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Natural Nrf2 activators in diabetes.

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Abstract

Prediabetes and diabetes are rising worldwide. Control of blood glucose is crucial to prevent or delay diabetic complications that frequently result in increased morbidity and mortality. Most strategies include medical treatment and changes in lifestyle and diet. **Some nutraceutical compounds have been recognized as adjuvants in diabetes control. Many of them can activate the nuclear factor (erythroid-derived 2)-like 2 (Nrf2), which has been recognized as a master regulator of the antioxidant response. Recent studies have described the role of Nrf2 in obesity, metabolic syndrome, nephropathy, retinopathy and neuropathy, where its activation prevents the development of diabetes and its complications. It has been demonstrated that natural compounds derived from plants, vegetables, fungi and micronutrients (such as curcumin, sulforaphane, resveratrol and vitamin D among others) can activate Nrf2 and, thus, promote antioxidant pathways to mitigate oxidative stress and hyperglycemic damage.** The role of some natural Nrf2 activators and its effect in diabetes is discussed.

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KEYWORDS: Curcumin; Diabetes; Gamma-glutamate-cysteine ligase; Glutathione peroxidase; Glutathione reductase; Heme-oxygenase-1; Nrf2; Prediabetes; Resveratrol; Sulforaphane; Vitamin D

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