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## Sea buckthorn leaf extracts show exercise benefits: Study

By Stephen Daniells, 05-Apr-2012

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**Extracts from the leaves of the sea buckthorn plant may boost exercise capacity and protect against oxidative damage caused by excessive exercise, suggests new data from a lab rat study.**

One week of supplementing the diet of the animals with the leaf extracts was associated with a 38% increase in the time taken for the rats to become exhausted during swimming, according to findings published in the *Journal of the Science of Food and Agriculture*.

In addition, sea buckthorn leaves were associated with significant reductions in levels of malondialdehyde (MDA), a reactive carbonyl compound and a well-established marker of oxidative stress, report researchers from Shanxi University in China.

*"The present study demonstrates for the first time that Sea buckthorn leaf aqueous extracts may significantly prolong exhaustive exercise that the extracts have properties that help increase the physical endurance of rats,"* said the researchers.

### Berry nutritious

Sea buckthorn is known to contain a large number of nutrients, including vitamins A, K, E, C, B1 and B2, fatty acids, lipids, organic acids, amino acids, carbohydrates, folic acid, tocopherols and flavonoids, phenols, terpenes, and tannins.

The leaves, explained the Chinese researchers, also contain numerous bioactive compounds, including quercetin, flavonols, epicatechin, and other polyphenols.

Commenting on the potential mechanism behind the leaf extract's benefits, the researchers point to the antioxidant activity of the compounds, noting that such bioactives may scavenge the free radicals produced during excessive exercise.

*"This hypothesis is supported by the measured biochemical parameters [such as MDA],"* they said.

### Study details

The Shanxi University scientists tested the leaf extracts at different daily doses, including 50, 200 and 800 mg per kg of body weight for one week. After this period the lab animals were forced to swim in barrels until they were exhausted.

Results showed that the 50, 200 and 800 mg groups displayed an increase in their time to exhaustion of 26, 39, and 38%, respectively.

Further analysis showed that MDA levels in the animals fed the sea buckthorn leaf extracts did not increase following exhaustive exercise, but rose by 32% in animals fed the control diet.

*"The results presented in this study clearly demonstrate that aqueous sea buckthorn leaf extracts have anti-fatigue effects, as evidenced by the enhancement of the swimming endurance of rats,"* wrote the researchers.

*"Aqueous sea buckthorn leaf extracts also improve the antioxidant defense mechanisms of the heart cells and provide optimal protection against strenuous exercise-induced tissue damage."*

Source: *Journal of the Science of Food and Agriculture*

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*"Effect of seabuckthorn (Hippophae rhamnoides ssp. sinensis) leaf extract on the swimming endurance and exhaustive exercise-induced oxidative stress of rats"*

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