



PAPER COMPETITIONS

# Application of Traditional Chinese Herbal Medicine on the Prevention of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)

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## Introduction

Numerous disease outbreaks have been reported throughout history, causing unprecedented damage to our lives. Focusing on the most recent coronavirus disease-2019 (COVID-19) pandemic, scientists have been investigating viral mechanisms with the aim of developing effective prevention and antiviral treatments. As the spread quickens, an approach is needed to lower infection rates in order to minimize damage.

## Objective

We aimed to evaluate the effectiveness of traditional Chinese medicine (TCM) herbs as Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) prevention agent, and to open up more possibilities with regards to prevention and control.

## Methods

We conducted experiments with 18 TCM herbs for prevention of COVID-19 infection. The SARS-CoV-2 main protease (Mpro) functional assay concentrated on how these herbs inhibit the Mpro in charge of virus replication. The viral pseudoparticle (Vpp) assay examined the activity of SARS-CoV-2 entry with the herbs infected with a pseudovirus. We also looked through various research studies and conducted a thorough analysis to strengthen our perspectives on its application.

## Results

The experiments indicated that *Forsythia suspensa* (Lianqiao), *Salvia miltiorrhiza* (Danshen), and *Scutellaria baicalensis* (Huangqin) showed the greatest inhibition of the SARS-CoV-2 main protease, while *Scutellaria baicalensis* (Huangqin) and *Artemisia capillaris* (Mieninchen) expressed suppression of SARS-CoV-2 entry.

## Conclusion

Altogether, we showed that several TCM herbs turned out to be effective in main protease targeting and SARS-CoV-2 Vpp inhibition. We concluded that some of those TCM herbs might be used to lower infection rates and prevent outbreaks. In terms of its application, while there are many aspects that need to be further investigated, the TCM herbs have shown their potential as preventive measures.

## Keywords

*Herbal medicine, Main protease, SARS-CoV-2, Traditional Chinese medicine, Viral pseudoparticles*