



**Cordyceps:** *Cordyceps sinensis, dong chong xia cao, caterpillar fungus, totsu kasu*

### **Common Indications:**

- Support general health, including immune system, kidney, liver and lungs
- Cancer prevention and treatment support
- Antioxidant

### **General Comments:**

*Cordyceps sinensis* has a fascinating story behind its discovery. It is fact an extract from a rare fungus that grows on the back of the larvae of a caterpillar in the Himalayan mountains. Corpyceps is actually a mushroom that grows on larvae from the moth known as *Hepialus armoricanus*. The fungus invades the body of the larvae. Sherpa's would gather these larvae as they traversed the Himalayan mountains, for the medicinal properties.

Cordyceps has been used in traditional Chinese medicine as the herb of choice in lung and kidney problems, and as a general tonic for promoting longevity, vitality, and endurance. In fact horses that graved in field where these larvae grew were known for their exceptional endurance. Chinese Olympic athletes are reported to have used these extracts to enhance their training. Cordyceps is beneficial in helping individuals with decreased energy restore their capacity to function.

### **Benefits & Mechanism of Action:**

Support general health, including immune system, kidney, liver and lungs

Cordyceps has been used in humans for centuries as a tonic for improving performance and vitality, with the proposed mechanism of action being improved oxygen consumption by the cardiopulmonary system under stress and increased tissue "steady state" energy levels.<sup>1</sup> Cordyceps may modulate immune function and optimize endocrine systems, increasing physical strength and endurance.<sup>2,3,4,5</sup> It has traditionally been used for its improvement in respiration and in individuals with decreased lung function, such as asthma and bronchitis, by increasing oxygenation (improving VO<sub>2</sub> max by 9-15%). Cordyceps has antiarrhythmic effects, decreasing the heart rate and contractility in laboratory animals. It has PAF inhibiting action in laboratory studies. It has also been reported to positively affect blood lipid metabolism, and is therefore useful in atherosclerosis.<sup>6,7,8,9,10</sup>

Cordyceps has been used for decreasing the renal toxicity of aminoglycosides and cyclosporine, in individuals with chronic renal failure and in those having a renal transplant.<sup>11,12,13</sup> Kidney protection is claimed to be due to: protecting tubular cell sodium pump activity; attenuating tubular cell lysosome overfunction stimulated by phagocytosis of aminoglycoside; and decreasing tubular cell lipoperoxidation in response to toxic injury.

#### Cancer prevention and treatment support

Cordyceps has been reported to have anticancer effects by decreasing proliferation and differentiation of cancerous cells and has immunomodulatory effects.<sup>14,15,16,17,18,19</sup> Cordyceps has reported immunomodulatory activity, with various fractions isolated from cordyceps either showing immune stimulation or immune suppression. Cordyceps is reported in laboratory studies to increase interleukin (IL)-10, IL-1beta, IL-6, IL-8 and TNF-alpha, and suppress phytohemagglutinin (PHA)-induced production of IL-2, IL-4, IL-5, IFN- gamma and IL-12. Cordyceps may also help balance Th1-type immunity, helping decrease inflammatory responses in the body.<sup>20</sup> Cordyceps was also reported to protect stem cells and red blood cells during chemotherapy and radiation.

#### Antioxidant

Cordyceps is an antioxidant that increases serum levels of the enzyme superoxide dismutase (SOD), thereby increasing free radical scavenging ability.<sup>21,22</sup>

**Dose:** 1050mg, 2-3 times a day, of a standardized extract

**Standardization:** Cordyceps supplements should be standardized to contain 0.14% adenosine and 5% mannitol.

**Cautions & Side Effects:** Cordyceps has been reported to be safe in recommended doses.

#### References:

Support general health, including immune system, kidney, liver and lungs

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