

TRADITIONAL CHINESE MEDICINE: A PATH WORTH EXPLORING IN THE FIGHT AGAINST COVID-19?

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1. Introduction

By the end of December 2019 an increasing number of patients were diagnosed with pneumonia and respiratory failure due to unknown origin in the Chinese city of Wuhan, leading to the discovery of the 2019 novel coronavirus. [1]

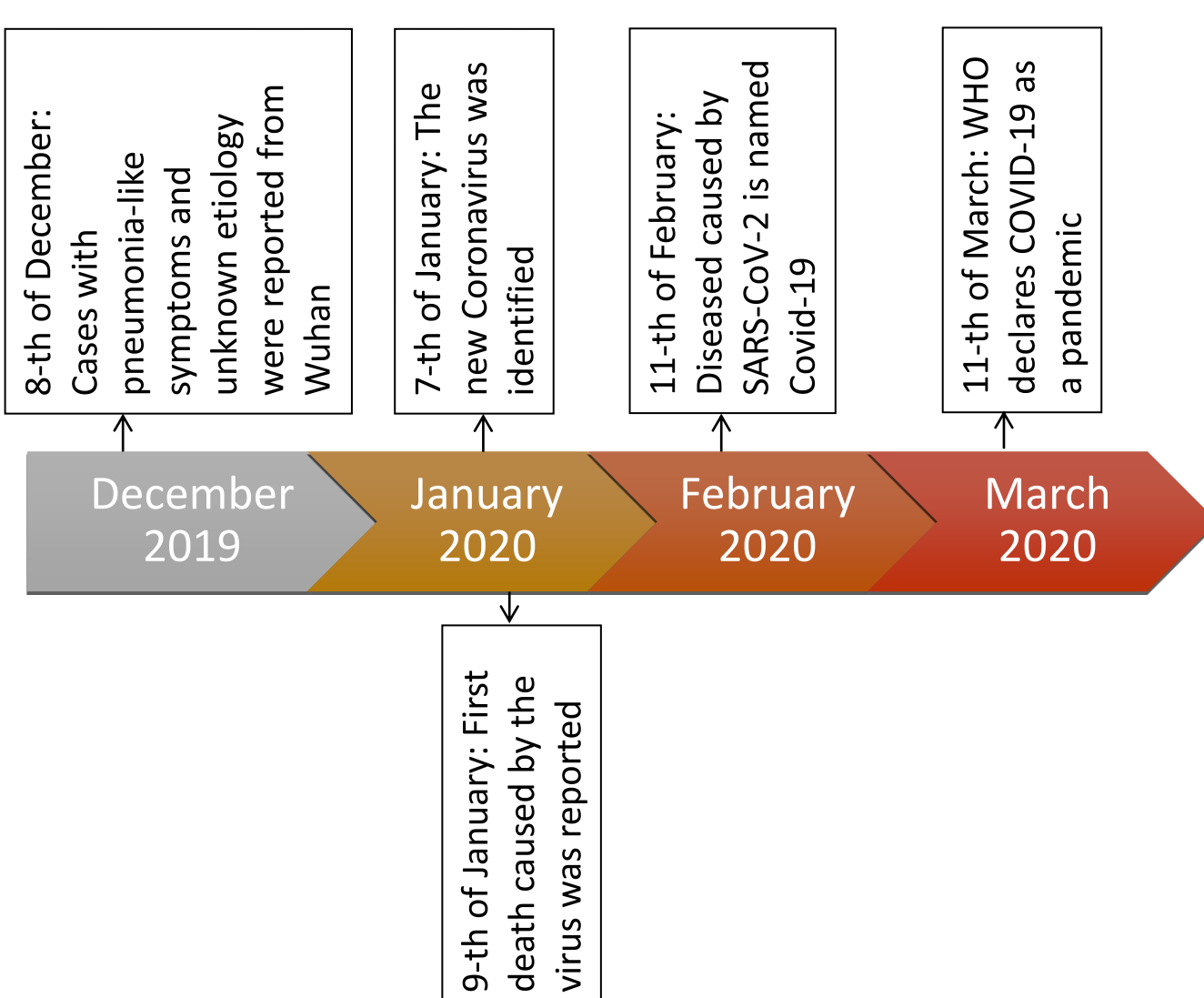


Fig 1: Beginning timeline of the pandemic

Despite many efforts to contain the virus within Wuhan and China, it quickly spread all around the world and by March 2020, the WHO declared the necessity to deal with the pandemic of SARS-CoV-2. [2]

SARS-CoV-2 is an enveloped single-stranded positive RNA virus.

