عنوان مقاله:

Ameliorating effects of Astragalus maximus methanolic extract on inflammation and oxidative stress in streptozotocin-induced diabetic rats

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خلاصه مقاله:

Introduction: Recent studies have reported that Astragalus spp. can display various biological effects, e.g., anticancer, antioxidant, antimicrobial, neuroprotective, and hepatoprotective activities. Here we decided to assess the ameliorating effects of Astragalus maximus methanolic extract (AMME) on inflammation and oxidative stress in streptozotocin-induced diabetic rats. Methods: The dried aerial parts were extracted by maceration technique with ۷۰% methanol. Diabetes was induced in rats via intraperitoneal injection of streptozotocin at ۶۵ mg/kg. Diabetic rats orally received AMME at ۷۵-۳۰ mg/kg for ۲۸ days. The serum levels of glucose, insulin, liver enzymes, bilirubin, creatinine (Cr), urea (Ur), triglyceride, and cholesterol, as well as the tissue levels of oxidant/antioxidant enzymes and pro-inflammatory cytokines were evaluated by the diagnostic kits. The level of α-amylase inhibition by AMME was also determined. Results: AMME (۱۵۰ and ۳۰۰ mg/kg) treatment significantly reduced (P<۰.۰۰۱) the serum levels of glucose, cholesterol, triglyceride, Cr, Ur, liver enzymes, and oxidative enzymes in diabetic rats. The tissue levels of antioxidant enzymes in diabetic rats treated with AMME (۱۵۰ and ۳۰۰ mg/kg) were significantly increased (P<۰.۰۱). Treatment of diabetic rats with either ۱۵۰ or ۳۰۰ mg/kg AMME for ۲۸ days significantly reduced interleukin-۱β (IL-۱β) and tumor necrosis factor-α (TNF-α) levels in the pancreas. AMME inhibited α-amylase in a dose-dependent manner with an IC۵۰ value of ۱۸.۱ µg/mL. Conclusion: This study showed that the oral administration of AMME in diabetic rats displayed a potent anti-diabetic activity through increasing insulin release and ameliorating effects on inflammation and oxidative stress; however, more investigations are desired to determine the action mechanism of the extract.

کلمات کلیدی: