



# An Herbalist's View of the Liver

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## A few proceeding notes

The liver is the heaviest of all glands (approximately 3 lbs.), and the largest organ after the skin. The size of the liver reflects the amount of work it performs and the diversity of functions that it carries out in the body. One of the more interesting aspects of the liver is its regenerative ability, that is, its capacity to regrow its cell population after injury or surgery. This faculty is important, as the liver, a major detoxification organ, bears the brunt of clearing the body of toxins and other waste material. Hence it can initiate self-repair after it has been damaged by these substances.

## Categories

Aromatic bitters

Cholagogues

Constitutional tonics

General liver tonics

Liver purgatives

Simple bitters

## The role of bitters.

Bitters have been historically used to treat a wide range of liver ailments, especially as they pertain to its digestive functions. Little has changed over time and bitter plants are still one of the main categories of liver remedies, both for acute and chronic hepatic ailments. The bitter flavor stimulates secretions, notably bile, and increases the breakdown and absorption of fats. Bitter plants may be categorized depending on their action. Probably all bitters increase some hepatocyte (and other GI tract) stimulation, though depending on the chemical nature of the bitter it may have weaker or more potent effects. In general practice caution using the stronger bitters on thin, dry, catabolic (vata) types. The strong bitters are generally amenable to larger, sluggish, anabolic (kapha) types, the stimulating quality being of value here.

**Aromatic bitters**- these bitters are considered warming and stimulating and useful when there is gastric pain. Depending on dose, they are helpful for all body types.

Angelica

Calamus

Galangal

Ginger

**Cholagogues** – are generally bitter, and stimulate the release of bile from the liver and gall bladder. They increase intestinal digestion of fats and also increase the livers' eliminative processes.

Artichoke

Barberry

Blue vervain

Bogbean

Buttonbush

Dandelion

Figwort

Fringe tree

Gentian

Goldenseal

Greater celandine

Oregon grape root

Toadflax

Turtlehead

Vervain

Wahoo

Yellow dock

**General liver tonics**- these remedies are generally used as long term tonics for helping restore liver function after abuse or toxicity. They are antiinflammatory and are useful hepatic restoratives after an acute flare-up of one of the hepatitises. These are detoxifying herbs due to the role they play in hepatocyte restoration.

Artichoke	Milk thistle
Chicory	Tumeric
Dandelion	

**Constitutional tonics** -where hepatocyte stimulation is indicated. Generally these herbs are given in small regular doses. They are all bitter and stimulating. Use these carefully depending on the constitutional picture.

Blackroot	Fringe tree
Buttonbush	Toadflax
Figwort	

**Liver 'purgatives'** - this is the strongest class of liver remedies. They are used when the liver needs a 'good push'. Use with caution.

Greater celandine	Mayapple
Iris	Poke

**Simple bitters**- gentle liver stimulators, often saponin based.

Bogbean	Turtlehead
Gentian	

## Symptoms of liver ailments

- |                                     |  |
|-------------------------------------|--|
| ❖ Anorexia                          | ❖ Nausea   |
| ❖ Dry eyes                          | ❖ Pain in lower right quadrant   |
| ❖ Dry skin                          | ❖ Poor quality skin tone and color   |
| ❖ Enlarged liver                    | ❖ Portal hypertension  |
| ❖ Excess fat in stool (steatorrhea) | ❖ Thick coating on tongue:<br>~Yellow coating – heat sign<br>~White coating – cold sign                            |
| ❖ Fatigue & lethargy                | ❖ Tired after eating, especially a<br>fatty meal. The tiredness usually<br>begins about 3-6 hours after<br>eating. |
| ❖ Fluid in the abdomen (ascites)    | ❖ Weight loss  |
| ❖ Food acne                         |  |
| ❖ General sluggishness              |  |
| ❖ Headaches                         |  |
| ❖ Jaundice                          |  |
| ❖ Low appetite                      |  |

## Plant list

Alder- <i>Alnus</i> spp.	Ginger- <i>Zingiber officinale</i>
Angelica- <i>Angelica</i> spp.	Goldenseal- <i>Hydrastis canadensis</i>
Artichoke- <i>Cynara scolymus</i>	Greater celandine- <i>Chelidonium majus</i>
Ash- <i>Fraxinus</i> spp.	Greenbrier- <i>Smilax</i> spp.
Barberry- <i>Berberis</i> spp.	Iris- <i>Iris</i> spp.
Black walnut- <i>Juglans nigra</i>	Mayapple- <i>Podophyllum peltatum</i>
Blackroot- <i>Veronicastrum virginiana</i>	Milk thistle- <i>Silybum marianum</i>
Bloodroot- <i>Sanguinaria canadense</i>	Moonseed- <i>Menispermum canadense</i>
Blue vervain- <i>Verbena hastata</i>	Oregon grape- <i>Berberis</i> spp.

