

## YZ POLYSAC™

- Enhances the Immune Function
- Promotes Good Health
- Supports Longevity
- Acts as An Adjunct Immunotherapeutic Agent

### YZ POLYSAC™ — WHAT IS IT?

YZ Polysac™ is a mushroom essence derived from 100% pure fruit-body of wild Yun Zhi (*Coriolus versicolor*) naturally grown in the deep forest of high altitude mountains free from pollution. A proprietary production method involving multiple steps grinding and extraction is employed to break down the rigid cell walls of *Coriolus versicolor* and maximize the release of its active constituents. The extracted active constituents are then purified further by a special precipitation technique and standardized to 60% polysaccharides, the highest concentration among all commercially available *Coriolus versicolor* products. The overall sourcing and logistic process of the YZ Polysac™ material is strictly under Japanese quality assurance management. YZ Polysac™ is carefully formulated by a select team of high-caliber medical doctors, nutritionists and natural products experts. YZ Polysac™ is specially encapsulated in VegeCap, free of animal ingredient. Each 450mg YZ Polysac™ capsule contains highly concentrated *Coriolus versicolor* extract equivalent to 6750mg dry fruit-body of Yun Zhi mushroom. YZ Polysac™ is individually blister packed and boxed for ultimate product protection and convenient use.

In short, YZ Polysac™ is distinct from other *Coriolus versicolor* products because of the following characteristics:

- From wild, natural, organic, pure and pollution-free plant source
- Novel extraction and purification technology for maximum bioavailability
- Highest concentration of active components
- Japanese logistics and quality assurance
- Expert formulation
- Convenient packaging

### TRADITIONAL AND COMPLEMENATRY USES

*Coriolus versicolor* is commonly found year-round on dead logs, stumps, tree trunks, and branches. The fungus occurs throughout the wooded temperate zones of Asia, Europe, and North America. The mushroom belongs to the family Bisidiomycotinae. Among the medicinal mushrooms used in traditional oriental therapies, *Coriolus versicolor* extract is one of the best commercially established products available and was systematically investigated for human cancer treatment<sup>1</sup>.

*Coriolus versicolor* has been used in Traditional Chinese Medicine (TCM) since ancient times. The Compendium of Material Medica by Li Shi Zhen (1518-1593) of the Ming Dynasty recorded: “The black and green Yun Zhi is beneficial to one’s spirit and vital energy and can strengthen one’s tendon and bone. If Yun Zhi is taken for a long time, it will make one vigorous and live long”. *Coriolus versicolor* is considered useful for dispelling heat, removing toxins, strengthening physique, increasing energy and spirit, and enhancing the host’s immune function. In the clinical practice of TCM, *Coriolus versicolor* is often indicated for various types of cancers, chronic hepatitis, and infections of the upper respiratory, urinary, and digestive tracts<sup>2</sup>.

With the support of strong scientific evidence from pharmacological studies and human clinical trials, the Japanese government approved the use of a *Coriolus versicolor* polysaccharide known as PSK for treating several types of cancers in stomach, esophagus, nasopharynx, colon, rectum, and the lungs in 1977. A few years later, the Chinese health authority approved the clinical use of a *Coriolus versicolor* polysaccharide-peptide known as PSP. Since then, *Coriolus versicolor* products have been widely used as an adjuvant to conventional cancer treatments including surgery, chemotherapy and radiotherapy.

### PHARMACOLOGY<sup>1,2</sup>

#### Immunomodulatory Effect

*Coriolus versicolor* extract has been demonstrated to activate T lymphocytes, B lymphocytes, monocytes, macrophages, bone marrow cells and natural killer cells. It is shown to be capable of restoring to normal

functioning of certain depressed immunological responsiveness caused by tumor cells, chemotherapy or radiotherapy.

#### **Anti-tumor Effect**

*Coriolus versicolor* extract has been demonstrated to control various carcinomas in experimental animals and humans. Its anticancer activity is attributed not only to a direct cytotoxic effect, but also to inhibition of proliferation of various cancers by inducing production of superoxide dismutase (SOD) and glutathione peroxidase. Studies revealed a significant reduction of tumor size after prolonged administration of *Coriolus versicolor* extract in mice inoculated with leukemia cell, nasopharyngeal carcinoma, lung carcinoma, liver cancer, mastocytoma, mammary tumor, sarcoma, or colon cancer. *Coriolus versicolor* extract also appeared to be effective in preventing esophageal, colon, breast, liver, lung, and bladder cancers.

#### **Anti-metastatic Effect**

*Coriolus versicolor* extract has been found to suppress cancer metastasis in a number of ways: (a) by suppression of intravasation through the inhibition of tumor invasion, adhesion and production of cell matrix-degrading enzymes; (b) by suppression of tumor cell attachment to endothelial cells through inhibition of tumor cell-induced platelet aggregation; (c) by suppression of tumor cell migration after extravasation through inhibition of tumor cell motility; and (d) by suppression of tumor growth after extravasation through inhibition of angiogenesis, modulation of cytokine production, and augmentation of effector cell functions. In addition, *Coriolus versicolor* polysaccharide has suppressed the malignant progression of mouse tumor cells by superoxide trapping<sup>3</sup>.

