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# Stinging nettle

Alban Muller International, le Natural Product Designer<sup>®</sup>, is specialized in consulting and products for the Health and Beauty industries.

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# STINGING NETTLE



*Urtica dioica* L.

Urticaceae

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## STINGING NETTLE

Nettle is a cosmopolitan plant often growing in important colonies near houses and on soils rich in nitrates. It is also fond of uncultivated places and gardens and grows alongside lanes and walls.

Nettle is a 50 cm to 1 m high herbaceous perennial plant. Its quadrangular stems are sturdy and hairy, they bear dark green, opposite, heart-shaped to lanceolate, highly dentate and pointed leaves. The stem and leaves are bristling with very stinging hairs. Nettle flowers are greenish, clustered on the female plants and forming long dangling catkins on the male plants from June to October. The fruit are small achenes.

Many whole books are allotted to nettle, incensing its medicinal, industrial and

food properties that have nowadays fallen into oblivion. All the parts of the plant were used against the various haemorrhages : fresh nettle sap could thus stop nosebleed. Saint Hildegard recommended its seeds to relieve digestive pains. To soothe rheumatic pains -or prevent them-, people from certain countryside areas traditionally used to friction their body with the plant.

From prehistory to the 16 th century, young nettles were either eaten raw, crushed, mixed with salad, or boiled, in spinach, to make soup or tarts.

To preserve them, meat or fresh fish were wrapped into fresh nettle leaves.

Clothes and canvas were woven with nettle fibres.



## A BIT OF HISTORY



Urtica comes from the Latin «urere», to burn, alluding to the stinging burns caused by its hairs.

Nettle symbolizes courage, inflicted injury.

It would also favour lust. In his «Art of love», Ovid referred to a love potion partly composed of nettle, and Petronus reported that a priestess had impotent

men whipped with a bunch of nettles, under the navel, on the back and the buttocks, in order to make them vigorous.

A freshly cut bunch of nettles slipped under the bed of a sick person can quicken his or her recovery.

Nettle was also believed to overcome fear when held with a sprig of Saint John's wort.



## CHEMICAL COMPOSITION

### The aerial parts contain :

- **glucids**, notably osides (mucilages) ;
- **protids** : proteins and enzymes ;
- **lipids** : phospholipids (lecithins) ;
- **mineral matters** : iron, nitrate, potassium, silicon ;
- **organic acids** : ascorbic acid (vitamin C), citric acid, formic acid ;
- . phenolic compounds among which :
  - . flavonoids, particularly flavonols : glucosides and rutosides of kaempferol, isorhamnetin and quercetin in position 3,
  - . tannins.
- **terpenoids** : carotenoids : beta-carotene, xanthophylls ;
- **vitamins** : vitamin A (retinol), vitamin B2 (riboflavin), vitamin B5 (pantothenic acid), vitamin B9 (folic acid), vitamin K (phylloquinone) ;
- **chlorophylls** a and b ;
- an **essential oil**.

The stinging hairs contain 3 % histamine, roughly 0.02 % serotonin and 2 % acetylcholine



**The root contains :**

- **glucids** : osides ;
- **mineral matters** : calcium, iron, potassium, silicon ;
- **phenolic compounds** among which :
  - . phenolic acids,
  - . tannins,
  - . simple coumarins : scopoletin,
  - . monoepoxyignans.
- **triterpenes** : steroids (free and 3-glucosylated sitosterol, 7alpha and 7beta-hydroxysitosterol and their glucosides, 3-glucosyl sitosterol palmitate) ;
- 0.1 to 0.2 % **lectines** : urtica dioica agglutinin ;
- **homovanillic alcohol** and its glucoside.



## PHARMACOLOGICAL AND BIOLOGICAL ACTIVITIES AERIAL PARTS

Stinging nettle aerial parts are allotted analgesic, anti-inflammatory and anti-rheumatic properties.

They moreover have fortifying and anti-acne virtues and present haemostatic activities.

### USES

#### PHARMACEUTICAL

Stinging nettle aerial parts traditionally soothe moderate acne and relieve painful joints (tendinitis, sprains).

