

**Short Communication** 

## The effect of Iranian propolis on glucose metabolism, lipid profile, insulin resistance, renal function and inflammatory biomarkers in patients with type 2 diabetes mellitus: A randomized double blind clinical trial

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Introduction: Propolis is a natural product with many biological properties including hypoglycemic activity and modulating lipid profile. The present study was designed to evaluate the effect of Iranian propolis extract on glucose metabolism, Lipid profile, Insulin resistance, renal and liver function as well as inflammatory biomarkers in patients with type 2 diabetes mellitus (T2DM). A double-blind, placebo-controlled clinical trial was conducted. The duration of the study lasted 90 days. Patients with T2DM were recruited and randomly divided into an Iranian propolis group (1000 mg/day) (n = 50) and a placebo group (n = 44). There was a significant decrease in the serum levels of glycosylated hemoglobin (HbA1c), 2-hour post prandial (2hpp), insulin, homeostasis model assessmentinsulin resistance (HOMA-IR), homeostasis model assessment of  $\beta$ -cell function (HOMA- $\beta$ ), High sensitive C-reactive protein (hs-CRP), tumor necrosis factor-a (TNF-a). However, there was a notable elevation in the serum HDL-C in the propolis group compared with the placebo group. In addition, a notable reduction in serum liver transaminase (ALT and AST) and blood urea nitrogen (BUN) concentrations in the propolis group was observed. Iranian propolis has beneficial effects on reducing post prandial blood glucose, serum insulin, insulin resistance, and inflammatory cytokines. It is also a useful treatment for preventing the liver and renal dysfunction, as well as, elevating HDL-C concentrations in patients with T2DM.

**Methods:** A double-blinde, Placebo-controlled clinical trial was conducted. In 90 days of study, recruited T2DM patients were randomly divided into an Iranian propolis group (1000 mg/day) (n=50) and a placebo group (n=44).

**Results:** At the end of the study, the serum levels of glycosylated hemoglobin (HbA1c), 2-hour post prandial (2hpp), insulin, homeostasis model assessment-insulin resistance (HOMA-IR), homeostasis model assessment of  $\beta$ -cell function (HOMA- $\beta$ ), High sensitive C-reactive protein (hs- CRP), tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) significantly decreased and serum HDL-C was significantly increased in the propolis group compared with the placebo group. In the propolis group, serum liver transaminase (ALT and AST) and blood urea nitrogen (BUN) concentrations significantly decreased after 90 days.

**Conclusion:** Iranian propolis has beneficial effects on reducing post prandial blood glucose, serum insulin, insulin resistance and inflammatory cytokines also it can prevent the liver and renal dysfunction as well as can elevate HDL-C concentrations in T2DM patients.

Note: This work is partly presented at 14th International Conference on Pharmacology and Toxicology during on July 18-19, 2019 held at Zurich, Switzerland