

Salacia root, a unique Ayurvedic medicine, meets multiple targets in diabetes and obesity.

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In many traditional schools of medicine it is claimed that a balanced modulation of several targets can provide a superior therapeutic effect and decrease in side effect profile compared to a single action from a single selective ligand, especially in the treatment of certain chronic and complex diseases, such as diabetes and obesity. Diabetes and obesity have a multi-factorial basis involving both genetic and environmental risk factors. A wide array of medicinal plants and their active constituents play a role in the prevention and treatment of diabetes. Salacia roots have been used in Ayurvedic medicine for diabetes and obesity since antiquity, and have been extensively consumed in Japan, the United States and other countries as a food supplement for the prevention of obesity and diabetes. Recent pharmacological studies have demonstrated that Salacia roots modulate multiple targets: peroxisome proliferator-activated receptor-alpha-mediated lipogenic gene transcription, angiotensin II/angiotensin II type 1 receptor, alpha-glucosidase, aldose reductase and pancreatic lipase. These multi-target actions may mainly contribute to Salacia root-induced improvement of type 2 diabetes and obesity-associated hyperglycemia, dyslipidemia and related cardiovascular complications seen in humans and rodents. The results of bioassay-guided identification indicate that mangiferin, salacinol, kotalanol and kotalagenin 16-acetate are at least in part responsible for these multi-target regulatory activities of Salacia roots. The evidence suggests that this unique traditional medicine fulfills a multiple-target strategy in the prevention and treatment of diabetes and obesity. Although toxicological studies have suggested minimal adverse effects of the herbal medicine in rodents, a clinical trial is crucial to further confirm the safety of Salacia roots. In addition, further mechanistic studies are necessary in order to allow a better understanding of how use of Salacia root may interact with other therapeutic interventions.