They are recommended in friction to treat rheumatic pains such as lumbago and sciatica.

Stinging nettle moreover fights eczema, herpes, psoriasis, ulcers and ringworm.

#### COSMETIC

The aerial parts have anti-dandruff properties, they also present antiseptic and seborregulating virtues. They stimulate hair growth and moreover present astringent, deodorant, regenerative and remineralizing virtues.

The aerial parts are recommended in :

- *lotions for greasy hair with dandruff, shampoos for thin, damaged and delicate, dull and limp hair ;*
- *body hygiene products ;*
- *regenerative creams for mature and damaged skin ;*
- *astringent creams for combination or greasy skin suffering from acne ;*
- *deodorant products.*

#### **Cosmetic usage level :**

Liquid extracts : 2 - 5 %



## PHARMACOLOGICAL AND BIOLOGICAL ACTIVITIES ROOT

The root is recommended for its anti-inflammatory and diuretic virtues.

### USES

#### FOOD

Stinging nettle root is on the list of the « Flavouring substances and natural sources of flavourings », Council of Europe, 1981 directive.

#### PHARMACEUTICAL

Stinging nettle root is on the list of the plant-based medicines allowed to be marketed in France with a simplified Master File. This document was published in 1998 by the Agence du Médicament (Drug Office).

The therapeutic indications mentioned for an oral use are as follows : " Traditionally used to promote renal elimination of water and as an adjuvant treatment in miction disorders of prostate origin (to be used only after a medical diagnosis)."

Stinging nettle presents hypoglycaemic properties and is thus a precious remedy for diabetic people.

Stinging nettle moreover fights eczema, herpes, psoriasis, ulcers and ringworm.

#### COSMETIC

The root is allotted antiseptic, astringent, remineralizing and restructuring properties.

Stinging nettle root extracts can be ingredients in :

- *products for greasy hair with dandruff ;*
- *body milks ;*
- *remineralizing creams for damaged skin ;*
- *astringent creams for combination or greasy skin.*

#### **Cosmetic usage level :**

Liquid extracts : 2 - 5 %





## AMI EXTRACTS

Our different extracts are obtained by maceration and percolation of plants, generally dried, in a system of selected solvents. Appropriate processes (filtration, concentration, atomisation) are then implemented to obtain the required qualities.

The chart hereunder recapitulates the main kinds of possible extracts. Given that AMI works with a vast variety of plants, each of these references is not necessarily available for each plant.

Our commercial department will be pleased to inform you and help you chose the existing extract most adapted to your needs. Nevertheless, should you need a missing reference, or even a made-to-measure extract, our technical assistance service proposes easy and flexible development contracts in order to obtain the product which best suits your needs.

### Extracts for Cosmetics

<b>Solvent</b>	<b>Standard extracts</b>	<b>Titrated extracts</b>
Propylene glycol	HS	PG titrated
Propylene glycol + water	HG	HPG titrated
Butylene glycol	BG	BG titrated
Butylene glycol + water	HBG	HBG titrated
Glycerine	GL	-
Glycerine + water	HGL	-
Vegetable oil	LS	LS titrated

**Extracts for Phytotherapy and Nutraceuticals<sup>1</sup>**

<b>Kind of extract</b>	<b>Extract</b>	<b>Carrier</b>	<b>Plant concentration (on average)</b>
Dried	Spray dried extract	Maltodextrin	5/1
Liquid, concentrated	EFGL	Water + glycerine	1/1
	Fluid extract	Water + ethanol	1/1
	Concentrated aqueous extract	Water	4/1
	Concentrated fluid extract	Water + ethanol	4/1
Liquid, standard	Tincture	Water + ethanol	0.2/1
	HAGL	Water + ethanol + glycerine	0.2/1
	HYGL	Water + glycerine	0.2/1

<sup>1</sup> Warning : Our customers are responsible for the commercialisation of their products and must conform to the regulations of their country concerning the authorisation of plants, ingredients, additives and claims.