



**MUSHROOMS,
STRONG POSSIBILITIES
IN TCM AND EVERYDAY NUTRITION**

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- The Benefits of MN in Specific Syndromes in TCM**
 - The role of MN in **backing acupuncture for immune support** (var. mushr.)
 - The role of MN in **nourishing the Earth (Spleen & Stomach)**
 - tool for TCM constitutional support (poria, hericium, maitake, shiitake, blazei)
 - tool for TCM pathologies (various mushrooms)
 - The role of MN in **Diabetes II** (various mushrooms)
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- A TCM perspective on the Challenges to Women's Health & MN**
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Mushrooms, strong possibilities in TCM and everyday nutrition // 1.ab Introduction

General usage of mushroom nutrition

For health care practitioners mushroom nutrition can serve as:

- stand-alone nutritional strategy
- adjunct strategy for
 - standard/other nutritional therapy, including herbal therapy
 - Western medicine treatment
 - acupuncture therapy

For utilization of mushroom nutrition's full potential holistic approaches such as TCM are of unquestionable value for individual assessment and selection of most suitable mushroom

"Let food be thy medicine and medicine be thy food."
Hippocrates, 460-370 BC

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General contraindications of mushroom nutrition

- usage of broad-spectrum antibiotics (according to some authors)
- usage of immunosuppressives
- states after transplantations (of organs, bone marrow)
- usage of antiplatelet and anticoagulant drugs (Warfarin, aspirin) concurrently with mushrooms possessing strong anticoagulant effect (e.g. Ganoderma, Auricularia, Shiitake, Chaga)
- not recommended to use these mushrooms in pregnant women during few last weeks before (expected) delivery

In pregnancy & in women willing to conceive

- usage of Auricularia (Jew's ear, wood ear, jelly ear, heimuier) ...avoid also Asia-style dishes & cuisine where it is often included

With alcohol:

- don't mix Coprinus comatus (shaggy mane) with alcohol (for +/- 40 hours)

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Generally: mushroom nutrition is safe

- all given mushrooms are non-toxic
- majority of them can be used long-term & in higher doses as they have hundreds of years history of such use in Asia.

Nevertheless, the following arising from the nature of the effects of medicinal mushrooms should be observed:

With caution

- in people on multiple and combined treatment with Western medicines
- individual sensitivity: in 2 – 5 % of users might occur stomach discomfort (mostly mild & short-term, related to detoxification effect). If longer than 5 days, please discontinue supplementation.
- incidental allergic reaction for given mushroom (relationship could be tested by repeated discontinuation of supplementation)

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**MUSHROOM NUTRITION
USAGE according to Western medicine**

- symptomatic (i.e., „oyster mushroom for cholesterol“, „cordyceps for fatigue“)
- for constituents (i.e., micro- a macroelements, enzyme activity)
- possibly also by the effect on functional circuits (but WM either doesn't have its own data/research or is not regarding it as generally credible)

Usage in WM is limited:

- by approaching truly natural and whole food representatives through its single constituents
- by only "partial" knowledge of a role(s) of such constituents in living organism, not even mentioning individualized living human being

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MUSHROOM NUTRITION

USAGE according to Chinese medicine

- **symptomatic** (i.e. „cordyceps for fatigue“, **BUT** always simultaneously checking its consistency with syndromology models of cordyceps)
- **by TCM syndromology** (i.e. „poria for resolving dampness and strengthening the Spleen “)
- **by TCM characteristics** (especially by nature: i.e. balanced vs. warm)
- **possibly by functional circuits** (i.e. fluids circuit we can affect e.g. through Spleen or Kidneys)

Usage is based on complex approach of TCM covering aggregated effect of whole natural substances in the context of the health condition of an individual, i.e. it is an intersection of known characteristics of the substance (mushroom) and their behavior known within seen TCM syndromes (of the person)

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REISHI-MRL
Ganoderma lucidum
lingzhi 灵芝
reishi

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According to TCM




Flavor	sweet, bitter (slightly pungent, faint, dense*)
Nature	balanced (warm, strong, yang)
Tropism	heart, lungs, spleen (liver, kidneys*)
Actions	nourishes the heart, calms the spirit stops cough, relieves breathlessness, transforms phlegm, nourishes <i>qi</i> and <i>xue</i> , strengthens kidney essence (<i>jing</i> – root of life)
Indication	tiredness, loss of appetite, insomnia, dizziness, mental restlessness, productive cough, asthma, <i>qixuexu</i> , <i>piwei qixu</i>

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Effects according to TCM



Nourishes the heart and calms the spirit
-> mental restlessness;

Stops cough and balances breathlessness;
-> productive cough, asthma;

replenishes qi and nourishes the blood
-> qi and blood deficiency, weakness of spleen and stomach.


