

Long-Term Care Updates

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Safety and Efficacy of Natural Products for COVID-19

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Introduction

COVID-19 is an infectious disease caused by a newly discovered coronavirus. The outbreak began in Wuhan, China in December 2019 and is now a global pandemic. It is spread between people through direct, indirect, or close contact with infected people via respiratory droplets. Proven prevention methods that the World Health Organization (WHO) recommends include practicing proper hand hygiene and respiratory etiquette, social distancing, and self-isolating if feeling sick. The WHO does not recommend self-medication with any pharmacological therapies, as there are currently no medical products that have been shown to prevent or treat COVID-19. However, several potential therapies are being studied in ongoing clinical trials for both prevention and treatment.¹

Many natural products, including vitamins and minerals, have been among the therapies promoted for use against COVID-19, and this newsletter will evaluate the evidence on the safety and efficacy of these products.

Evaluation of Natural Products for COVID-19

While claims have been made regarding the benefit of natural products against COVID-19, there is currently no strong evidence to support their use. Table 1 on the next page highlights recommendations regarding many of the non-vitamin, non-mineral natural products that have been promoted for use against COVID-19. Table 2 highlights recommendations regarding vitamins and minerals that have been promoted for use in the prevention or treatment of COVID-19.

Evidence from Clinical Trials

No results of clinical trials studying natural products for use against COVID-19 have been published yet. The majority of ongoing clinical trials involve vitamin C, vitamin D, and zinc. Vitamin C is being studied for both prevention and treatment, and dosages are being given orally and intravenously (IV). Most trials evaluating IV vitamin C are looking at its safety and efficacy as the sole intervention for the treatment of patients with confirmed or suspected COVID-19. Oral vitamin C trials are for both prevention and treatment, with vitamin C mainly given in combination with other drugs such as vitamin D, zinc, and hydroxychloroquine, as part of both active and placebo comparators. Vitamin D is being studied for both prevention and treatment as well. Trials involving vitamin D are studying it as both the sole intervention and in combination with other drugs as both active and placebo comparators in patients with and without vitamin D deficiency. Zinc is also being studied for both prevention and treatment as part of a combination of drugs serving as active and placebo comparators.⁵ Visit <https://clinicaltrials.gov/> for the latest information.

Table 1. Rationale and Recommendations on the use of natural products for COVID-19 infection.²⁻⁴

Natural Product	Rationale	Recommendation
Astragalus	Anti-inflammatory, antioxidant, antiviral, and immunomodulant effects	There is no evidence to support its use against COVID-19.
Birch	Immunomodulant effects	Some experts have warned that it may interfere with the body's immune and inflammatory response against COVID-19, and while there is no strong evidence to support these warnings, there is also no evidence to support its use against COVID-19.
Cat's claw	Anti-inflammatory, antioxidant, antiviral, and immunomodulant effects	Some experts have warned that it may interfere with the body's immune and inflammatory response against COVID-19, and while there is no strong evidence to support these warnings, there is also no evidence to support its use against COVID-19.
Echinacea	Anti-inflammatory, antioxidant, antiviral, and immunomodulant effects	Some experts have warned that it may interfere with the body's immune and inflammatory response against COVID-19, and while there is no strong evidence to support these warnings, there is also no evidence to support its use against COVID-19.
Elderberry	Antioxidant and immunomodulant effects	There is no evidence to support its use against COVID-19.
Garlic	Antioxidant, antiviral, and immunomodulant effects	There is no evidence to support its use against COVID-19.
Licorice	Anti-inflammatory, antioxidant, antiviral, and immunomodulant effects	Some experts have warned that it may interfere with the body's immune and inflammatory response against COVID-19, and while there is no strong evidence to support these warnings, there is also no evidence to support its use against COVID-19.
Meadowsweet	Anti-inflammatory effects	Some experts have warned that it may interfere with the body's immune and inflammatory response against COVID-19, and while there is no strong evidence to support these warnings, there is also no evidence to support its use against COVID-19.
Oleander	None	There is no evidence to support its use against COVID-19. Moreover, all parts of the oleander plant are considered toxic, and it is likely unsafe when used orally due to a high risk for toxicity and being possibly unsafe when applied topically due to risk for absorption through skin. Oleander should be recommended against for any purpose.
Quercetin	Anti-inflammatory, antioxidant, antiviral, and immunomodulant effects	There is no evidence to support its use against COVID-19.
Turmeric	Anti-inflammatory, antioxidant, and immunomodulant effects	Some experts have warned that it may interfere with the body's immune and inflammatory response against COVID-19, and while there is no strong evidence to support these warnings, there is also no evidence to support its use against COVID-19.

