Development of Anti-SARS-CoV-2 Agents from Natural Products

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Coronavirus (COVID-19) is an infectious disease caused by severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2, or 2019-nCoV), and has quickly spread around the globe [1-3]. It is the newly emerged zoonotic virus causing pandemic death and economic loss [4]. Till May 1, 2020, over 3,300,000 people have been confirmed infected and more than 230,000 people have died during this severe viral attack. There are a lot of drug trials going on, however, the specific anti-SARS-CoV-2 agents or vaccines were scarce. Developing effective treatments remains a daunting task.

In the clinical treatments for COVID-19, anti-infectious, anti-proinflammatory cytokines, as well as nonspecific antiviral therapies were the basic strategies [5-7]. To save more infected people, the clinical practice have been partly based on illuminating the existing broad-spectrum anti-viral natural products as drug repurposing for COVID-19 therapy. Natural products-derived drugs are important alternative therapies in treating infectious diseases and have been the subjects of intense investigations for thousands of years [8,9]. Recently, growing oral natural products-derived drugs has been confirmed effective against SARS-CoV-2 in different types of COVID-19 patients, or exhibited potential benefits in COVID-19 cases by promoting the relief of symptoms, preventing the infection, and alleviating organ injuries [9-13].

The reported potential candidates from oral natural products-derived drugs for COVID-19 treatment included Shufeng Jiedu capsule [12], Lianhua Qingwen granule [13,14], Qingfei Paidu tang [15], FeiDuQing prescription [16], Huopuxialing decoction [17], ShuangHuangLian oral liquid [18] and so forth. YuPingFeng prescription is an another classical complex prescription composed of Astragalus membranaceus (Fisch.) Bunge. (Huangqi), Atractylodes macrocephala Koidz. (Baizhu), Saposhnikovia divaricata (Trucz.) Schischk. (Fangfeng) (3: 1: 1) [8]. It was demonstrated that the total glycoside and polysaccharides from YuPingFeng have immunoregulatory, anti-inflammatory and anti-fibrotic activities during lung injury [19-21]. Recent evidence also proved that the core active compounds in YuPingFeng could target SARS-CoV-2 receptor based on network pharmacology and molecular docking analysis [22]. It revealed that YuPingFeng may be effective to prevent COVID-19, but it needs further in-depth studies and clinical data.

In view of the increasing number of infected people and death due to COVID-19, it is urgent to dig effective anti-SARS-CoV-2 agents, such as the development from the natural products. The clearest point is that if the existing natural products-derived drugs were proved effective in COVID-19, it would save much time and may then help to rescue more patients in time. Here, we briefly introduced the emerging role of the natural products in COVID-19 treatment. However, these results were based on the laboratory investigations or included few clinical cases. In order to conquer the nightmarish COVID-19, further efforts should also commit to the discovery of potential effective drugs on the market or the agents confirmed owning antiviral activities from the natural products, especially by the well-designed clinical randomized controlled trials.

Conflicts of Interest

None of the authors has any conflicts of interest to declare.

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