Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to Editors

Purposing Saikosaponins for the treatment of COVID-19

Till the moment, there are no approved antiviral treatments for COVID-19. Saikosaponin A, Saikosaponin B, and Saikosaponin D are major triterpenoid saponins derived from *Bupleurum falcatum* L. (*Umbelliferae*) with valuable pharmacological activities. These active components exbibit several immunomodulatory, anti-inflammatory, anti-bacterial, antiviral, and anti-cancer effects. We propose that Saikosaponins might hold the promise for the treatment of COVID-19 based on the following rationale:

1. Saikosaponins exhibit immunomodulatory and anti-inflammatory activities. Saikosaponin A dose-dependently inhibits the production of several inflammatory mediators ROS, TNF-a, COX-2, iNOS, and interleukins (IL-6, IL-8, and IL-10) which are responsible for the cytokine storm of severe COVID-19 patients [1]. Saikosaponin D could exhibit an anti-proliferative effect in activated T-lymphocyte, in part via suppression of the nucleotide-binding oligomerization domain 2 (NOD2)/NF-κB, NF-AT, and AP-1 MAPK signaling, which plays a role in the severity and mortality of COVID-19 [2].
2. Saikosaponins exhibited antiviral activities against several types of viruses in experimental studies. Saikosaponin A inhibited influenza A virus and reduced lung immunopathology. Saikosaponin B demonstrated in-vitro antiviral activity against HCoV-229E by inhibiting the viral attachment to cells in a dose-dependent manner, blocking the viral penetration into cells, and interfering with the early stage of viral replication, such as virus absorption and penetration [3]. Saikosaponin D inhibits the autophagic activity of Enterovirus A71.
3. A molecular docking study demonstrated that Saikosaponin A has a high affinity to bind to a target receptor of the SARS-CoV-2, ACE II receptor [4].

In conclusion, we believe that Saikosaponins are candidate treatment for COVID-19 owing to their anti-inflammatory, immunomodulatory, and antiviral activities. We recommend future well-designed randomized controlled trials to evaluate the safety and efficacy of Saikosaponins in patients with COVID-19.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.mehy.2020.109782.

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