Table 2. Rationale and recommendations on the use of vitamins and minerals for COVID-19 infection.^{2,4}

Product	Rationale	Recommendation
Selenium	Antioxidant and immunomodulant effects	<p>Some experts have suggested that selenium deficiency may increase the risk for severe infection from COVID-19, but there is no evidence to support its use for COVID-19.</p> <p>It is likely safe when used orally in amounts up to the tolerable upper intake level of 400mcg daily but possibly unsafe when used orally at high doses or long-term due to risk for toxicity.</p>
Vitamin C	<p>Anti-inflammatory, antioxidant, and immunostimulant effects</p> <p>The presence of infection may decrease vitamin C concentrations, and supplementation may help to protect host cells against infection-induced oxidative stress.</p>	<p>Some experts have suggested taking 200mg daily to prevent COVID-19 or 1-2g daily at symptom onset to improve recovery. While these doses are likely safe in most adults, there is no evidence to support its use against COVID-19.</p> <p>COVID-19 Treatment Guidelines from the National Institutes of Health (NIH) conclude that there are insufficient data to recommend either for or against the use of vitamin C for treatment of COVID-19 in critically ill and non-critically ill patients.</p>
Vitamin D	<p>Vitamin D has the potential to alter innate and adaptive immune responses, since the vitamin D receptor is expressed on immune cells such as B cells, T cells, and antigen-presenting cells. It may downregulate pro-inflammatory cytokines, up-regulate anti-inflammatory cytokines, increase T regulatory cell activity, and reduce cytokine storm.</p> <p>Vitamin D deficiency is associated with increased autoimmunity and increased susceptibility to infection. It is common among Hispanic and Black populations, older patients, and patients with obesity, hypertension, and diabetes – populations that may be associated with worse COVID-19 outcomes.</p>	<p>Some experts have suggested taking 2000IU (50mcg) daily to reduce the risk for COVID-19 or 400-1000IU (10-25mcg) daily for people who are unable to spend 15-30 minutes in the sun each day.</p> <p>While these doses are likely safe in most adults, there is no evidence to support its use for COVID-19.</p> <p>COVID-19 Treatment Guidelines from the NIH conclude that there are insufficient data to recommend either for or against the use of vitamin D for prevention or treatment of COVID-19.</p>
Zinc	<p>Zinc is thought to have anti-inflammatory, antiviral, and immunomodulating effects. It may be involved in antibody and white blood cell production and appears to inhibit some viral RNA replication.</p> <p>Zinc deficiency increases pro-inflammatory cytokine concentrations and decreases antibody production, while supplementation increases the ability of polymorphonuclear cells to fight infection.</p>	<p>There is no evidence to support its use for COVID-19.</p> <p>COVID-19 Treatment Guidelines from the NIH conclude that there are insufficient data to recommend either for or against the use of zinc for treatment of COVID-19. They also recommend against zinc supplementation above the recommended dietary allowance (elemental zinc 11mg daily for men, 8mg daily for nonpregnant women) for prevention of COVID-19, except in clinical trials (moderate strength of recommendation based on evidence from expert opinion).</p> <p>Long-term supplementation can cause copper deficiency with reversible hematologic defects (anemia, leukopenia) and potentially irreversible neurologic defects (myelopathy, paresthesia, ataxia, spasticity).</p>

Conclusion

Many natural products have been promoted for use against COVID-19, but there is no evidence to support the use of any of these products at this time. As ongoing clinical trials are completed and results are published, new recommendations for the use of natural products to prevent or treat COVID-19 may develop. In the meantime, healthy lifestyle choices and proven prevention methods are recommended.

References

1. World Health Organization. Coronavirus disease (COVID-19) pandemic. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>. Accessed September 13, 2020.
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3. American Society of Health System Pharmacists. Assessment of evidence for COVID-19-related treatments. <https://www.ashp.org/-/media/assets/pharmacy-practice/resource-centers/Coronavirus/docs/ASHP-COVID-19-Evidence-Table.ashx>. Updated September 10, 2020. Accessed September 12, 2020.
4. National Institutes of Health. Coronavirus disease 2019 (COVID-19) treatment guidelines. <https://www.covid19treatmentguidelines.nih.gov/>. Updated September 1, 2020. Accessed September 12, 2020.
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