

IAI SPECIAL EDITION

REVIEW

# *Stevia rebaudiana* as a nutraceutical for COVID-19 patients with no sugar diet during recovery and its nanoparticle application

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## Keywords

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## Abstract

**Introduction:** Some patients with comorbidity such as diabetes are at risk of worsening after being infected with the COVID-19 and they usually adjust their diet during the recovery process. **Aim:** To explore the use of *Stevia rebaudiana* leaves as a natural sweetener recommended for COVID-19 patients and the nanoparticle approach of *S. rebaudiana* extract to improve the efficacy. **Methods:** Four electronic databases (Google Scholar, PubMed, Scopus, and ScienceDirect) were used with specified inclusion and exclusion criteria set. **Results:** The glycosides produced by *S. rebaudiana* are 300 times sweeter than sucrose, low in calories, and can control blood sugar levels and increase insulin secretion. The application of nanoparticles in *S. rebaudiana* extract is a new step to maximise efficacy, increase stability and solubility. **Conclusion:** *S. rebaudiana* can be used as an alternative diet for COVID-19 diabetes patients. The application of the nanoparticles can increase the stability and solubility, thus improving the efficacy.

## Introduction

The coronavirus disease known as COVID-19 is a respiratory infectious disease caused by the severe acute syndrome coronavirus-2 (SARS-CoV-2) (Nugraha *et al.*, 2020). The first case has been reported to have occurred in Wuhan, China, in December 2019 and has spread to Indonesia. The Indonesian government reported 2,983,830 confirmed cases, 77,583 COVID-19 related deaths reported, and 2,356,553 patients have recovered on 21 July 2021 (WHO, 2021). Some patients mostly have co-morbidities when they get infected and may worsen their condition, such as hypertension (52.1%), diabetes mellitus (33.6%), and other cardiovascular diseases (20.9%). The rate of hospital admission and self-quarantine for diabetic patients became 2% (Karyono and Wicaksana, 2020). Researchers have identified that poor glucose homeostasis and inflammation were the cause of

worsened patient outcome, thus increasing the risk of extended hospital stay and ICU admission (Roncon *et al.*, 2020). COVID-19 patients with diabetes still need to maintain their diet by consuming more nutritious foods during the recovery period. The use of artificial sweeteners such as aspartame, saccharin, sucralose, and acesulfame have a variety of adverse effects including a negative taste profile, increased risk of metabolic syndrome and obesity, changes in the gut microbiota, neurotransmitter disturbances, and negative pregnancy outcomes (Ray *et al.*, 2020). This paper is a review on the use of *S. rebaudiana* as a natural sweetener for COVID-19 patients. The study explores the pharmacological effect that accelerate healing of COVID-19 therapy in comorbidity patients, and nanoparticle application in *S. rebaudiana*.