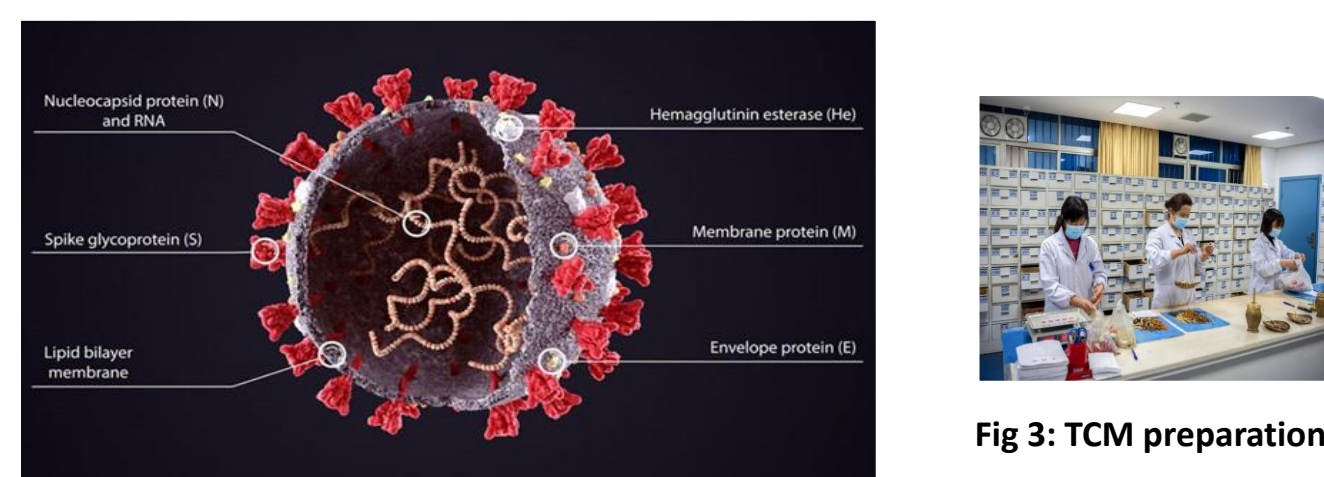


Fig 2: SARS-CoV-2 structure

Fig 3: TCM preparations

Traditional Chinese Medicine:

TCM is an important part of alternative medicine, which offers a wide variety of herb combinations used in the treatment of different illnesses. Throughout thousands of years, it has collected experience in the treatment of pandemic and endemic diseases. According to the WHO more than 80 % of the population in the developing countries still depend heavily on traditional medicine. [3]

During the pandemic, mixtures of plant-based formulas were integrated into the protocols for the treatment of COVID-19 in Chinese hospitals.

Several clinical trials took place and they discovered that TCM combined with Western medicine improve the clinical symptoms as well as preventing the disease progression in COVID-19 patients. [4]

Objective:

The purpose of this study was to perform an *in-vitro* screening of TCM plants as well as mixture of plants (formulas) with the aim of discovering any possible antiviral activity against SARS-CoV-2 virus.

2. Materials and Methods

Historically the TCM is administered to the patient as a cup of tea. That being said, decoction using water to obtain an extract was considered to be the most approachable method to mimic the original version.

The cells selected for the antiviral activity testing of TCM compounds are Vero E6 cells.

