



URTICA L. – GENERE

Order: Rosales (APG), Urticales (Cronquist)

Family: *Urticaceae* Juss.

The genus *Urtica* L. (1753) includes more than 50 species [WFO] of herbs, rarely subshrubs, annual or perennial, typically armed with stinging hairs.

Urtica has a subcosmopolitan distribution, being found on all continents except Antarctica. *Urtica* species are very often used as food and medicine.

U. ferox from New Zealand is the most dangerous species because it can cause very intense skin reactions that last several days; if a large part of the skin comes into contact with the plant, important symptoms may occur affecting the central nervous system.

Nettle has been used to make fiber since antiquity: fabric woven of nettle fiber was found in burial sites in Denmark dating to the Bronze Age. [Wikipedia]

Nettles are plants characterized by insignificant flowering (the flowers are very small and inconspicuous) and by anemophilous pollination (they are pollinated by the wind). Although they often offer shelter to numerous species of insects (they are generally stinging only for higher animals) and constitute an important food source for several of them, nettles are nevertheless not pollinated by insects.

OLD WORLD NETTLES: URTICA DIOICA L. AND RELATED SPECIES



<i>Primary functionality:</i>	Mars
<i>Secondary functionality:</i>	Venus
<i>Nature:</i>	dry, and ambivalent with regard to heat/coldness, with a slight prevalence of heat (aerial parts) hot and dry in the second degree (seeds)
<i>Taste:</i>	sweet and salty; pungent, bitter and slightly astringent
<i>Tropism:</i>	kidneys and adrenals, spleen, blood; secondarily: liver; stomach, pancreas, epithelia, prostate and uterus
<i>Humoral actions</i> ¹ :	expels perverse humors (fluids, also thickened ones, melancholy, heat, toxic heat) and supplements heat and melancholy where lacking; nourishes the melancholic-caloric aspects of the blood and tonifies the kidneys functionality.
<i>Tissue states:</i>	heat deficiency or excess, fluid deficiency or excess (thin or thickened), perverse melancholy; tones the melancholic aspects of the Blood; kidney functionality deficiency
<i>Clinical actions:</i>	nutritive tonic, alterative, kidney trophorestorative, diuretic, hemostatic, blood tonic, galactagogue, emmenagogue, metabolism stimulant, analgesic, vulnerary
<i>Used parts:</i>	aerial parts before flowering, flowered aerial parts, seeds, roots

¹ See the "Notes on humors" paragraph.

Description

Most species of nettle can be used quite interchangeably, both in the kitchen and in herbal medicine. *U. dioica* and *U. urens* are probably the two best known Old World nettle species. Both originating from Eurasia (and from North Africa, in the specific case of the *U. dioica*), they are now widespread in almost all continents.

The most “pungent” European species seems to be the Roman nettle (*U. pilulifera*), edible like the other species and, according to some authors, the most effective in therapy [Gerard].

They generally prefer wet soils or wastelands and roadsides, provided that the soil is enough rich and wet, and avoid acidic soils. They prefer a good concentration of nitrates and phosphates and therefore they are often found near houses and areas where animals are present, especially in places where liquid and/or solid manure (rich in nitrogen) accumulates.

Nettles contain good levels of chlorophyll, minerals (especially Ca, K, Si, Mg, Fe, P) and proteins that come from the organication of the abundant nitrogen found in the soil.

Examining their characteristics and “behavior” within their natural environment, we get the impression that the activity of these plants is strongly directed, on one side, toward absorption (hypogeeal pole) and organication (epigeeal pole) of the nitrogenous substances coming from the wastes of the protein catabolism of superior animals, and, on the other side (exclusively epigeeal pole), toward the formation of leaves and stalks rich in chlorophyll. With this metabolic activity so strongly characterized, the flowering process seems to stay in the background both from the structural (insignificant flowers) and the functional (pollination is left to wind, so that plant has not to expend resources for activities such as attraction of pollinator insects - production of essential oils, colored molecules, and so on) points of view.

Returning to chlorophyll (indeed, we would better speak of *chlorophylls*, because various forms exist, all very similar to each other from a structural point of view), it’s interesting to note how chemically similar it appears to heme (contained in the blood of the superior animals), both being cyclic macromolecules, formally derived from a tetra-pyrrolic ring, that contain a metallic ion (Mg in chlorophyll and Fe in heme).

We can also notice a certain similitude between the two molecules also from a functional point of view. First, chlorophyll is a pigment able to “catch” sunlight in order to let the plant use it, during the *photosynthesis*, as an energy source for the production the “caloric” molecule of glucose. Formally, chlorophyll allows plant to produce glucose and oxygen starting from carbon dioxide and water:



On the other hand, heme is a light sensitive pigment (indeed it confers the blood its characteristic red color) that has the task of transporting the oxygen to the animal cells, so that the exactly opposite function, that is, the transformation (“combustion”) of glucose to carbon dioxide and water by means of oxygen, can be performed:



If the photosynthesis reaction occurs thanks to the energy “taken” from the sun, glucose combustion produces some energy that the animal (or human) body can use to perform its own functions. So, we can say that both reactions together have the overall function of transferring the energy coming from the sun to the animal bodies: these reactions are opposite with respect to the direction, but complementary in the overall action.