Contraindication:
with caution in syndromes of full character.

Ando V, Pharmacology of Classical Chinese Medicine [in Czech], p. 812-813, Svitan, 2007. ISBN 978-80-86198-47-7.


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Enzyme activity Reishi-MRL




Active ingredient	Ganoderma lucidum – biomass 500 mg	
Active enzymes	Protein content 22.2 mg	Glucoamylase/beta-glucanase act. 2.7 U
	Reducing sugars 24.0 mg	Protease activity 4.4 mU
	Protein-bound polysaccharide 69.5 mg	Superoxide dismutase (SOD) act. 50.4 mU
	Glucose 2-oxidase activity 8.2 mU	Cytochrom P-450 0.66 nmoles
	Peroxidase activity 11.2 mU	Cytochrom P-450 reductase 7.05 mU
	Laccase activity 451.5 mU	Secondary metabolites (Thrombin inhibitors) 4.4%

 Mycology Research Laboratories
Global Leader in Mushroom Nutrition

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Application I



Prevention of aging - antioxidative, detoxication effects

- natural antioxidant which works against free radicals, applicable both in old and young persons
- contains specific triterpenoides which protect veins from atherosclerosis and help decrease adhesion of blood platelets

Tonification in old age for health maintenance (anti-aging, aging prevention), against deafness brought about by old age

Immunity suport - immunostimulating and adaptogenic effects

- contains specific beta-glucans: immunostimulating, antibacterial and antiviral effects;
- widely used in convalescence after operations or great exhaustion, both physical and mental
- in repated chronic infectious inflammations (chronic bronchitis, hepatatis...);

Traditionally used for strengthening of joints, tendons and bones, for increasing vital energy and “lifting” the body.

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Application II

**Protection and detoxification of the liver
+ detoxification of the whole body**

- helps regenerate the liver after the strain of Western medication, alcohol or after hepatitis (hepatoprotective effects);
- removes heavy metals from the body, might be used also after exposition, e.g. to mercury: treatment of amalgam fillings, vaccination, etc.);
- in cases of chronic hepatitis;
- owing to specific triterpenes

Insomnia neuroses, mental disturbances

- traditionally used by Daoist monks for calming the spirit and mind and to improve mental capacity.



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Application III

Asthma, bronchitis, allergies

- hay fever and other histamine-mediated allergic reactions; triterpenes content helps suppress histamine release;
- traditional use - stopping cough, transformation of phlegm, anti-asthmatic effect, all in combination with immunity support which is very welcome;

Cardiovascular effects


- improvement of blood circulation both in coronary veins and capillaries of the heart muscle (eg. angina pectoris,...)

Hypertension

- ganoderic acid and triterpene content help regulate blood pressure (both high and low)

Slight anticoagulation effect

- with caution or not at all in persons under anticoagulation medication (laboratory control necessary!)



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Application IIIb

Tumors, carcinomas

- supporting means using of anti-tumor activity of the beta-glucans and germanium contained in the fungus;
- decreases toxic and side-effects of chemotherapy or radiotherapy, decreases pain, applicable both before and after chemotherapy;
- supports macrophages and regulates T and B lymphocytes, suppresses spreading of tumor cells.

Support for chemotherapy patients

- Zhao S., Ye G., Fu G., Cheng JX, Yang BB, Peng C. Ganoderma lucidum exerts anti-tumor effects on ovarian cancer cells and enhances their sensitivity to cisplatin. Int J Oncol. 2011 March 8th



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Application IV

Chronic fatigue syndrome

- immunity system support (even with HIV), with loss of appetite;

Lowering of high cholesterol levels


- in the USA one of the most popular products for hypercholesterolemia;
- contained triterpenes and sterols act against atherosclerosis by decreasing the levels of cholesterol;

Contains complex polysaccharides

- with anti-tumor effects, supporting immunity, increasing stress resistance, regulating the level of blood sugar and fat, blood pressure;

Diabetes, gout (supportive treatment)

- ganoderic acid lowers lipoproteins (LDL) and the values of triglycerides.



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Application V - Gout I

Gout = metabolic disorder with increased blood level of uric acid, with subsequent deposition of sodium urate microcrystals in joints where they cause inflammation and joint malformations, also possibility of kidney stones formation;

Uric acid - present in blood as a result of cell disintegration and of presence of uric acid precursors in food:

- is not sufficiently eliminated by the kidneys;
- enzyme anomalies (overproduction is given genetically);
- diseases - leukemia, ...