Bogbean- *Menyanthes trifoliolata*  
 Burdock- *Arctium* spp.  
 Buttonbush- *Cephalanthus occidentalis*  
 Calamus- *Acorus calamus*  
 Chaparral- *Larrea* spp.  
 Chicory- *Cichorium intybus*  
 Cleavers- *Galium* spp.  
 Dandelion- *Taraxacum officinale*  
 Figwort- *Scrophularia* spp.  
 Fringe tree- *Chelone* spp.  
 Galangal- *Alpinia galanga*  
 Gentian- *Gentiana* spp.

Poke- *Phytolacca* spp.  
 Red root- *Ceanothus americanus*  
 Stillingia- *Stillingia sylvatica*  
 Toadflax- *Linaria vulgaris*  
 Turmeric - *Curcuma domestica*  
 Turtlehead- *Chelone* spp.  
 Vervain- *Verbena officinale*  
 Wahoo- *Euonymus* spp.  
 Wild yam- *Dioscorea villosa*  
 Yarrow- *Achillea millefolium*  
 Yellow dock- *Rumex* spp.

## The Livers primary functions

1. Detoxification and excretory functions
2. Endocrine functions
3. Clotting functions
4. Plasma protein functions
5. Digestive functions
6. Metabolic function
7. Cholesterol functions
8. Storage function

**Detoxification and excretory functions-** the liver breaks down and helps eliminate a variety of endogenous and exogenous compounds. With damage to the liver's detoxification pathways these substances can accumulate in the bloodstream and cause illness. These substances are eliminated in the bile and include;

1. Various drugs such as antibiotics
2. Hormones including thyroxine and the steroid hormones such as estrogen, aldosterone and cortisol.

**Endocrine functions** The liver performs a number of endocrine functions.

These include:

1. Activation of vitamin D
2. Secretes angiotensinogen
3. Metabolizes hormones
4. Forms triiodothyronine (T3) from thyroxine (T4)

**Clotting functions-** the liver produces many plasma-clotting factors that assist in blood coagulation. Vitamin K is required for the formation of some of these; hence a lack of Vitamin K dramatically decreases blood clotting. These factors include;

1. Prothrombin
2. Fibrinogen

**Plasma protein functions-** the liver synthesizes and secretes a number of plasma proteins.

1. Albumen
2. Acute phase proteins
3. Binding proteins for steroid hormones
4. Lipoproteins
5. Clotting proteins (see above)

**Digestive functions-** the liver assists digestion in a number of important ways that include;

1. The liver synthesizes bile (also storing and concentrating it in the gall bladder) and secretes it into the small intestine to help break up fats and aid in their absorption.
2. The liver is the first organ to process absorbed substances after they leave the digestive tract (aside from fats which are transported via the lymph and general circulation before reaching the liver) through portal circulation. It insures that most of the bacteria from the gastrointestinal tract can be destroyed by the Kupffer cells lining the liver before entering general circulation.

**Metabolic functions-** the liver converts, stores and releases many substances. These functions are essential as they allow an uptake and storage of many necessary molecules and later allow these substances to be released back into the bloodstream as they become in demand.

1. **Carbohydrate metabolism-** storage and conversion and release of sugars. Maintaining blood glucose levels. Converting triglycerides and amino acids into glucose
2. **Fat metabolism-** storage and conversion of fats. Conversion of carbohydrates and proteins into fats.
3. **Protein metabolism-** breakdown and conversion of amino acids. Breakdown of ammonia to urea.

### **Cholesterol functions**

1. Synthesizes cholesterol from fats and released into the blood
2. Cholesterol converted into bile salts and secreted into the bile
3. Synthesizes lipoproteins to transport cholesterol

**Storage functions-** the liver stores the following;

1. **Vitamins-** including A, D, B12, K
2. **Minerals-** including iron, copper
3. **Blood-** up to 500 ml (1 pint)

### **Liver Pathologies**

**Jaundice-** this condition causes a yellowish tint in tissues due to high blood concentrations of bilirubin in the bloodstream. Jaundice may be caused by a number of circumstances, including; hepatitis, obstruction of bile ducts and excess production of bilirubin.

**Cirrhosis** - a condition where liver lobules are scarred, destroyed and replaced by non-functional connective tissue. This leads to numerous complications due to the liver's strategic and diverse function in the body. Causes include chronic alcohol abuse, biliary obstruction, viral hepatitis and various liver damaging chemicals.

**Hepatitis-** an inflammatory liver condition. Three common forms of hepatitis are viral. These are Hepatitis A, B and C caused by distinct viruses. Hepatitis A virus (HAV) is generally contracted by direct exposure, often through fecal contamination of food or water. HAV is typically followed by complete recovery. HAV is usually contracted through contact with infected blood as with contaminated needles. This infection may be severe. HAV is also called chronic hepatitis due to its long-term progression within the liver. About 50% of the people who contract HAV progress towards significant liver damage over time. It too is contracted through exposure to contaminated blood.