

Indian and Chinese Traditional Medicine on COVID-19: A Review and Perspective

Salvilla, Remi Charlene M.^{1,2,3}, Faller, Erwin M.^{1,2,3,4}

¹School of Pharmacy, Centro Escolar University, Manila, Philippines

²Pharmacy Program, University of San Agustin, Iloilo City, Philippines

³Graduate School, Centro Escolar University, Manila, Philippines

⁴Pharmacy Department, San Pedro College, Davao City, Philippines

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Abstract

The coronavirus has spread around the world that it was declared a pandemic in March 2020. Millions of people have been infected, and even died because of it. Researchers and pharmaceutical companies have been working on vaccines and treatments to curb the infection. People have looked into the utilization of traditional medicines as a complementary and preventive therapy for COVID-19. Indian and Chinese traditional medicines contain ingredients that were found to have potential as complements to COVID-19 therapy. This report gives a review and perspective on the use of Indian and Chinese traditional medicine for COVID-19. The perspective is an opinion of the authors regarding the use of traditional medicine as a prevention and complementary therapy against COVID-19

Index Terms Chinese Traditional Medicine, Indian Traditional Medicine, COvid-19, Review, Perspective, Coronavirus outbreak

Introduction

The coronavirus outbreak came to light on December 2019 when China informed the World Health Organization of a cluster of cases of pneumonia of an unknown cause in Wuhan City in Hubei Province [1]. Subsequently the disease spread to more Provinces in China, and to the rest of the world. The WHO declared it a pandemic in March 2020 [2]. Since then, multiple variants of the virus have been reported. Scientists are looking for ways to detect, prevent, and cure the disease. Because of the time that it will take for the medicines and vaccines to be manufactured, people have turned to herbal medicines to combat COVID-19 [3]. The most common traditional medicine systems are the Indian and Chinese traditional medicine systems [4]. In India, Ayurveda is considered not just as an ethnomedicine but also as a complete medical system that takes in to consideration physical, psychological, philosophical, ethical and spiritual well being of mankind. It lays great importance on living in harmony with the universe and harmony of nature and science. The Chinese Traditional Medicine philosophy on the other hand focuses on Qi and proposes that everything is composed of the five elements: fire, earth, metal, water and wood.

In this paper, articles relating to traditional medicines are searched, collected, and reviewed. The perspective is an opinion of the author regarding the use of traditional medicine as a prevention and complementary therapy against COVID-19.

Method

In this review and perspective, data related to COVID-19 were searched and collected. The review was conducted utilizing journal databases such as BMJ Global Health, Researchgate,

Elsevier, Google Scholar, Pubmed, and The Lancet. The articles were then reviewed and interpreted. The search terms used included: Coronavirus, COVID-19, history, etiology, signs, symptoms, management for COVID-19, antiviral activities of herbs against influenza, SARS-CoV-1, and SARS-CoV-2. There was no limitation on the language and year of studies. The chosen articles were reviewed and interpreted by the authors. The perspective is an opinion of the authors regarding the use of herbs in Indian and Chinese traditional medicines as a prevention and complementary therapy against COVID-19.

History, Etiology, Signs and Symptoms.

It was Dr. Li Wenliang, an ophthalmologist in Wuhan, China who reported the first case of the pneumonia with an unknown cause in 2019 [5]. The Huanan seafood market in Wuhan was suspected to be associated with the early cases of COVID-19 infected patients, as wild-animal trading occurs in the area [7]. The bat, sold as food in the Wuhan market, was initially assumed to be the intermediate host for the disease to emerge in humans. Phylogenetic analysis showed that the virus fell within the Betacoronavirus genus, and was genetically distinct from SARS-CoV [8].

In January 13, 2020, the first 2019-nCoV infection outside of China was reported in Thailand [9]. Since then, cases of the 2019-nCoV infection were reported in Japan [10], Korea [11], Singapore [12], Vietnam [13], and in the USA [14].

A study by Huang, et.al, showed that the first 41 admitted hospital patients identified as having the 2019 nCoV infection in Wuhan exhibited common symptoms at onset of illness such as fever, cough, myalgia or fatigue, with less common symptoms such as

headache, haemoptysis, sputum production, and diarrhea. All 41 patients exhibited pneumonia with abnormal findings on chest CT scans [15]. These clinical features were seen to resemble

	Scientific Name	Local name in Tamil	Part used
1	Zingiber officinale L.	Sukku	Rhizome
2	Piper longum L.	Thippili	Fruit
3	Syzygium aromaticum L.	Ilavankam	Flower bud
4	Tragia involucrate L.	Sirukanchoriver	Root
5	Anacyclus pyrethrum L.	Akkirakamver	Root
6	Hygrophilia auriculata Schumacher	Neermulliver	Root
7	Terminalia chebula Retz.	Kadukkai	Fruit rind
8	Justicia adhatoda L.	Adathodai	Leaf
9	Coleus aromaticus Benth	Karpuravalli	Leaf
10	Costus speciosus (J. Koenig) Sm.	Koshtam	Root
11	Tinospora cordifolia (Thunb.) Miers	Seendhil	Stem
12	Clerodendron serratum (L.) Moon	Siruthekku	Root
13	Andrographis paniculata Burm. F.Nees	Nilavembu	Whole plant
14	Sida acuta Burm.f.	Vattathiruppi ver	Root
15	Cyperus rotundus L.	Korai kilangu	Root tuber

infections of SARS-CoV and MERS-CoV in 2003 and 2013, respectively [16, 17]. WHO Mission to China issued a statement after its visit to Wuhan that there was evidence of human to human transmission, but that more investigations must be done to understand its extent of transmission [18]. A study on the aerodynamic analysis of the virus done by Liu, et.al., proposed that the virus may have the potential to be transmitted through aerosols [19].