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Application VI - Gout II

John Tindall (GB)

- Dosage: 3 grams per day, with diet adjustment
- after 4 weeks amelioration of symptoms - pain, swelling
- Results prove positive, mainly anti-inflammatory effects of the fungus in cases of gout



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Application VII - histamine mediated allergic reactions

Monitored by M. Powell (GB) - in hay fever patients

- besides general health-supporting effect, monitoring of anti-inflammatory effects of the fungus (effects ascribed to ganoderic and triterpenic acids);
- emphasized safety and effectivity of ganoderma as an alternative treatment of such allergic states (in contrast to corticoids - many adverse effects, including affecting of the function of pituitary gland, suprarenal glands, interference with liquids and electrolytes balance; preparations with salicylic acid - adverse effects on stomach mucosa, ...
- Dosage: 3 grams per day 1,5 grams/ day as the symptoms subside.

Powell M. The Use of Ganoderma lucidum (Reishi) in the management of histamine-mediated allergic responses. Nutrition Practitioner October 2004 & Mycology News, vol. 1, Edition 8, February 2004.



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Application VIII - according to TCM

Qi deficiency (*qixu*)


- with symptoms of fatigue, physical and mental exhaustion, soft stools, lack of appetite, weak digestion, cold limbs, short breath - improvement of cold resistance;
- in combinations with liver and kidney deficiency: see the following slide

=> **replenishes qi and nourishes blood (*buqi yangxue*)**

Heart-Qi and Heart-blood deficiency (*xin qixue buzu*)

- with symptoms: palpitations, insomnia forgetfulness, dizziness, mental restlessness...

=> **nourishes the Heart and calms the Spirit (*yangxin anshen*)**



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Application VIIIa - according to TCM

Lung qi deficiency, possibly with phlegm (*feiqixu, tan*), with cough


- productive cough, phlegm of mainly of the cold type (thin, copious; makes breathing difficult when lying down);
- breathlessness, asthmatic breathlessness...

=> **stops cough and balances breathlessness (*zhike pingchuan*);**

Liver and Kidney deficiency (*ganshen buzu*)

- with symptoms of lower back and knee weakness, dizziness, black outs, cold limbs, flatulence;

=> **replenishes Qi and nourishes Blood (*buqi yangxue*)**



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Application VIIIb - according to TCM + acu

Support Kidneys, nourish the Essence and Blood

- Fatigue, lower back pain, knee pain, difficult urination, menstruation disorders, fertility disorders, morning diarrhea, dizziness, ... pre-operation conditioning, parturition, states after operation, after childbirth, insufficient lactation...


Ganoderma administered with:

BL 17, 20, 21, 23, GV 4, KI 3, KI 8, CV 4, 6, SP 6

Moxibustion in cases of *shenyangxu*: CV 4, 8, ST 36, back *shu* points of kidneys, GV 4;

BL 20, ST 36, ST 8, CV 11, SI 1 - in case of insufficient lactation + ST 25 in case of diarrhea

Moxibustion on CV between symphysis and umbilicus in case of bed-wetting due to Kidney-Yang deficiency...



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Application VIIIc - according to TCM + acu

Replenish Blood (esp. Heart-Blood)

- in states e.g. of palpitations, insomnia, weak memory, dizziness... Pale tongue, thin, weak pulse;

Ganoderma administered with:

BL 15, 17, 20
PC 6, HT 7, GV 20
ST 36



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Application VIIIId - according to TCM + acu

Replenish emptiness and support Qi

- Physical and mental fatigue, soft stools, lack of appetite, weak digestion, paleness, cold limbs, short breath...
- + replenish the spleen, stomach...

Ganoderma administered with:

- Acupuncture and moxibustion (in condition of NO *tan*):
CV 6, 8, 12, 17
ST 36, SP 6
- BL 20, 21, LR 13 - in case of deficiency of the Middle Burner
- LU 1, LU 9, BL 13, CV 17 - in case of *feiqixu* with cough,
- ST 40 when there is Phlegm



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Application VIIIe - according to TCM + acu

Lung-Qi deficiency (*fei qi xu*) with Phlegm (*tan*)

- Cough, phlegm mainly of the cold type (thin, copious...), breathlessness,

Ganoderma administered with:
LU 1, LU 9, BL 13, 43, CV 6, 17
ST 36,
ST 40, SP 9 when there is Phlegm, LU 5 - chronic cough...

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Application VIII f - according to TCM + acu

Liver and Kidney deficiency

- with symptoms of weakness in the area of lower back, knees, dizziness, black-outs, cold limbs, flatulence,...

