Herbs with bitter active ingredients that contribute to good health and long life expectancy are historically among the oldest and best-known medicinal plants and medicines. Due to the diversity and widespread occurrence of bitter substances, numerous medicinal plants such as artichokes, gentian, milk thistle, turmeric, dandelion, ginger and saffron have a bitter substance character (sensory assessment with the bitter value). More than 50 different receptors and more than 20 genes are probably involved in the perception of “bitter”.

In conventional phytotherapy, the application is restricted to gastrointestinal complaints, fat indigestion disorders and bile duct disorders (secretion-promoting and motility-increasing effects).

Thus, the traditionally known potential of bitter phytotherapeutic remedies, which has been extensively pharmacologically investigated for several years, has not been fully exploited.

**Bitter substances**

Catalysts/transformers for all organ systems

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**Bitter substances and depressive moods**

Traditionally, depressive moods were treated with bitter drugs selected to suit the individual. Modern studies are indicating antidepressant effects. A study in patients with active Crohn’s disease showed that bitter substances have significant antidepressant effects in addition to clinically relevant anti-inflammatory, steroid-sparring and immunomodulatory effects.

**Bitter substances as general treatment and tonics**

Bitter receptors have been discovered throughout the digestive tract in the past few years. Consequently, bitter effects are not only triggered by reflexive effects via the oral cavity but also directly intraluminally in the gastrointestinal tract and systemically after resorption. Influences from the gastrointestinal tract on the CNS are well-established. This provides a modern explanation for somatopsychic effects.

**Bitter substances as adaptogens**

Adaptogens increase resistance (resilience) to physical, chemical, biological and psychosocial stress, i.e., they promote adaptation and tolerance. For healthy people, they can be used as “health enhancement” (individual primary prevention), and as therapy for sick people (individual secondary prevention). Adaptogens show immunomodulating, nootropic or anabolic effects.

**Bitter substances and the digestive tract – fat digestion**

Bitter drugs or combinations of bitter and pungent drugs have a beneficial effect on a disturbed motor function of the gastrointestinal tract and help with fat digestion disorders.

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**Liver/Detox**

Fat digestion • Strong psyche/nerves

**Energy activators**

Coenzyme Q10, L-carnitine, astaxanthin, pine bark OPC

**Micronutrients for liver metabolism**

D, E, B6, B12, folic acid, zinc and selenium

**Further current research approaches**

Bitter receptors exist at the interfaces between the inner and outer worlds, in the cardiovascular system (especially the vascular system), in the urogenital tract (including reproduction), in the upper and lower respiratory tract, in the endocrine system (local, systemic) and in the CNS.

The significance of bitter substances is currently being investigated in connection with inflammations, infections, immune system (innate immunity), apoptosis, neurological diseases and especially with blood pressure and blood sugar regulation, rhinosinusitis, bronchial asthma and general muscle tone regulation.

Pomegranate – not only important for liver health

Pomegranate has a variety of properties and is considered an anti-ageing superfood thanks to particular ingredients (e.g. a broad range of antioxidants – polyphenols, ellagic acid as a precursor of urolithin).

In recent years, hardly any foods have been the subject of more nutritional studies – with interesting results. Pomegranate possesses a thousandfold higher antioxidative effect than blueberry juice or grape juice and, among other things, has potential health effects on the cardiovascular system, the liver, the gastrointestinal tract as well as lipid and sugar metabolism.

Preventive effects on the development of malignant, inflammatory and degenerative diseases as well as menopausal symptoms have been investigated.


Choline – essential for liver and nerves

Choline (micronutrient, vitaminoid) performs various functions in the human body:
- As a component of lecithin, choline is essential for the formation of all cell membranes.
- Nerves: In the form of its acetic acid ester, choline forms acetylcholine, one of the most important human neurotransmitters. Acetylcholine regulates the transmission of stimuli from nerve to muscle and acts as a messenger substance in the central nervous system. This is how choline contributes to muscle control and a functioning memory.
- Liver: In bile secretion, choline emulsifies dietary fats. It also removes triglycerides from the liver. In addition, it increases the capacity of the liver to relieve the organism of stress caused by medication, alcohol, heavy metals or environmental toxins.
- Detox: Choline is a source of methyl groups that the body needs to metabolise the sulphur-containing amino acid methionine to prevent homocysteine formation. Excessively high homocysteine levels are very frequently and directly associated with cardiovascular diseases, arteriosclerosis and dementia. In this context, attention should also be paid to a sufficient supply of homocysteine-lowering B vitamins (vitamin B6, B12 and folic acid).


Additional micronutrients, which are essential for liver metabolism and its detoxifying function: Vitamins C, D3, E, B6, B12 and folic acid.

Minerals / trace elements: Zinc and selenium.

Bioenhancer function (improvement of bioavailability): Combination of black pepper and ginger extract.

### Energy drive for body and mind and liver metabolism

<table>
<thead>
<tr>
<th>Micronutrient</th>
<th>Effect on energy, psyche and liver</th>
<th>References</th>
</tr>
</thead>
</table>

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