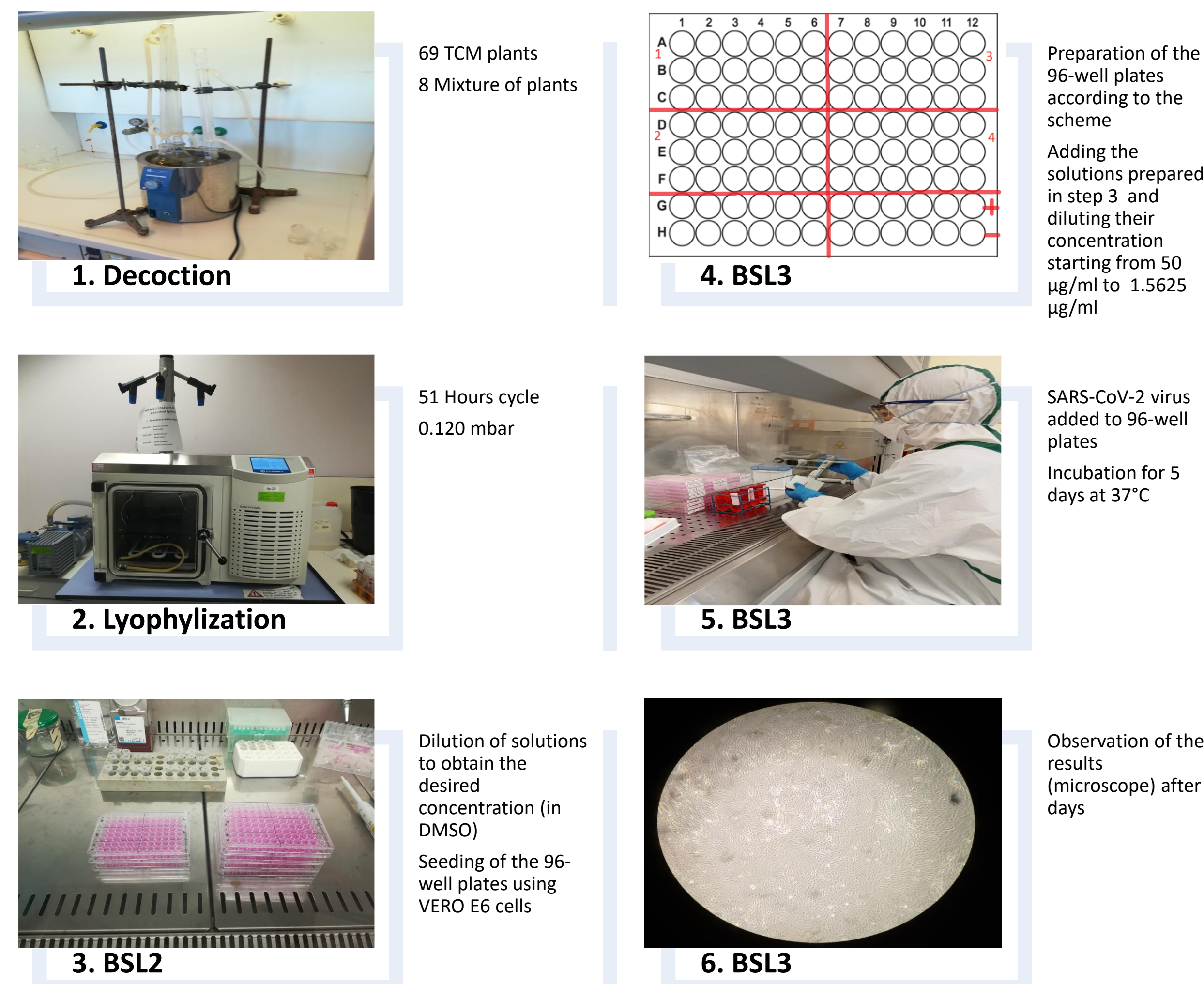


Fig 4: The steps followed from extraction to *in-vitro* assays

3. Results and Discussions

Our preliminary *in vitro* study focused on 69 TCM plants as well as 8 mixtures of plants, selected based on their usage in Chinese hospitals protocols.

This screening revealed the promising activity at a dose lower than 6.25 µg/mL of several plants: *Paeonia suffruticosa*, *Glycyrrhiza uralensis*, *Cinnamomum ramulus*, *Armeniaca amarum* and Qingfei Paidu Decoction.