By March, Europe became the epicenter of the pandemic, and COVID-19 was declared as a pandemic [20]. In May 2020, WHO reported and approximately 5 million confirmed cases of COVID-19 and more than 30 thousand deaths worldwide [21]. Chest CT scans played a big role for detecting COVID-19 in the earlier days of infection in China [22]. However, the gold standard for diagnosis remains to be the reverse transcription polymerase chain reaction (RT-PCR) positive for the viral RNA [23].

Multiple variants of SARS-CoV-2 are emerging around the world. The Center for Disease Control (CDC) introduced a scheme that identifies variants of the virus [24]. This brings about a variety of concerns to the medical community, especially that of a new variant having the ability to resist vaccine-induced immunity.

Currently, there are 153 million people infected with COVID-19 with 89.6 million recoveries, and 3.2 million deaths [25-27].

Medicinal plants and COVID-19

While scientists are trying hard to develop new potential therapeutic strategies, consisting of monoclonal antibodies, vaccines, peptides, Interferon-based therapies, protease inhibitors, and small-molecule drugs to defeat the COVID-19 pandemic, people have turned to complementary and alternative medicines for the possible prevention and treatment of COVID-19 [28-31].

In India, the traditional medicine system is widely used to prevent and remedy diseases. This system dates back to prehistoric times and is considered as a custom. The system comprises of Ayurveda [32-33], Homeopathy [34-35], Siddha medicine [36], along with Kabasura kundineer [37-39], yoga [40,41], and naturopathy [42]. The Ministry of AYUSH published an advisory regarding the challenge of COVID-19, which included guidelines on different traditional medicine customs [43].

The kabasura kundineer is a traditional Siddha medicine which contains fifteen natural ingredients, ranging from root to the entire plant (Table 1). In an initial screening of the fifteen ingredients, the following were identified as present: alkaloids, carbohydrates, glycosides, cardiac glycosides, flavonoids, phenols, saponins, tannins, hydrolysable tanins, and terpenoids [44]. A study on 84 subjects in Vellore, India, found that a kabasura kundineer formulation showed preliminary evidence for protection and prophylactic effect in high-risk COVID-19 cases [45]. Another study utilizing a bioinformatics approach for drug repurposing, compounds found on the kabasura kundineer formulation showed promising inhibition in SARS-CoV-2 [46].

Table 1. The fifteen (15) ingredients of the kabasura kundineer [43-44]

Traditional Chinese medicine (TCM) is thousands of years old and has always focused on Its basic concept is that a vital force of life, called Qi that surges through the body. Diseases and illnesses are caused by an imbalance to Qi. Texts in the Traditional Chinese Medicine system, such as Huang Di Nei Jing (The Yellow Emperor’s Classic of Medicine), and Shang Han Za Bing Lun (Treatise on Cold-induced and Miscellaneous Diseases) have shown descriptions related to severe respiratory diseases [47-49]. Studies on traditional Chinese medicine have been made, seeing that the use of TCM is deeply ingrained in the Chinese culture and traditions [50-53].

Table 2. Common TCM ingredients suggested for COVID-19 [54]

	Scientific name	Local name	Part used
1	Ephedrae sinica [50,52]	Mahuang	Stem
2	Armeniacae semen amarum [50]	Xingren	Seeds
3	Glycyrrhizae radix et rhizome [50-51]	Gancao	Root and stem
4	Gypsum fibrosum [50,52]	Shigao	Mineral substance
5	Arecae semen [51]	Binlang	Nut
6	Magnoliae officinalis cortex[51]	Houpo	Bark
7	Tsaoko fructus [51]	Cao guo	Fruit
8	Anemarrhenae rhizome [51]	Zhimu	Rhizome
9	Dioscoreae rhizome [51]	Shaoyao	Rhizome
10	Scutellariae radix [51]	Huang qin	Root
11	Pinelliae rhizome [52]	Ban xia	Tuber
12	Aurantii fructus immaturus [52]	Zhishi	Fruit
13	Zingiberis rhizoma recens [52]	Shengjiang	Rhizome
14	Chincona L., Raiatea [53,54]	Jīnjī nà	Bark
15	Curcuma longa [55]	Jiānghuáng	Root
16	Echinacea purpurea [56]	Zi Zhu Ha	Rhizomes

Conclusion:

COVID-19 is a problem the entire world is facing. Millions have been infected, and people have died because of it. The design and development of drugs and vaccines require elucidation of the mechanism of SARS-CoV-2. These processes take time, hence, people are going the “natural” way of curbing the spread of the coronavirus. Indian and Chinese traditional medicine are the most commonly used alternative therapy to curb COVID-19. Of the various herbal medicines used as ingredients in traditional Indian and Chinese medicine, current literature provides obvious evidence supporting herbal medicines and traditional medicines as potential effective antivirals and as preventive agents against COVID-19. Hence, these are possible complementary or adjunct preventive therapy for COVID-19. However, these hypotheses require experimental validation in SARS-Cov-2 infection models and COVID-19 patients.

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