A plant so rich in substances that are precious to the superior animals cannot be but strongly appreciated as a food. For this reason, in the course of the evolution it has devised a system to “defend” itself, so that it would not be systematically devoured. The stinging effect is due to the presence, on the surface of leaves and stems, of hard, silicized and hollow, unicellular hairs (*trichomes*), that, when break, inject a liquid secretion rich in irritating substances (among which histamine, serotonin, acetylcholine, organic acids). The nettle plant trichomes are similar to an elongated ampoule surmounted and closed by a bulb (Fig. 1-A). The whole trichome is calcified and silicized. The silica content is maximum at and around the apex and decreases gradually toward the base of the trichome. The calcification starts together with the decrease of silica, and finally calcium almost replaces silicon near the base [Thurston].

In detail, the silica particles are concentrated maximally at the apex (bulb), where they form a continuous structure (Fig. 1-C zone I). Just below the bulb, we can find a transition zone (Fig. 1-C zone II) almost without silica and, further down, we can see the trichome body (Fig. 1-C zone III), in the walls of which only secondary silica particles are present [Fu].

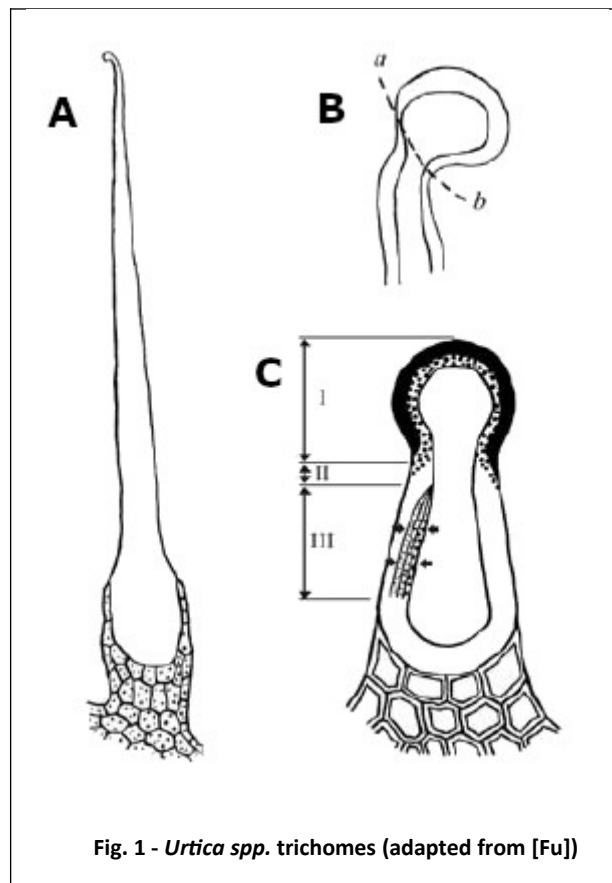


Fig. 1 - *Urtica* spp. trichomes (adapted from [Fu])

So, the hardest (due to the silica content) zone is the bulb (zone I), followed by the trichome body (zone III), while the intermediate zone (zone II) is decidedly more fragile and so it can be easily broken. When the trichome is hit, for instance, by an animal, it breaks exactly in correspondence of zone II (v. Fig. 1-B), transforming in a kind of tiny hypodermic needle. Moreover, when the trichome breaks, its cytoplasmatic content leaks toward the external environment, so practically being “injected” into the animal epidermis.

It's interesting to notice that calcium and silicon are often present together and in inversely proportional concentrations in living systems. In the bones, for instance, silicon, fundamental for tissue calcification, is mainly bound to the newly formed bone matrix: as calcium binds to the matrix, the silicon concentration decreases, so much that the silicon concentration in the completely calcified bone tissue is minimal.

Nettles provide a very durable textile fiber similar to that of flax. A green dye can be obtained from the leaves and stems and a yellow one from the roots. The juice and a decoction of the plant can be used to curdle milk.

Properties

Temperature and taste

Nettle taste is primarily sweet and salty, and secondarily pungent, bitter and slightly astringent. The pungent taste is more evident in the fresh herb (before tasting it, pay attention that the herb is well withered or pounded, so that the hairs have softened and lost their sting), while the sweetness and bitterness can be tasted more easily in the tincture.