Fig 5: The plants with the most promising activity in this *in-vitro* screening

The Qingfei Paidu Decoction contains twenty-one different plants, out of which three of them are *Glycyrrhiza uralensis*, *Cinnamomum ramulus* and *Armeniaca amarum*. Consequently, a synergy between the plants is thought to be possible.

In conclusion, it is important to mention that none of the TCM showed signs of cytotoxicity in the concentrations applied during this *in vitro* experiment (maximum concentration of 50 µg/mL).

4. Conclusion

- This screening revealed the promising activity at a dose lower than 6.25 µg/mL of several plants: *Paeonia suffruticosa*, *Glycyrrhiza uralensis*, *Cinnamomum ramulus*, *Armeniaca amarum* and Qingfei Paidu Decoction.
- Thus, TCM can be considered as a path worth exploring in the fight against the COVID-19 disease.

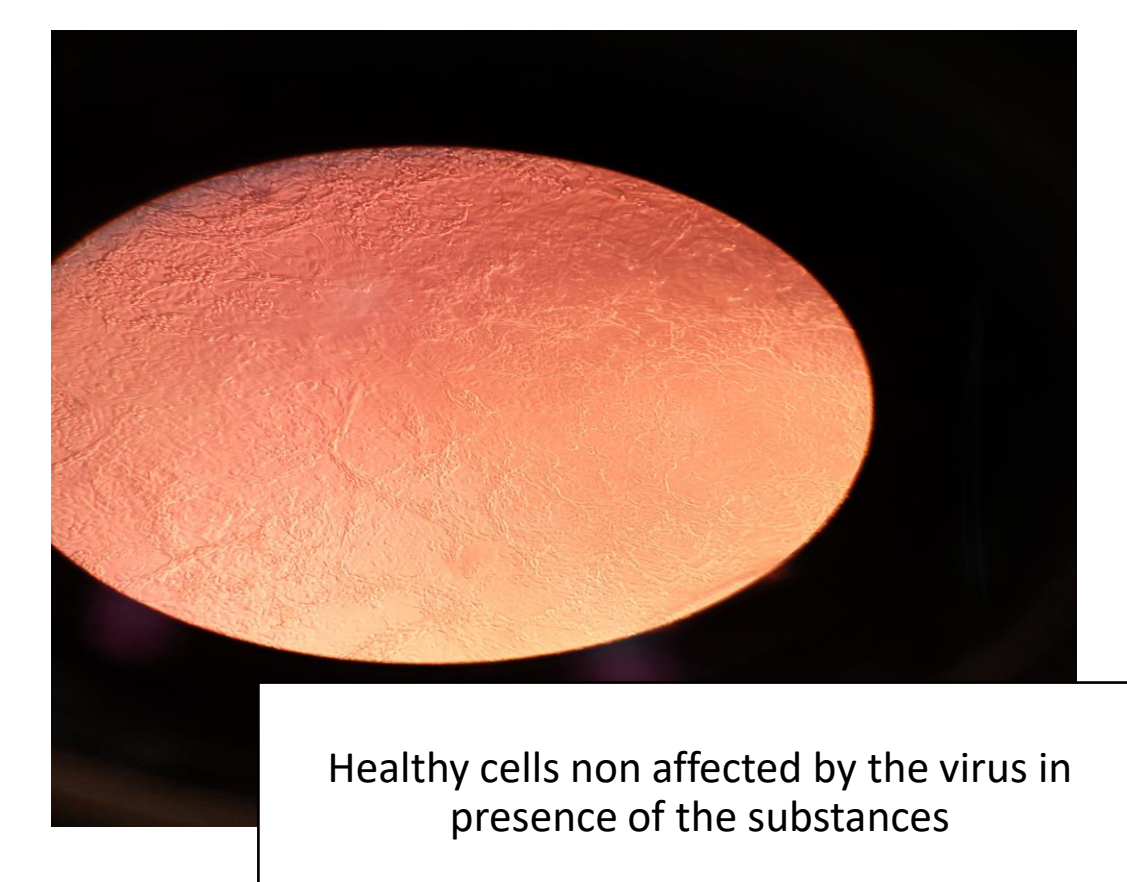


Fig 6: Observation under microscope

Acknowledgments:

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