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File: ■ Russian Tarragon (*Artemisia dracunculus*)
■ Glucose Tolerance

HC 111232-469

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RE: Russian Tarragon Slightly Reduces Blood Glucose after an Oral Dextrose Load in Healthy, Nondiabetic Men

Bloomer RJ, Canale RE, Pischel I. Effect of an aqueous Russian tarragon extract on glucose tolerance in response to an oral dextrose load in non-diabetic men. *Nutrition and Dietary Supplements*. 2011;3:43-49. doi: 10.2147/NDS.S16511.

Diabetes mellitus is increasing worldwide, with a projected yearly growth rate of 6.5%. Controlling blood glucose levels involves regular exercise, dietary modifications, prescription drugs, and/or nutritional supplements. Russian tarragon (RT; *Artemisia dracunculus*) has been long used in Russia and middle Asia for its digestive, diuretic, and antipyretic properties. An ethanolic extract of RT that has been developed has been shown to exhibit antihyperglycemic activity.[1] These authors conducted a randomized, double-blind, crossover pilot study to investigate the effects of an aqueous RT extract on serum glucose and insulin in response to an oral glucose tolerance test (OGTT).

The authors recruited 12 healthy, nondiabetic men from the University of Memphis campus and the general Memphis, Tennessee area. The subjects were nonsmokers, with no diagnosed cardiovascular or metabolic disease.

During the first visit, the subjects completed questionnaires about their health and physical activity and underwent heart rate, blood pressure, height, weight, waist and hip circumference, and skinfold thickness measurements. They were instructed to complete a food log on the day before each test day.

On 2 different visits, the subjects reported to the laboratory after an overnight fast of at least 10 hours. They consumed, in random order, separated by 1 to 2 weeks, either a placebo (cellulose) or an aqueous extract of RT (Finzelberg GmbH & Co. KG; Andernach, Germany) in capsule form. The RT extract contained 0.2-0.7% total flavonoids with a water content of <4%; the essential oil (estragol, methyleugenol) was removed. Since strenuous physical activity may have influenced results, the authors instructed the subjects to avoid it for 24 hours before each test day.

At 15 minutes after ingestion of the capsule, an OGTT was administered: the subjects drank a solution of 75 g of 100% pure dextrose powder mixed with 355 mL of water in 2 minutes. Blood was drawn before RT or placebo ingestion and at 15, 30, 45, 60, and 75 minutes after the dextrose ingestion. Before each blood draw, heart rate and blood pressure were recorded.

Serum glucose and insulin data were analyzed by using a 2 (condition) × 6 (time) analysis of variance (ANOVA), and Tukey post-hoc testing was performed as needed. The area under the curve (AUC) was calculated for both glucose and insulin by using the trapezoidal method.[2]

No significant differences were noted between the treatments for any measured dietary variable. For hemodynamic data, no condition × time or time effect was noted for any variable; however, a condition effect was noted for all variables ($P \leq 0.05$), with each being lower for the RT group compared with those in the placebo group. The authors report that both the RT and dextrose treatments were well tolerated.

For serum glucose, no condition or condition × time effect was noted; however, a time effect was noted ($P < 0.0001$), with values at 15 and 30 minutes higher than baseline values ($P < 0.05$). The authors report no AUC effect, although a 4.5% reduction in glucose AUC was seen for RT compared with placebo. Seven subjects responded to treatment, as shown by a lower serum glucose response with RT compared with placebo.

For serum insulin, the authors observed no condition or condition × time effect; however, a time effect was noted ($P < 0.0001$), with values at 15, 30, and 45 minutes higher than baseline values ($P < 0.05$). Although no AUC effect was noted, a 17.4% reduction in insulin AUC was observed for RT compared with placebo. Eight subjects responded to treatment, as shown by a lower serum insulin response with RT compared with placebo.

The authors note that when examining overall effects, their data are not as strong as those from animal studies[3,4] that reported favorable effects on glucose tolerance in response to treatment with RT.

"Our data do not provide *statistically* significant support for the ability of RT to alter glucose disposal favorably after an OGTT in healthy, non-diabetic men. However, roughly two-thirds of subjects ingesting the RT did experience attenuation in both the glucose and insulin response to the OGTT. Considering that all subjects were young, healthy, non-diabetic men, it is possible that further study with older individuals and/or those with impaired glucose tolerance would provide more robust effects," they write.

The authors conclude that acute ingestion of RT in healthy, nondiabetic men resulted in a slight, nonsignificant lowering of blood glucose in response to a dextrose load, in the presence of a slightly lower insulin response. More, larger studies are needed in individuals with pre-diabetes or untreated diabetes.

—Shari Henson

References

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Referenced article can be found at http://www.dovepress.com/effect-of-an-aqueous-Russian-tarragon-extract-on-glucose-tolerance-in--peer-reviewed-article-NDS.