Ganoderma administered with:
often in **combination** with other replenishing *yao* (*renshen*, *gouqi zi*), or *yaofang* (*qiju dihuang wan*, *renshen yangying tang*)

BL 17, 20, 23, GV 4, LR 14, GB 25
KI 3, SP 6, ST 36

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Application VIII g - according to TCM + acu

Calms the Spirit and supports sleep

Ganoderma administered with:
GV 20, "the crown", PC 6, 8 (*xin-shen*) HT 7, BL 15, 17, 18, 23
SP 6, 10, HT 7, BL 17 (blood)
LR 2, 3, BL 18, 19, PC 6, TE 5 (*gan-dan*)...

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Anti-allergic and Anti-histamine Effect

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Antiviral effect

Eo SK, Kim YS, Lee CK, Han SS. **Antiviral activities of various water and methanol soluble substances isolated from Ganoderma lucidum.** Journal of Ethnopharmacology 68 (1-3): 129-36, 1999. doi:10.1016/S0378-8741(99)00067-7. PMID 10624872.

Eo SK, Kim YS, Lee CK, Han SS. **Possible mode of antiviral activity of acidic protein bound polysaccharide isolated from Ganoderma lucidum on herpes simplex viruses.** Journal of Ethnopharmacology 72 (3): 475-81, 2000. doi:10.1016/S0378-8741(00)00266-X. PMID 10996289.

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Selected citation III

Immunomodulatory, Immunostimulant and Adaptogenic Effect

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Lin YL, Lee SS, Hou SM, Chiang BL. **Polysaccharide purified from Ganoderma lucidum induces gene expression changes in human dendritic cells and promotes T helper 1 immune response in BALB/c mice.** Mol Pharmacol. 2006;70:637-644. doi: 10.1124/mol.106.022327.

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Selected citation IIIa

Immunomodulatory, Immunostimulant and Adaptogenic Effect II

Sudheesh NP, Ajith TA, Janardhanan KK. **Ganoderma lucidum (Fr.) P. Karst enhances activities of heart mitochondrial enzymes and respiratory chain complexes in the aged rat.** Biogerontology. 2009, vol. 10, no 5, pp. 627 – 636

Zhou S, Gao Y. **The immunomodulating effects of Ganoderma lucidum (Curt.-Fr.) P.Karst (LingZhi, Reishi Mushroom) (Aphylloporomycetidae).** Int J Med Mushrooms. 2002;4:1–11.

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Dosage I

Usual dosage is 3 - 6 grams per day
in tablets, powder, sirup, tinctures, soup or injections

Some authors recommend as much as 15 grams per day, with a single dose of 1,5 - 3 grams

Practical examples:
chronic inflammation of stomach
alcohol extract of 1,5 g (per one shot of alcohol)
chronic inflammation of liver, kidneys, asthma bronchiale
3 times a day 1 gram in powder
nervous weakness, dizziness, palpitations, restless sleep -
twice a day 0,75 - 1,5 g⁻
mushroom poisoning
decoction made with 120 grams
Ando V, Pharmacology of Classical Chinese Medicine [in Czech], p. 812-813, Svitani, 2007. ISBN 978-80-86198-47-7.



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Contraindication and adverse effects

According to some authors not administered in the middle phase of classic treatment of tumors

Also in case of allergic reaction to the fungus administered

Adverse effects are usually sign of detoxifying effect of the active substances - fatigue, dizziness, nausea, thirst, increased urination, sometimes diarrhea, skin itching. This usually disappears in 5 - 14 days.

With caution in patients taking anticoagulant or antiplatelet drugs.



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Known drug interactions I

anticoagulating and anti-platelet drugs
(antiaggregation/anticoagulation/antitrombotic)


+ G => may anticoagulating and antitrombotic effects, i.e the risk of bleeding

Antihypertensive drugs
+ G => may antihypertension effect

Immunosuppressive drugs
+ G => may the immunity response of the system

Chemotherapeutics
+ G => theoretically may interact with chemotherapeutics relying on free radicals (x G - antioxidation effect)

Substrates of cytochrome P450 activity
+ G => inhibit CYP2E1, CYP1A2 a CYP3A (and possibly also other types), therefore they may influence intracellular concentrations of the drugs metabolized by these enzymes.



