

Glycyrrhizic acid: a natural plant ingredient as a drug candidate to treat COVID-19

ABSTRACT

The total number of cumulative cases and deaths from the COVID-19 pandemic caused by SARS-CoV-2 is still increasing worldwide. Although many countries have actively implemented vaccination strategies to curb the epidemic, there is no specific efficient therapeutic drug for this virus to effectively reduce deaths. Therefore, the underappreciated macromolecular compounds have become the spotlight of research. Furthermore, the medicinal compounds in plants that provide myriad possibilities to treat human diseases have become of utmost importance. Experience indicates that Traditional Chinese medicine effectively treats SARS and has been used for treating patients with COVID-19 in China. As one of the world's oldest herbal remedies, licorice is used for treating patients with all stages of COVID-19. Glycyrrhizic acid (GA), the main active compound in licorice, has been proven effective in killing the SARS virus. Meanwhile, as a natural plant molecule, GA can also directly target important protein structures of the SARS-CoV-2 virus and inhibit the replication of SARS-CoV-2. In this review, we summarized the immune synergy of GA and its potential role in treating COVID-19 complications. Besides, we reviewed its anti-inflammatory effects on the immune system and its positive effects in cooperation with various drugs to fight against COVID-19 and its comorbidities. The purpose of this review is to elucidate and suggest that GA can be used as a potential drug during COVID-19 treatment.

Keyword: COVID-19; SARS-CoV-2; Glycyrrhizic acid; Glycyrrhizin; Immune synergy; Steroid metabolism