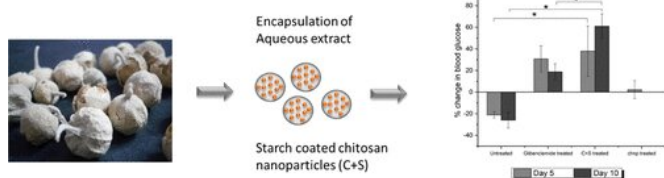


Encapsulated Indian medicinal herb shows anti-diabetic properties in mice

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Credit: American Chemical Society

Extracts of the herb *Withania coagulans*, or Paneer dodi, are used in traditional Indian medicine. Although some healers claim that *W. coagulans* can help treat diabetes, the bitter-tasting plant hasn't been studied extensively by scientists. Now, researchers have found that herbal extracts packaged in polymers derived from natural substances can reduce blood glucose levels in diabetic mice. They report their results in *ACS Omega*.

Alternative medicines are becoming increasingly popular for the treatment of chronic illness, primarily because of people's perception that plant-based medicines are less toxic and have fewer [side effects](#). However, this is not always the case, and even so-called "natural" therapies must be carefully tested for efficacy, dose-related toxicity and interactions with other drugs. In addition, scientists must find ways to effectively deliver the medicines into the body in controlled ways. Many [plant extracts](#), like *W. coagulans*, are bitter and unpalatable at the doses needed to have [beneficial effects](#). Also, when taken orally, the medicinal components in plant extracts are often destroyed by the acidic conditions of the stomach. That's why Say Chye Joachim Loo and colleagues wanted to find a way to encapsulate *W. coagulans* extract in a [delivery system](#) based on natural components that could safely transport the extract to the [small intestine](#), where the cargo would be released and

absorbed.

From the berries of *W. coagulans*, the team extracted plant steroid compounds that increased insulin secretion by mouse pancreatic cells in a dish. The researchers encapsulated the steroids in chitosan nanoparticles made from shellfish exoskeletons and coated the particles with starch, which delayed release of the herbal extract under acidic conditions. Finally, diabetic mice that were fed the nanoparticles for 5 days showed about 40% lower [blood glucose levels](#) compared to their starting amounts. Surprisingly, even 5 days after the treatment ended, the mice showed a 60% reduction in blood glucose compared to their starting levels. This effect could arise from the ability of the delivery system to prolong the release of extract over an extended period of time, the researchers say.

More information: Kaarunya Sampathkumar et al. Small-Intestine-Specific Delivery of Antidiabetic Extracts from *Withania coagulans* Using Polysaccharide-Based Enteric-Coated Nanoparticles, *ACS Omega* (2019). DOI: [10.1021/acsomega.9b00823](https://doi.org/10.1021/acsomega.9b00823)

Provided by American Chemical Society

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