

Rainforest Herbs®

Hempedu Bumi Plus Information Sheet

Prepared by Benjamin Drewe, Medical Herbalist

How strong is your liver?

Is our liver overworked?

The liver performs hundreds of functions, and is compared to a “chemical factory”. It is involved in the metabolism of carbohydrates, fats and proteins. It manufactures bile, filters impurities and toxic wastes from the blood, produces blood-clotting factors and destroys old worn-out red blood cells. It is not surprising that if the liver does not function well, our health is affected in many ways. One of the liver’s primary tasks is to filter toxins, a function for which it is continually put under stress by various factors of modern living. If prolonged, these stresses can lead to liver disease and subsequent toxic overload.

Dietary Overload

The food we eat is an increasing source of unnecessary and sometimes harmful chemicals in the form of flavourings, colourings and preservatives, especially nitrates. In addition, pesticides, extensively used in agriculture, leave a great deal of chemical residues in and on our vegetables and fruits, and indirectly also in the meat products we consume due to the livestock being fed with contaminated grain products. This, together with the drugs given to intensively reared livestock, such as antibiotics and growth hormones, can have repercussions on our health. Also as with our oceans, industrial wastes have increasingly contaminate rivers and lakes, this has led to an alarming rise in levels of harmful chemicals and heavy metals in fish and other seafood.

Other harmful chemicals that enter our diets are the peroxidized oils from fried and oily foods. These are excessively high in free radicals, known cancer causing agents, that deplete our natural antioxidant enzymes and nutrients.

Alcohol also puts an extra workload on the detoxification workload of the liver, and further increases free radical levels, leading to an increased risk of breast, colon and rectal cancers.

What is Toxic?

A substance is classified as “toxic” when it has the ability to produce undesired physical or mental effects on living organisms at relatively low concentrations; this may be because it destroys certain cells or impairs or upsets certain cell processes and organ functions. Examples are free radicals, also known as oxidants, that when are present in excess amounts lead to cellular destruction. Another toxin is the heavy metal lead, which targets the nervous system and when it reaches toxic levels, will disrupt the functions of nerve cells.

Chemical toxins may accumulate in the body, when the elimination and metabolic process is slower than the rate in which the toxin enters the body. Without any noticeable symptoms these substances may be ingested for a long period of time, until the toxic level is reached and then illness results. Fortunately, our body has natural mechanisms to deal with toxins and wastes: our immune system, the skin, liver, kidneys, and bowels all help to metabolize, excrete and eliminate unwanted products. However, when the eliminatory capacity of these tissues and organs becomes overburdened by the excessive demands of the collective load of toxins, it will result in their collecting in the different parts of the body. Eventually this may inhibit the elimination processes itself, creating an acute health crisis or chronic disorders.

Recovery from Hepatitis

Long after the resolution of a bout of hepatitis we may continue to feel signs of liver sluggishness in the form of indigestion, nausea and vomiting. Hepatitis can also lead to severe or long-term liver dysfunction. Herbal medicine has a great deal to offer in the gradual strengthening of the liver. Many of the bitter herbs have been shown to exert a liver protective effect and enhance bile flow. These however, should not be taken during the acute stage of hepatitis.

The Importance of Bitters for Healthy Digestion

Bitter herbs and foods, an integral part of the diet of many ancient cultures, have long been used for their beneficial effects on the digestive system. In our modern diet, many bitter foods have long been discarded, and replaced by excessive sweet and salty foods. This lack of bitter foods has contributed to the many health problems in modern civilization, including late onset diabetes. Bitter herbs stimulate the following reactions in the body. Digestion and appetite are improved as a result of stimulation of the flow of enzymatic secretions and digestive juices. This includes gastric secretion from the stomach, pancreatic digestive enzymes and bile from the liver. This aids many of the symptoms of indigestion, improves the absorption of nutrients, and reduces the tendency to develop food allergies. From improved digestion comes good elimination, as the organs of detoxification, the bowels, kidneys and most importantly, the liver remove the wastes from metabolism.

Signs and symptoms of liver weakness:

- Intolerance of fatty foods
- Nausea and vomiting
- Headaches and migraines
- Constipation
- Low energy leading to Chronic Fatigue Syndrome
- Inflammatory diseases e.g. skin conditions
- Allergies

Malaysian Herbs for the Liver

Indigenous to Malaysia is some of the most potent liver herbs used to improve gastrointestinal function and reduce the harmful effects of dietary imbalances.