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Mushrooms, strong possibilities in TCM and everyday nutrition // 1.c Cordyceps

CORDYCEPS-MRL

Cordyceps sinensis
dongchongxiacao
冬虫夏草
tochukaso
yarchagumba
caterpillar fungus





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Mushrooms, strong possibilities in TCM and everyday nutrition // 1.c Ganoderma - reishi

According to TCM

Flavor	sweet
Nature	warm
Tropism	lungs, kidneys
Actions	nourish lung <i>yin</i> (heat atop), tonify kidney <i>yang</i> (cold aLOW), tonify <i>qi</i> , tonify kidney essence (<i>jing</i> – root of life), tonify <i>weiqi</i> , transform phlegm
Indications	impotence, back pain, chronic cough, breathlessness, compromised immunity




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Enzyme activity Cordyceps-MRL

Active ingredient	Cordyceps sinensis – biomass 500 mg	
Active enzymes	Protein content 8.4 mg	Superoxide dismutase (SOD) act. 77.1 mU
	Reducing sugars 265.6 mg	Cytochrom P-450 0.25 nmoles
	Protein-bound polysaccharide 82.1 mg	Cytochrom P-450 reductase 4.14 mU
	Peroxidase activity 57.2 mU	Secondary metabolites (Thrombin inhibitors)
	Protease activity 5.6 mU	56%

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Substance content according to Western medicine II

Toxicity and adverse effects

3 proteins bound to polysaccharides have been identified exhibiting anti-tumor activity;

Many amino acids - uracil, uridine, adenine,...

Active enzymes - proteases, peroxidases, superoxidismutatis...

No toxic effects of Cordyceps have been proved;

Not even long-time administration changes blood tests or functions of liver and kidneys.

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Application I

Supports immunity, metabolism and antioxidative effect
nefrotic syndrome (proteins in the urine + swellings, \uparrow cholesterol), lupus, vasculitidis

Supports Lungs (cough, breathlessness, allergy, asthma);

Tonification and support of kidneys (e.g. frequent incontinence or bedwetting, replenishing of sexual energy);

Natural antibiotic - suppresses many harmful bacteria (pneumococcus, streptococcus, staphylococcus aureus), anti-inflammatory effect, useful in recurrent infections;

Supports metabolism and excretion of harmful metabolites generated e.g. by digestion of drugs, after infections. Positively influences liver (also in cirrhotic patients) and kidney activity;

Decreases the level of blood lipides and cholesterol.

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Application II

Detoxifying effect;
Anti-inflammatory effect;
Alcohol induced liver steatosis;
Liver cirrhosis, support of metabolism and excretion of harmful metabolites generated e.g. by digestion of drugs. Positively influences liver and kidney activity. Regenerating effects on liver tissue;
Liver cancer in cases with high levels of liver enzymes where no other treatment can be administered; - should not be used with conventional drugs - palliative stage;
Renal interstitial fibrosis
- decrease of main profibrogenous cytokine TGF β production
- works against free radicals
- works through HGF (hepatocyte growth factor);
Tumors
stimulates leucocyte activity and increases their level, an important means of reducing chemotherapy and radiotherapy side effects.

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Application IIa - fertility, especially in men

Fertility support, especially in men, but also in women
- by way of regulating the state of TH1/TH2 (not yet clinically tested);
- improvement of sperm quality (proved);
- frigidity in women;

Supports steroidogenesis in Leydig's cells of mice testicles;
- biological synthesis which generates steroides from cholesterol;
- here androgenous steroides such as testosterone, androstenedion a dehydroepiandrosteron (DHEA);
- in mice: a time and dosage dependent increase of testosterone concentration in plasma has been proved (Leu SW et al., Bioscience, Jan 2011);
+ modern studies prove that the steroidogenous effect depends on combination with extracellular calcium.

Biological effects of testosterone and dihydrotestosterone (DHT) generated from it:
- increased production in puberty, necessary for spermatogenesis initiation;
- after puberty induces external genitals growth (penis, testicles, scrotum);
- in puberty (when there is genetic predisposition) enhances bone mass growth and calcification;
- important for male type sexual behavior development.

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Application IIc – supportive for chemotherapy

Polysaccharide of Cordyceps sinensis enhances cisplatin cytotoxicity in non-small cell lung cancer H157 cell line

Abstract:
METHODOLOGY: The effects of the combination treatment of the polysaccharide-rich fraction of CS and cisplatin on H157 NSCLC cells were investigated through MTT assay for cell viability, lactate dehydrogenase and fluorescein diacetate and propidium iodide assay for cytotoxicity, and with flow cytometric analysis for apoptosis. The expression of vascular endothelial growth factor (VEGF) and basic fibroblast growth factor (bFGF) in H157 cells were detected by immunohistochemistry.
RESULTS: Compared with the cells treated with cisplatin alone, cell viability was significantly decreased and the expression levels of VEGF and bFGF protein were significantly reduced in the cells treated with a combination of CS and cisplatin.
CONCLUSION: The current study indicates that the polysaccharide of CS inhibits tumor growth in NSCLC and that CS may be a potential adjuvant chemotherapeutic agent in NSCLC therapy.
Ji NF, Yao LS, Li Y, et al. Polysaccharide of Cordyceps sinensis Enhances Cisplatin Cytotoxicity in Non-Small Cell Lung Cancer H157 Cell Line. Integr Cancer Ther. 2011;10(4):359-67

