# Antidiabetic potential of saffron and its active constituents

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The prevalence of diabetes mellitus is growing rapidly worldwide. This metabolic disorder affects many physiological pathways and is a key underlying cause of a multitude of debilitating complications. There is, therefore, a critical need for effective diabetes management. Although many synthetic therapeutic glucose-lowering agents have been developed to control glucose homeostasis, they may have unfavorable side effects or limited efficacy. Herbal-based hypoglycemic agents present an adjunct treatment option to mitigate insulin resistance, improve glycemic control and reduce the required dose of standard antidiabetic medications. Saffron (Crocus sativus L.), whilst widely used as a food additive, is a natural product with insulin-sensitizing and hypoglycemic effects. Saffron contains several bioactive ? carotenes, which exert their pharmacological effects in various tissues without any obvious side effects. In this study, we discuss how saffron and its major components exert their hypoglycemic effects by induction of insulin sensitivity, improving insulin signaling and preventing ?-cell failure, all mechanisms combining to achieve better glycemic control.

crocin

Crocus sativus

diabetes mellitus

inflammation

insulin signal transduction

oxidative stress

saffron

safranal

antidiabetic agent

glucose transporter 4

herbaceous agent

nutraceutical

antidiabetic agent

biological marker

insulin

plant extract

antidiabetic activity

cell membrane

chemical composition

clinical trial (topic)

Crocus sativus

drug effect

glucose transport

glycemic control

human

inflammation

insulin sensitivity

insulin signaling

nonhuman

oxidative stress

pancreas islet beta cell

pancreas islet cell function

priority journal

protein expression

protein localization

Review

animal

blood

chemistry

Crocus

diabetes mellitus

drug effect

glucose blood level

insulin resistance

isolation and purification

metabolism

pathophysiology

Animals

Biomarkers

Blood Glucose

Crocus

Diabetes Mellitus

Humans

Hypoglycemic Agents

Insulin

Insulin Resistance

Insulin-Secreting Cells

Plant Extracts