# Cordyceps

Latin Name: Cordyceps (400 species) Cordyceps sinensis renamed Ophiocordyceps sinensis (2007)



Cordyceps sinensis and its host, partly excavated in their natural habitat.

An Asian Mushroom that Grows on the larvae of the caterpillar Hepialus armoricanus.

ENERGY; IMMUNE SYSTEM: CANCER Research

Use Both FUNGUS and CATERPILLAR

Native to High Mountain Regions of CHINA (Tibet); Reproduces in laboratory.

## HISTORY

- 1) CHINESE: TONIC and Medicine.
- 2) BECAME POPULAR: 1993 Natl Olympic Games in Beijing, 3 Chinese Women won New World Track Records – Trainer attributed to Cordyceps and rigorous training

## QUALITIES

- 1) Components: Amino Acids; Sterols
- 2) ENERGY; STAMINA; Athletic Performance; Reduce FATIGUE; Dizziness; Longer Life; Supports youthful gene expression; Anti-oxidant
- Strengthen IMMUNE SYSTEM; Increases production of T Helper and Interleukin Cells; Prolongs life of Lymphocytes

- STUDY (immunity): "Results show strong evidence that this formulation gave additive or synergistic effects" for modes of immunostimulatory action. (Pero 2005)

- 4) Anti-CANCER activity; Reduces TUMOR size (especially Lung or Skin); Inhibits growth and division of cancer cells
- STUDY (cancer): "...more effective against tumor cells" (Chiu 1998)
- 5) PULMONARY Disorders; Coughs; Bronchitis; Asthma
- 6) Sexual Dysfunction
- 7) Irregular HEARTBEAT; Cholesterol; Inhibits PLATELET AGGREGATION (caution when using blood thinners); Blood Pressure; Blood Circulation
- 8) KIDNEY Function; Nighttime Urination; DIABETES; LIVER functions

- STUDY (Kidney): with Elderly Patients: "...reduced nephrotoxicity (Kidney) suggesting a protective effect" of the Kidneys (Bao 1994)

Cordyceps References

### Herb History and General Information

Memorial Sloan Kettering Cancer Center. See <u>www.aboutherbs.com</u> accessed October 23, 2014

Fun Facts: Luk, Lai Ming (Vivian), et al, University of Michigan. Caterpillar Fungus: A Traditional Medicine. Accessed October 22, 2014

Webmd accessed October 22, 2014

#### <u>Studies</u>

Bao 1994 at www.pubmed.gov accessed July 28, 2014. Cordyceps sinensis reduced nephrotoxicity suggesting a protective effect on aminoglycoside nephrotoxicity in elderly patients.

Chiu JH, et al. at www.aboutherbs.com accessed October 22, 2014. Cordyceps sinensis increases the expression of major histocompatibility complex class II antigens in human hepatoma cell line HA22T/VGH cells. Am J Chin Med 1998;26:59-70

Pero 2005 at www.pubmed.gov accessed July 28, 2014. A nutritional supplement formulation that included Cordyceps sinensis was examined for modes of immunostimulatory action w/o metabolic antioxidant competition. Results show strong evidence that this formulation gave additive or synergistic effects to health benefit w/o metabolic competition.

#### Additional info on Studies:

#### **IMMUNOSTIMULATORY**

Pero 2005 at www.pubmed.gov accessed July 28, 2014. A nutritional supplement formulation that included Cordyceps sinensis was examined for modes of immunostimulatory action w/o metabolic antioxidant competition. Results show strong evidence that this formulation gave additive or synergistic effects to health benefit w/o metabolic competition.

#### KIDNEY PROTECTIVE

Bao 1994 at www.pubmed.gov accessed July 28, 2014. Cordyceps sinensis reduced nephrotoxicity (kidney) suggesting a protective effect on aminoglycoside nephrotoxicity in elderly patients.

The protective effect on aminoglycoside nephrotoxicity by Cordyceps sinensis in the old patient was observed. 21 old patients were randomly divided into two groups. Each group received amikacin sulfate for 6 days. In addition, group A was administered

Cordyceps sinensis for 7 days and group B was given placebo. The results revealed that group A developed less prominent nephrotoxicity compared with group B as evidenced by less urinary nephro-aminoglycosidase (NAGase) and beta-microglobulin in group A than those in Group B. These results suggested that Cordyceps sinensis exerted a protective effect on aminoglycoside nephrotoxicity in the old patients.

#### CANCER ACTIVITY

Chiu JH, et al. at www.aboutherbs.com accessed October 22, 2014. Cordyceps sinensis increases the expression of major histocompatibility complex class II antigens in human hepatoma cell line HA22T/VGH cells. Am J Chin Med 1998;26:59-70

Previous studies suggest that down-regulation of the major histocompatibility complex (MHC) antigens on the cell surface of certain tumors results in an escape of immune surveillance. Cordyceps sinensis is well known for its modulatory effect on host immune system. To investigate the modulatory effect of Cordyceps sinensis on MHC class II antigen expression on hepatoma cells, immunostaining with monoclonal antibody (MAb) L243, against the HLA DR region of MHC class II antigens on human hepatoma cell line HA22T/VGH was analyzed by using flow cytofluorimetry. The degree of fluorescence intensity on L243(+) cells was expressed as relative mean fluorescence intensity (RMFI). The extract of Cordyceps sinensis (VGH-CS-ME-82, 40 micrograms/ml) was found to increase the MHC class II antigen expression on HA22T/VGH cells with the percentage of L243(+) cells 40.2 +/- 2.5 and RMFI 6.6 +/-0.4; whereas cells without treatment disclosed the percentage of L243(+) cells 17.2 +/-1.4 and RMFI 5.4 +/- 0.3, respectively (p < 0.05). There was a dose-related increase in the degree of fluorescence intensity in terms of RMFI on VGH-CS-ME-82 induced cells. The RMFI in cells treated with IFN-gamma 0, 0.2 and 5 ng/ml were 5.4 +/- 0.3, 8.2 +/-0.4, and 24.9 +/- 1.5, respectively; whereas the RMFI in cells co-incubated with VGH-CS-ME-82 (40 micrograms/ml) and IFN-gamma 0, 0.2 ng/ml and 5 ng/ml were 6.7 +/-0.2 (p < 0.05), 9.2 + - 0.9 (p < 0.1) and 29.5 + - 1.2 (p < 0.005), respectively. Weconclude that VGH-CS-ME-82, either alone or with IFN-gamma induction, increases the MHC class II antigen expression on hepatoma cell line HA22T/VGH, which will shed light into the present immunotherapy, and make the host immune surveillance more effective against tumor cells with down-regulated MHC class II antigen expression.