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Application IId – liver support

Inhibitory effect of Cordyceps sinensis on experimental hepatic metastasis of melanoma by suppressing tumor cell invasion

Abstract:
We investigated the anti-metastatic activity of a water extract of Cordyceps sinensis (WECS) using a model of mice injected with B16-F0 mouse melanoma cells into the spleen. WECS administered intraperitoneally reduced the number of metastatic surface nodules of B16-F0 cells in the liver of C57BL/6Cr mice in a dose-dependent manner, and significantly prolonged their survival. To identify the mechanism of the anti-metastatic effect of WECS, we examined its effects on hepatocyte growth factor (HGF)-accelerated invasion of B16-F0 cells using a chemo-invasion assay in vitro. **As a result, WECS reduced HGF-accelerated B16-F0 cell invasion in a concentration-dependent manner. These findings suggest that WECS exerts an anti-metastatic action, in part by inhibiting the HGF-accelerated tumor invasiveness of mouse melanoma cells.**

Kubo E, Yoshikawa N, Kunitomo M, et al. Inhibitory effect of Cordyceps sinensis on experimental hepatic metastasis of melanoma by suppressing tumor cell invasion. Anticancer Res. 2010 Sep;30(9):3429-33.

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Application III

Rejuvenating and renewing effects - anti-senesce effects (extending life span), traditionally for maintaining the freshness of youth, renovates the complexion without lustre;

Helps replenish energy to an exhausted body (esp. after great physical exertion, after illness, etc.) => **“battery charging”**

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Application IV

Antistress effect
Depresion due to lack of energy
e.g. of the senile morose pessimistic type
Regulative effect on the hormone level (similar to corticoids)
Allergic illnesses, asthma, eczemas;
Helps regulate and solve thrombi (myocardial infarction and apoplexy prevention), i.e. anticoagulating effect, with caution or not at all in persons under long-time anticoagulating medication (laboratory control necessary!)
Hypoglycemic effect combined with increased sensitivity to insulin;
possible application in cases with decreased insulin sensitivity or insulin resistance (Lo, 2004; Li 2006, Zhao 2004)
Prevention of diseases in healthy persons, sportsmen

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Application IV - according to TCM “Lungs - Kidneys”

Jing essence exhaustion (shenjingxu)
- after a long disease, administration of drugs, physical or mental exertion;
- excessive sexual activity depletes the essence in men, pregnancy and abortions in women;

Kidney-Yang deficiency (shenyangxu);
- with symptoms of frequent urination of a large quantity of clear urine, lower back pain, weak knees, impotence, sensitivity to cold, cold limbs, lower limbs oedema;

Emptiness below (Kidney-Cold)
+ excess above (Lung-Heat)

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Application IVa - according to TCM “Lungs-Kidneys”

Emptiness below (Kidney-Cold)
+ excess above (Lung-Heat)

Lung-Qi deficiency (feiqixu)
- “Lungs govern the movements of water (fei zhu xingshui)”
- “Lungs govern the voice (fei zhu sheng)”
- including the situation when Kidneys do not grasp Qi (shen bu naqi)

Lung-Yin deficiency (feiyinxu)
- with the symptoms of dry cough, chronic cough, breathlessness, pale face and red cheeks;

Defensive Qi deficiency (weiqixu)
- repeated illnesses, allergy, asthma, prevention of illnesses.

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Application V - according to TCM, symptomatically

fatigue due to different reasons
tumors in states of cold, with symptoms of cold
illness prevention in healthy persons
young, old, sportsmen, etc
after long illness, exhaustion by sport, “battery recharging”
with frequent illnesses (support of fei/weiqi)
rejuvenating and renewing effects - traditionally for maintaining the freshness of youth, renews complexion without lustre
procrastination (marked and chronic tendency to postpone fulfillment of tasks and duties) – through support of kidneys, the seat of will (zhi)
depression – mainly depression with fatigue, with lack of willpower (zhi) „sorrow and grief injure the lungs”

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Application VI - according to TCM + acu

Qi replenishing, nourishing of (Lung-) Qi and Yin
frequent illnesses, chronic, longtime dry cough, with small amount of viscous phlegm, breathlessness, general symptoms of deficiency of *qi* and *yin*

Cordyceps administered with:
BL13, 43, 23, LU1, LU9, LU5, LU10 (*feire, qini*)
KI3, CV17, ST 36

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Application VIa - according to TCM + acu

Kidney-Yang supplementing
coldness below, disturbances of sexual functions, infertility...