These are:

- | | |
|-----------------|------------------------|
| 1. Hempedu Bumi | Andrograhis paniculata |
| 2. Dukung anak | Phyllanthus niruri |
| 3. Kunyit | Curcuma longa |

1. Hempedu Bumi (Andrographis paniculata)

Plant Part Used: Whole Herb

Scientific Research:

A Powerful Liver Protector

Research has confirmed Hempedu Bumi's long tradition as a liver tonic throughout South East Asia. Laboratory and clinical trials have demonstrated its effectiveness in cases of toxic liver damage, poor liver function and hepatitis. The primary active constituent, andrographolide, has been found to produce a stronger choleric effect (increased bile flow, bile salt and bile acids) (9) and hepatoprotective effect than silymarin, from Milk Thistle. (10) In some tests the leaf extract showed stronger activity than andrographolide alone, confirming the benefit of using the whole herb.

A strong cellular antioxidant effect (11) was also demonstrated by the constituents, andrographisides & neoandrographolides. These showed a beneficial effects in lipid peroxidation, drug metabolising and increased enzyme activity in the liver. It also reduced the enzymatic leakage of glutamate pyruvate transaminase & alkaline phosphatase frequently associated with hepatocellular damage. This effect was found to be as strong as silymarin.

Bitter Tonic & Digestive Stimulant

Hempedu Bumi's bitter tonic effects on the digestive system are of use in general debility, dysentery, worm infestation and certain forms of dyspepsia associated with gaseous distension. It has been found to relieve griping, irregular stools & loss of appetite. Chinese studies of acute bacillary dysentery and enteritis have shown a positive benefit. (3)

Cardiovascular disease and cholesterol build-up

Andrographis also plays a valuable role in cardiovascular disease and atherosclerosis (12). In a study (13) conducted by the Cardiology Department of the Tongji Medical University in China, Andrographis was found to significantly alleviate atherosclerotic build-up following a high cholesterol diet. This was found to be superior to the anti-atherosclerotic effects of Fish Oil (omega 3 polyunsaturated fatty acids over 70%). In another study conducted by the

Department of Pharmacology, National University of Singapore (14), the aqueous extract of *Andrographis* was found to lower blood pressure by reducing circulating angiotensin-converting enzyme (ACE) activities in plasma as well as by reducing free radical levels in the kidneys. Further studies in China (15,16) have demonstrated that *Andrographis* prevents heart attacks by reducing thrombosis potential. It was also demonstrated to protect the heart muscle from further damage following a heart attack.

Enhancing the Immune System

Clinical studies in bacterial and viral respiratory infections have demonstrated good effects, implying an immunostimulant action (7), especially on phagocytosis (3). Human trials have found *Andrographis* useful in pharyngotonsillitis, providing relief of fever and sore throat. *Andrographis* fluid extract and isolated andrographolide stimulated both antigen specific and non-specific immune responses in mice. The whole herb extract produced stronger immunostimulation. Fluid extract of *Andrographis* root demonstrated strong *in vitro* anthelmintic activity against human malarial infection.

References

1. Bone, K : *Clinical Applications of Ayurvedic and Chinese Herbs* (1996)
2. Burkhill, IH: *A Dictionary of the Economic Products of the Malay Peninsular* Pg. 157
3. Chang H M and But P P: *Pharmacology and Applications of Chinese Materia Medica*, Vol 2, World Scientific, Singapore (1987)
4. *Indian Journal of Pharmaceutical Sciences*, Pg.48 (1984)
5. *Medicinal Plants of India*, ICMR, Vol.1, Pg.64
6. Nadkarni, K.M. *Indian Materia Medica*, Pg.101
7. Puri, A et al: *J Natural Products* 56, 995 (1993)
8. Goh, SH et al: *Malay Med Plants Treatment of Cardiovascular Disease* (1995)
9. Shukla B et al: *Planta Medica* 58, 146 (1992)
10. Visen, P K et al: *J Ethnopharmacology* 40, 131 (1993)
11. Kapril, A et al: *Biochemical Pharmacology* 46, 182 (1993)
12. Guo, Z L et al: *J Tongji Med University* 14, 49 (1994)
13. Wang DW et al, Prevention of atherosclerotic arterial stenosis and restenosis after angioplasty with *Andrographis paniculata* nees and fish oil. Experimental studies of effects and mechanisms. *Chin Med J (Engl)* Jun;107(6):464-70 (1994)
14. Zhang CY et al, Hypotensive activity of aqueous extract of *Andrographis paniculata* in rats. Nat. Uni. Singapore. *Clin Exp Pharmacol Physiol* Aug;23(8):675-8 (1996)
15. Zhao HY et al, Antithrombotic effects of *Andrographis paniculata* in preventing myocardial infarction. *Chin Med J (Engl)* Sep;104(9):770-5 (1991)
16. Zhao HY et al, Protective effects of *andrographis paniculata* nees on post-infarction myocardium in experimental dogs. *J Tongji Med Univ* 10(4):212-7 (1990)

2. Dukung Anak (Phyllanthus niruri and related species P. amarus & P. urinaria)

This is an important traditional remedy of Asia for the treatment of gastric complaints including dyspepsia, colic, diarrhea, dysentery as well as jaundice and hepatitis.

