

Activity of *Ephedra sinica* against COVID 19 through deactivation of ADP ribose phosphatase of NSP3 from SARS CoV-2 (6VXS)

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Abstract: An in-silico study was performed to determine the activity of *Ephedra sinica* against COVID 19. Molecular docking using Biovia Discovery Studio was performed to identify the phytochemical responsible to deactivate ADP ribose phosphatase of NSP3 from SARS CoV-2 (6VXS) enzyme. It was found that Theobromine helped to prevent COVID 19.

Introduction: *Ephedra sinica* is known for its medicinal activities. *Ephedra* is used for weight loss and obesity and to enhance athletic performance. It is also used for allergies and hay fever; nasal congestion; and respiratory tract conditions such as bronchospasm, asthma, and bronchitis. It is also used for colds, flu, swine flu, fever, chills, headache, inability to sweat, joint and bone pain, and as a “water pill” to increase urine flow in people who retain fluids.

The plant is classified as follows:

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| Kingdom | Plantae |
| Division | Tracheophytes |
| Class | Gnetophyta |
| Order | Ephedrales |
| Family | Ephedraceae |
| Genus | <i>Ephedra</i> |
| Species | <i>E. sinica</i> |

Major phytochemicals present in the plant are:

- Sulforaphane
- Theobromine
- Apigenin
- Rosmarinic acid

One of the major enzymes required for the survival of the organism causing COVID 19 is ADP ribose phosphatase of NSP3 from SARS CoV-2 (6VXS) enzyme. The objective of this work is to find the phytochemical that can deactivate the enzyme, thereby preventing the physiological activity of the organism.