

A natural compound called rutin may shade light on diabetes therapy

Diabetes and its major risk factor, obesity, have become a world-wide epidemic and cause of suffering for millions of people. There is still no drug of cure for diabetes and the currently available drugs suffer from a number of limitations either due to side effects or loss of efficacy after prolonged usage. Many research laboratories worldwide are therefore actively searching for novel antidiabetic drugs either from synthetic or natural sources.

Rutin is one of the most abundant chemical compounds that can be easily extracted from medicinal plants. It was first discovered in 1842 as a component of an aromatic herbal plant, *Ruta graveolens* (Commonly known as Rue or Herb-of-Grace). Since then, many medicinal plants that contain rutin in high amount are known to have therapeutic value for treating diabetes and a number of other illnesses.

Rutin appears to target diabetes at various fronts. First, it protects insulin producing cells from toxic agents that are implicated in diabetes-related insulin insufficiency. Numerous studies both in animal models and in vitro (in test tubes) have also shown that rutin enhances the release of insulin from insulin producing cells with an ultimate benefit of reducing the high blood glucose level in diabetic subjects.

Rutin has also shown to inhibit the digestion of carbohydrates in the gut thereby smaller amount of glucose would be released to the blood stream. Hand in hand with this effect, it also promotes the transport and storage of glucose in specialist glucose storing cells. Both of these effects will lead to low level of glucose in the blood and hence mitigate the common diabetes-mediated high-glucose toxicity in the body.

Through various mechanisms, rutin also suppresses fat accumulation (a process called adipogenesis) with implication of tackling the major risk factor of diabetes, obesity. The other major important features of rutin are potent antioxidant and antiinflammatory effects both of which are crucial in tackling diabetes and obesity.

Through such multiple effects, the natural compound rutin either in its pure form or in plant extracts that produce it in high amount has tremendous therapeutic potential for treating diabetes. The idea of one drug targeting the various components of a complex disease like diabetes is also far too good to be true. Future studies should therefore focus on the identification of even better antidiabetic drug candidates constructed as chemical mimics of rutin.

Dr. Solomon Habtemariam

*Pharmacognosy Research Laboratories, Medway School of Science, University of Greenwich
Chatham-Maritime, UK*

Publication

[The therapeutic potential of rutin for diabetes: an update.](#)

Habtemariam S, Lentini G.

Mini Rev Med Chem. 2015