Cordyceps administered with:
BL23, GV4, CV4,6, 8, KI 3, or moxibustion

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Application VIb - according to TCM + acu

Supplementing defensive Qi (*weiqi*), promoting phlegm transformation


Cordyceps administered with:
ST36, SP6, BL 13,20, CV 6, 17, LI4, ST40, SP9

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Fungi supporting breathing

lingzhi **dongchongxiacao**

„Dryness & *yinxu*“:  „Contraction & *qixu*“:

- **dry (also chronic) cough** **chronic cough (slight cough)**
- **suitable for *feiyinxu*** **suitable for *feiqixu* (e.g. sportsmen like swimmers, cyclists)**
- **antihistaminic effect** **widening and release of bronchial muscles in asthma**

No effect:

- antitussive (= relieving “all types of” cough)
- expectorative

Do not use:

- in *yinxu* with fire flaring up

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Mushrooms, strong possibilities in TCM and everyday nutrition // 1.c Cordyceps

Dosage

Usually 3-9 g 2x a day
preferably before noon

also with broth or stock (duck, chicken, pork, fish)
in cases of weakness, dizziness, spontaneous sweating
and further symptoms of weakened defensive *qi* (*weiqi*)

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Known drug interactions

Medication for blood sugar (hypoglycemics)
and insulin:
+C => may add to the hypoglycemic effect

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Contraindications


- immunosuppressives
- in men androgen dependent tumors of prostatic gland
- better NOT to use as support in patients with tumors (except cases of *yang* deficiency, even then not for a long time)
- do not use in women with *yin* deficiency (= heavy periods), do not use in 1st and 2nd phase of the cycle.

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Mushrooms, strong possibilities in TCM and everyday nutrition // 1.c Cordyceps

Cordyceps sinensis procurement

- excessive gathering presents an environmental threat
- falsification
- contamination with moulds, other species of fungi
- mycellium obtained by cultivation as an environmentally sustainable substitute
- Cordyceps sinensis x C. militaris
- acquisition and maintenance of fungal strain



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Mushrooms, strong possibilities in TCM and everyday nutrition // 1.c Shiitake



SHIITAKE-MRL
Lentinula edodes
(older names: Lentinus edodes, Agaricus edodes)

xianggu 香菇
(donggu, huagu)
shiitake
black forest mushroom

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Mushrooms, strong possibilities in TCM and everyday nutrition // 1.c Shiitake

Classification according to TCM

Taste	sweet
Nature	balanced
Tropism	Stomach, Spleen, Lungs
Effects	replenishes Qi and blood (is not drying) strengthens Spleen, Stomach and Lungs transforms Phlegm
Indication	fatigue, dizziness, chronic cough, allergy, frequent colds

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Enzyme activity Shiitake-MRL

Active ingredients	Lentinula edodes – biomass 500 mg	
Active enzymes	Protein content 39.9 mg	Glucose 2-oxidase activity 6.3 mU
	Reducing sugars 16.9 mg	Protease activity 9.1 U
	Protein-bound polysaccharide 148.2 mg	Superoxide dismutase (SOD) activity 18.9 mU
	Xylanase activity 100 mU	Cytochrom P-450 1.1 nmoles
	Peroxidase activity 3.7 mU	Cytochrom P-450 reductase 13.49 mU
	Laccase activity 52.4 mU	

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Mushrooms, strong possibilities in TCM and everyday nutrition // 1.c Shiitake

Application I

Antibacterial effects, bacterial infections – inhibitory effect on Staphylococcus aureus, Bacillus subtilis, Escherichia coli, TBC

Immunity support – e.g. in cases of weak immunity, civilizational diseases, allergies, in cold and common colds (increases concentration of interferon); vitality support for the elderly, preventive support for the young (overwork, exhaustion), in anemia, neutralization of environmental carcinogens' effect;

Cardiovascular effects and support in metabolic disturbances (metabolic effects), **hypertension**

- with chronically high cholesterol and lipids levels (atherosclerosis prevention), lowering of high blood pressure, with anemia, diabetes II

Immunomodulating and anti-tumor effects – e.g. by increasing phagocytic activity of macrophages, by stimulation of T-helper and NK cells; support with chemotherapy and radiotherapy for decreasing the side effects; a study of application in sarcoma 180, tumor MM-46 (Namba et al, 1987);

Antiparasitic effects (also Plasmodium spp - malaria)

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Mushrooms, strong possibilities in TCM and everyday nutrition // 1.c Shiitake

Application II

Hepatoprotective effects, gall bladder stones,
Stomach problems and ulcers - especially prevention
Skin diseases (eczemas, acne) - external application
Antiviral effect, viral infections
herpes viruses, hepatitis (B) viruses, flu viruses, or even HIV
Urinary incontinence – only supportive use
Protective effect for physically and mentally active persons
Harmonization of the axis hypothalamus-hypophysis-adrenal glands
only supportive application, this effect is being studied by WM
Effect on CNS and peripheral NS
influences production of serotonin, histamine, catecholamine
Allergic reactions – possibility of influencing;
Teeth and joint support - auxiliary means, or in combination with gelatin preparations, studies also recommend Shiitake, rheumatoid arthritis;
Anticoagulation effect
with caution or not at all in persons under anticoagulation medication (laboratory control necessary!)