#### **Anti-microbial Effect**

*Coriolus versicolor* extract has displayed a broad spectrum of antibacterial and antifungal activities against common pathogens such as *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Candida albicans*, *Klebsiella pneumoniae*, *Listeria monocytogenes* and *Streptococcus pneumoniae*.

#### **Other Pharmacological Effects**

*Coriolus versicolor* extract can help increase appetite, improve liver function, calm central nervous system and enhance pain threshold. *Coriolus versicolor* improves general health by inducing various enzymes that trap free radicals and thereby mitigating oxidative damage. Too much oxidation is the main cause of cellular. *Coriolus versicolor* may have activity against the human immunodeficiency virus (HIV)<sup>4</sup>. Preliminary evidence reveals that *Coriolus versicolor* may have analgesic activity and protect against liver toxicity<sup>5</sup>.

#### **CLINICAL EVIDENCE<sup>2</sup>**

The therapeutic use of *Coriolus versicolor* polysaccharides as an adjunct therapy in cancer treatment has been documented in more than 30 clinical trials demonstrating significant improvement in both survival rate and general health status in cancer patients undergoing chemotherapy and/or radiotherapy.

#### **COMPOSITION**

The chemical composition of *Coriolus versicolor* is understandably complex especially when considering its diverse biological activity profile. The major active ingredients, such as YZ Polysac<sup>TM</sup>, are a group of protein-bounded polysaccharides and polysaccharide-peptide known as PSK and PSP, respectively, containing  $\alpha$ -1,4- and  $\beta$ -1,3-glucosidic linkages in their highly branched polysaccharide moieties of widely different molecular weights. Only those of high molecular weight (i.e. > 10 kDa) are generally considered immunologically active. Listed below is structure of Polysaccharide-Peptide: <sup>2</sup>  
(Insert two pictures, caption: 1. Vertical View; 2. Side View)

#### **INDICATIONS**

When taken regularly, YZ Polysac<sup>TM</sup> can enhance the immune function, promote good health, and improve liver function as well as support longevity. YZ Polysac<sup>TM</sup> can also be used as an adjunct immunotherapeutic agent for patients undergoing conventional cancer treatments such as chemotherapy, radiotherapy and surgery.

**Ingredient**

Each capsule contains Yun Zhi mushroom extract 450mg (*Coriolus versicolor*, fruitbody, 60% and up Polysaccharides).

**RECOMMENDED DOSAGE**

1. For general good health and wellness maintenance, take 1 capsule daily;
2. For people during illness recovery, take 2 capsules daily or directed by a health professional;
3. For cancer patients under or after the conventional treatment, such as chemotherapy, radiotherapy or surgery, take 2-3 capsules daily or directed by a health professional.

**ADVERSE REACTIONS**

There have been no adverse reports for YZ Polysac<sup>TM</sup> *Coriolus versicolor*.

**CONTRAINDICATIONS**

There are no known contraindications of YZ Polysac<sup>TM</sup> *Coriolus versicolor*.

**INTERACTIONS**

There have been no known interactions of YZ Polysac<sup>TM</sup> *Coriolus versicolor* with drugs, herbs, supplements, foods, laboratory tests and diseases or conditions.

**Certification**

Produce by GMP manufacturer.

**Endorsement**

Safety sealed for your protection.

Store in a cool location.

**REFERENCES**

1. Cui J and Chisti Y. Polysaccharopeptides of *Coriolus versicolor*: physiological activity, uses, and production. *Biotechnol Adv.* 2003 Apr;21(2):109-22.
2. Chu KK, Ho SS, Chow AH. *Coriolus versicolor*: a medicinal mushroom with promising immunotherapeutic values. *J Clin Pharmacol.* 2002 Sep;42(9):976-84.
3. Kobayashi H, Matsunaga K, Oguchi Y. Antimetastatic effects of PSK (Krestin), a protein-bound polysaccharide obtained from basidiomycetes: an overview. *Cancer Epidemiol Biomarkers Prev.* 1995 Apr-May;4(3):275-81.
4. Collins RA and Ng TB. Polysaccharopeptide from *Coriolus versicolor* has potential for use against human immunodeficiency virus type 1 infection. *Life Sci.* 1997;60:PL383-7.
5. Ng TB and Chan WY. Polysaccharopeptide from the mushroom *Coriolus versicolor* possesses analgesic activity but does not produce adverse effects on female reproductive or embryonic development in mice. *Gen Pharmacol* 1997;29:269-73.
6. Jin TY. Toxicological research on Yun Zhi polysaccharopeptide (PSP), in: Yang QY (ed.), *Advanced Research in PSP*. Hong Kong: Hong Kong Association for Health Care, 1999; 76-79.
7. Jiang XZ, Huang LM, Zhou YF, Wang MM. Subchronic toxicity test of polysaccharopeptide of Yun Zhi (PSP), in: Yang QY (ed.), *Advanced Research in PSP*. Hong Kong: Hong Kong Association for Health Care, 1999; 272-284.
8. Zhong BZ, Zhou YG, Zhou LF, Qian ZB. Genetic toxicity test of Yun Zhi polysaccharopeptide (PSP), in: Yang QY (ed.), *Advanced Research in PSP*. Hong Kong: Hong Kong Association for Health Care, 1999; 285-294.