Plant Part Used: Whole herb.

Modern Research

Treatment of Hepatitis B

Phyllanthus niruri has generated a lot of interest in recent years following a publication in the Lancet Medical Journal in 1988 (1).

A summary of the findings were as follows:

- Dose was 600mg/day of leaf.
- Study was on carriers of hepatitis B virus.
- 59% of 37 treated subjects compared to only 4% of placebo subjects had lost Hepatitis B surface antigen, (HBsAg) by the first follow up visit (15 to 20 days).
- Up to nine months later HBsAg had not returned for these subjects.
- There were no significant side effects.

Further clinical and laboratory trials showed that *Phyllanthus* inhibits hepatitis B virus (HBV) and binds to its surface antigen (6). The hepatitis B virus requires DNA polymerase for its replication, and the action of *Phyllanthus* in inhibiting this enzyme appears to be specific to HBV-like viruses. While the majority of studies showed positive effects for carriers of hepatitis B, some were not successful (3), and this has been linked to differences in dosage and variations in plant chemistry between the species found globally.

Anti-viral effects

The antiviral effects of *Phyllanthus* have been demonstrated in several further studies. Aqueous extract of *Phyllanthus* inhibited human immunodeficiency virus (HIV) reverse transcriptase *in vitro*. The component responsible for the inhibition was identified as repandusinic acid A. (7). Recent research in 1999 has shown that seven ellagitannins isolated from *Phyllanthus* are also active against Epstein-Barr virus DNA polymerase (EBV-DP) (14). In children with jaundice due to viral hepatitis, a dose of 50mg/kg also caused rapid improvement in most cases (10). The lignan constituents have been shown to demonstrate a hepatoprotective activity for *in vitro* tests. (2)

Other uses

A study conducted in India on 9 patients with hypertension, four of whom were also diabetics, revealed a significant reduction in systolic blood pressure and blood glucose was experienced in the treated group. Clinical observations

revealed no harmful side effects. These observations indicate that *P. amarus* is a potential diuretic, hypotensive and hypoglycaemic drug for humans.

Medicinal Uses of Phyllanthus

- ◆ Viral liver diseases, including acute hepatitis and chronic persistent hepatitis. As part of the treatment for chronic active hepatitis.
- ◆ Possibly other viral diseases.
- ◆ May have a support role in hypertension and diabetes.

References

1. Thyagarajan, S P et al: *Lancet* 2, 764 (1988)
2. Syamasundar, K V et al: *J Ethnopharmacology* 14, 41 (1985)
3. Milne, A et al: *New Zeal Med* 107, 243 (1994)
4. Bagchi, G D et al: *Int J Pharmacog* 30, 161 (1992)
5. Thyagarajan, S P et al: *Indian J Med Res* 76, 124 (1982)
6. Venkateswaran, P S et al: *Proc Natl Acad Sci USA* 84, 274 (1987)
7. Ogata, T et al: *AIDS Res Hum Retroviruses* 8, 1937 (1992)
8. Umarani, D et al: *Ancient Sci Life* 4, 174 (1985)
9. Higashino, H et al: *Nippon Yakurigaku Zasshi* 100, 415 (1992)
10. Dixit, S P and Achar, M P: *J Natl Integ Med Assoc* 25 (8), 269 (1983)
11. Nadkarni, K M *Indian Materia Medica*, Pg.947.
12. *Medicinal Plants of India* ICMR, Vol-2, Pg.405 (1987)
13. Liu KC et al, Antiviral tannins from two *Phyllanthus* species. *Planta Med* 1999 Feb;65(1):43-6
14. Srividya N, Periwal S, Diuretic, hypotensive and hypoglycaemic effect of *Phyllanthus amarus*. *Indian J Exp Biol* 1995 Nov;33(11):861-4

3. Kunyit (Curcuma longa)

Turmeric or Kunyit as it is referred to in Malaysia, is one of the most commonly used curry herbs in the East. It has been the subject of medicinal research since the 1920's.

Scientific Research

Effects on the Digestive Tract

- a) Cholagogue Activity
- b) Effect on Gastric Function
- c) Hepatoprotective Action

The constituent in Turmeric known as curcumin has been shown to increase the secretion of bile (cholagogue effect). This was found to be due both to the improved contraction of the gall bladder as well as an increase in bile production and secretion from the liver. This has been found to be responsible for the plants use in promoting gastrointestinal health.

Turmeric extract at normal doses was found to increase gastric wall mucus production and protect from gastric wall ulceration.