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Mushrooms, strong possibilities in TCM and everyday nutrition // 1.c Shiitake

Application III – according to TCM

“Qi and blood”

Spleen- and Stomach-Qi deficiency (piwei qixu)
-> strengthens Spleen and Stomach (jianpiwei)
-> supports stomach and harmonizes the middle (yiwei hezhong)
-> support of Spleen functions, i.e. with symptoms of short breath, frequent urination, loss of appetite, fatigue, digestion disturbances, diarrhea/formless stools, obesity (pi zhu yunhua)

Qi deficiency, blood deficiency (qixu, xuexu)
-> increases qi-xue (buqixue)
-> beautifies the face (meirongyan)
-> Spleen governs producing and directing of blood (pi zhu shengxue tongxue)
with symptoms of fatigue, dizziness, weak voice, lack of appetite, pale face, poor health, easily bruised...

Transforms Phlegm and regulates Qi (huatan liqi)
Support of digestion/organism even in an attack by external pathogens (waixie)

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Mushrooms, strong possibilities in TCM and everyday nutrition // 1.c Shiitake

Application III – according to TCM

“Qi and blood”

Support of organism even during an attack by external evils (waixie)

Lung-Qi deficiency (feiqixu)
with symptoms of frequent colds, chronic cough, breathlessness, allergy

Replenishes Liver and Kidneys (buganshen)

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Application IV – according to TCM

Eliminates poisonous substances (*jiedu*),
draws [supports manifestation of] rashes (*tuou douzhen*)

Sharpens wits [intellect] and calms the Spirit (*yizhi anshen*)

Anti-tumor properties (*kang zhongliu*)
boils, ulcers, tumors
lower anti-tumor effects indicated compared to YUNZHI and more adverse effects.

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Application V – according to TCM + acu

Qi and blood deficiency (possibly of Stomach)
fatigue, dizziness, weak voice, lack of appetite, pale face,...
defense support, immunity support

Shiitake administered together with:

- for replenishing chiefly Spleen-, Lung- and Kidney-Qi
selection of points, possibly moxibustion
BL 13,17, 20,21,23, LU1, LR13, GB25, LU9, CV4,6,12, 17, ST 36, SP3,6, KI3 (*shu, yuan points*)
- for simultaneous strengthening of Stomach and Spleen
BL 21,CV12, ST 36

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Application Va – according to TCM + acu

Lung-Qi deficiency
frequent colds, chronic cough, allergy

Shiitake administered with:
BL 13, 43, LU1,LU 5, LU9 (LU8 descent of *qi*), CV6, 17, ST 36, GV 14,
LR13, SP 3 – for adjustment of spleen function, phlegm (damp *tan* attacks lungs + ST40)

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Application Vb – according to TCM + acupuncture

Lung-Qi deficiency
(possibly transformation of phlegm needed)
frequent colds, chronic cough, allergy

Shiitake administered with:
BL 13, 43, LU1,LU 5, LU9 (LU8 descent of *qi*), CV6, 17, ST 36, GV 14,
LR13, SP 3 – for adjustment of Spleen function, phlegm (damp *tan* attacks the Lungs + ST40)
phlegm transformation (e.g. as support with anti-tumor therapy) + ST 40, SP9

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Mushrooms, strong possibilities in TCM and everyday nutrition // 1.c Shiitake

Dosage

Traditional dosage of **dried** matured **fruiting bodies** in the form of tea or with food indicated as **6 – 16 g daily**
Fresh fruiting body about 90 g
In form of biomass 0,5-3 g a day.
In case of usual dosage **nontoxic**, only rare and unimportant side effects or allergic reaction indicated - dermatitis
It is known, that it therapeutically decreases aggregation of blood platelets - **with caution in patients under anticoagulation medication - laboratory control necessary!**

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Mushrooms, strong possibilities in TCM and everyday nutrition // 1.c Reishi+Cordyceps+Shiitake

Ideas for memory support in TRITON-MRL

M E M O R Y

Heart stores Mind (*shen*)
memory for distant events

Spleen stores Intellect (*yi*)
memory for memorizing

Kidneys store Will (*zhi*)
memory for fresh events

Fire huo 火

Earth tu 土

Water shui 水

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