



Effects of Tarragon Powder on Glucose Metabolic Changes, Lipid Profile and Antioxidant Enzyme Levels in Type 2 Patients with Diabetes: A Randomized, Double-Blind, Placebo-Controlled, Clinical Trial

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Abstract

Background: The antioxidant and anti-inflammatory properties of tarragon make it known as an antidiabetic plant. Diabetes mellitus, an endocrine, metabolic disease, is a leading global health emergency and associated with serious complications.

Objectives: This study aimed to assess the effects of tarragon powder supplementation on glucose metabolism, lipid profile, and antioxidant status in the diabetic population.

Methods: Patient screening and selection for this clinical trial lasted one month. Tarragon supplement consumption by patients lasted 2 months (8 weeks); meanwhile, they were followed up. Sixty male and female patients with type 2 diabetes were randomly assigned to the tarragon receiver group (n = 30) and placebo receiver group (n = 30). The intervention group received a tarragon capsule (500 mg) 3 times a day, and the control group received placebo capsules. Fasting blood glucose (FBG), two-hour postprandial glucose (2-hpp), glycated hemoglobin (HbA1c), insulin, lipid, and antioxidant profile were evaluated at the start and the end of the research.

Results: In the tarragon receiver group, FBG, 2-hpp, HbA1c%, insulin resistance, lipid, and antioxidant profile significantly improved, compared to the placebo group, after adjuvant therapy with tarragon (P < 0.05).

Conclusions: Supplementation with tarragon powder in type II patients with diabetes for 2 months exerts a beneficial effect on improving the glycemic profile, lipid profile, and antioxidant status.

Keywords: Tarragon, Type 2 Diabetes, Glycemic Status, Lipid Profile, Clinical Trial

1. Background

One of the main public health problems is diabetes mellitus (DM), which affects people at an escalating rate worldwide (1). According to statistics, there is a future estimation of 629 million patients with diabetes by 2045 (2). Hyperglycemia is the main characteristic of diabetes mellitus caused by defects in insulin function. There are two main types of DM: type 1 diabetes (T1D) and type 2 diabetes (T2D). Type 2 diabetes is a chronic metabolic disorder classically identified by hyperglycemia and insulin resistance

(3). The overall damaging impact of hyperglycemia are categorized as macrovascular issues (coronary artery disease, peripheral artery disease, and stroke) and microvascular issues (diabetic nephropathy, neuropathy, and retinopathy) (4).

Autoimmune impairment of pancreas β -cells following insulin deficiency leads to insulin resistance (5). One of the factors in the elevation of reactive oxygen species (ROS) is hyperglycemia that causes glycation of scavenging enzymes and reduction in anti-oxidative mechanisms. It is suggested that reduction of ROS production might have