Extracts of Turmeric have also shown hepatoprotective effects after administration of liver toxins, carbon tetrachloride and galactosamine to experimental animals. It was clearly demonstrated that Turmeric possesses liver protective properties.

Anti-inflammatory Effects

Curcumin, one of the active constituents of Turmeric, has been shown in many conclusive studies to possess anti-inflammatory actions. Curcumin has performed well in double-blind trials on rheumatoid arthritis sufferers, as well as for post-operative inflammation.

Antioxidant Activity

Curcumin was found to inhibit lipid peroxidation and free radical damage. Its effect was found to be stronger than Vitamin E.

Anti-cancer Activity

- a) Cancer Prevention
- b) Anti-Tumour Activity

Turmeric's anti cancer properties are also related to its anti-inflammatory and antioxidant effects. It has been recently demonstrated that Turmeric increases the activity of the carcinogen detoxification enzyme glutathione-S-transferase in the stomach, liver and esophagus of mice. Animal studies have shown a strong reduction in tumor growth and cancerous cells after administration of Turmeric extracts.

Therapeutic Indications:

- ◆ To improve gastric and hepatic digestive function
- ◆ As an anti-inflammatory agent for arthritis and other inflammatory conditions such as dysmenorrhoea, asthma, eczema and psoriasis.
- ◆ Cardiovascular disease or those with increased risk, e.g. smokers.
- ◆ As a preventative for those exposed to high levels of carcinogens, or at risk of developing cancer.

References

1. Khar et al, Antitumor activity of curcumin is mediated through the induction of apoptosis in AK-5 tumor cells. Centre for Cellular and Molecular Biology, Hyderabad, India.
2. Kawamori et al, *Chemopreventive effect of curcumin, a naturally occurring anti-inflammatory agent, during the promotion/progression stages of colon cancer.* *Cancer Res* 1999 Feb 1;59(3):597-601
3. Sidhu et al, *Enhancement of wound healing by curcumin in animals.* *Wound Repair Regen* 1998 Mar-Apr;6(2):167-77
4. Deshpande et al, *Protective effect of turmeric (Curcuma longa L.) extract on carbon tetrachloride-induced liver damage in rats.* *Indian J Exp Biol* 1998 Jun;36(6):573-7

5. Piper et al, *Mechanisms of anticarcinogenic properties of curcumin: the effect of curcumin on glutathione linked detoxification enzymes in rat liver*. Int J Biochem Cell Biol 1998 Apr;30(4):445-56
6. Mehta K et al, *Antiproliferative effect of curcumin (diferuloylmethane) against human breast tumor cell lines*. Anticancer Drugs 1997 Jun;8(5):470-81
7. Verma SP et al, *Curcumin and genistein, plant natural products, show synergistic inhibitory effects on the growth of human breast cancer MCF-7 cells induced by estrogenic pesticides*. Biochem Biophys Res Commun 1997 Apr 28;233(3):692-6
8. Ruby Ajet al, *Anti-tumour and antioxidant activity of natural curcuminoids*. Cancer Lett 1995 Jul 20;94(1):79-83
9. Selvam R et al, *The anti-oxidant activity of turmeric (Curcuma longa)*. J Ethnopharmacol 1995 Jul 7;47(2):59-67
10. Chan MM, *Inhibition of tumor necrosis factor by curcumin, a phytochemical*. Biochem Pharmacol 1995 May 26;49(11):1551-6
11. Srivastava KC et al, *Curcumin, a major component of food spice turmeric (Curcuma longa) inhibits aggregation and alters eicosanoid metabolism in human blood platelets*. Prostaglandins Leukot Essent Fatty Acids 1995 Apr;52(4):223-7
12. Huang MT et al, *Inhibitory effects of dietary curcumin on forestomach, duodenal, and colon carcinogenesis in mice*. Cancer Res 1994 Nov 15;54(22):5841-7
13. Soni KB et al, *Reversal of aflatoxin induced liver damage by turmeric and curcumin*. Cancer Lett 1992 Sep 30;66(2):115-21
14. Thamlikitkul V et al, *Randomized double blind study of Curcuma domestica Val. for dyspepsia*. J Med Assoc Thai 1989 Nov;72(11):613-20
15. Kuttan R et al, *Potential anticancer activity of turmeric (Curcuma longa)*. Cancer Lett 1985 Nov;29(2):197-202

Contraindications of liver herbs

- Not to be taken during acute liver disease.
- Contraindicated in biliary obstructive conditions, such as gallstones.

Additional Recommended Therapy for liver health

- For a healthy liver do not smoke and avoid all alcohol, coffee, over eating, excess sugar and fried foods.
- Drink plenty of fluids and consume fiber rich fruits and vegetables.