

Golden root expands life span for all kinds of fruit flies – not just the heavier ones. The only other substance on the market that's been shown to have a significant effect on life span is Resveratrol, a substance found in red wine and grapes, and it's only effective for people who eat too much.



Source: UC Irvine

Fred Matamoros / The Register

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MAHTAB JAFARI
UCI PHARMACEUTICAL SCIENCES RESEARCHER