Within the western tradition, nettles are considered cooling and drying (see for instance [HerbRem]). The ancient authors (e.g., Matthioli, Durante and Gerard) consider them slightly warming (it doesn't reach the first degree of hotness [Gerard]) and drying instead. Castore Durante probably describes its *temperature* (or *nature*) in the best possible way:

"It does not warm too much: but it's composed of very subtle parts, & although being hot outside, & pungent, its burning quality lies on the surface of its fronds, but its cooling virtue is hidden in its interior." [Durante]

This means that the plant associates a certain degree of hotness, mostly connected to the ability of its surface to sting and inflame (and this reflects however into the "overall" taste and in the stimulating effect of the plant), to a decidedly more cooling action. The fact that nettle has "opposite" properties is very interesting, because it gives the plant the ability to act bivalently: indeed, it's stimulating and cooling at the same time, being adapt to both "hot" conditions (e.g., inflammation and fevers) and conditions characterized by "heat" deficiency, and in neither cases it appears excessive, inasmuch as each of its qualities is mitigated by the contemporaneous presence of the other one. We say that nettles are **ambivalent** with respect to the heat degree, with a slight prevalence of heat. Nettles are more pungent when in bloom, so if we prefer a higher heat degree we can collect them when blooming.

The seed, too, is sweet, salty and slightly pungent (more than the aerial parts); it's hot and dry in the second degree. According to the Chinese Medicine, nettle seeds enter the Kidney and Liver channels and they have the function to supplement Qi, benefit the kidney and engender essence. Nettle seeds are indicated for Kidney Qi vacuity and depleted essence leading to lethargy, fatigue, loss of appetite, weight loss, muddled thinking, low sex drive, etc. The combination of sweet and slightly bitter flavors is common among the supplementing herbs like ginseng: sweetness nourishes, while the slight bitterness gently drains in order to prevent stagnation from the supplementing action of sweetness. Nettle seed is indicated when the Kidney Qi is too weak to draw the breath (or the Lung Qi) in and down, reason why the patient must sit up straight in order to breathe. [Garran]

Signature

Nettle, traditionally, is considered a Martial plant, because of both its “pungency” and its activity: acute, violent, reddening, inflaming, intense, purifying and acting upon blood formation (see also [Angelini, Junius, Culpeper]).

The secondary signature of nettle is Venusian, because of its peculiar action upon kidneys and adrenals and of its ability to purify the body and to treat rheumatism and gout (thanks to the exaltation of Saturn in Libra; see also [Angelini]).

Tissue Phases

Urtica dioica: 4 (fibrosis), 6 (disorganization) [Dewit-Leunis]

Urtica urens: 2 (reaction/inflammation), 3 (deposition), 4 (fibrosis) [Dewit-Leunis]

Actions and indications

Humoral actions

From the taste and nature (or *temperature*) of the plant we can infer the principal actions of nettle:

- Nettle is **sweet**, so it has a supplementing (nourishing), moistening, demulcent and harmonizing action, and may alleviate spasms, pains and convulsions. Being moistening and nourishing, the sweet taste supplements body fluids², providing the tissues with the correct moisture and nourishment, reason why it is adapt to the conditions of dryness and undernourishment (or atrophy) of tissues³. So, nettle **supplements the body fluids** (it is a **Phlegm tonic** or a **nourishing tonic**).
- Nettle has a subtle **salty** taste⁴: this taste softens the tissues and the thickened fluids⁵, and frees the bowels. In small amounts the salty taste moistens the tissues and the body, while in larger amounts it promotes evacuation (and consequently dries). The slight saltiness of nettle contributes to its ability to moisten the tissues (and so to supplement the “correct” fluids), while, at the same time, makes the herb apt to soften the perverted ones (that is, accumulated or thickened fluids), making their removal easier. Indeed, nettle acts on both sticky mucus (e.g., bronchial catarrh) and mucus that has “hardened” even more because of a certain melancholic component (calculi, polyps, cysts, and so on)⁶. So nettle **prepares perverted fluids** (possibly also hardened by some melancholic components) **for removal**.
- Nettle contains a significant amounts of Silicon⁷, Iron and Calcium and Magnesium salts that are able to supplement the correct Melancholy; so, we can say it is a **Melancholy tonic**. The plant has a direct action upon the Spleen, the “great Stone”, the organ that, according to

2 The *Phlegm* of humoral medicine.

3 When the tissues lack correct Phlegm, they appear undernourished, withered and dry. Phlegm also “includes” the soluble sugary, salty, fatty and proteinaceous components of body fluids.

4 That is, not a decidedly saline taste, like that which can be found, for example, in halophilic plants and algae.

5 The thickened Phlegm of humoral medicine.

6 Such melancholic component, from a humoral point of view, can result from the combustion of Phlegm that, at first simply sticky, becomes more and more dry and “hard”: this is known as *malankholia balghami* (that is, Melancholy produced by the combustion of Phlegm) within the context of the Unani-Tibb medicine.

7 The Silicon element, too, is able to normalize Phlegm and to promote the expulsion of toxins.

the Hippocratic-Galenic medicine, administrate the melancholic humor (see [Culpeper, Durante, Fuller, Mattioli], but also [Boericke, Clarke] about *U. urens* in homeopathy).

- The **slightly bitter** taste of nettle stimulates the secretion (and so the excretion) of fluids and tends to be *abstersive* (cleans while drying) and to “alterate” (in the direction of an amelioration) the metabolism burdened by wastes (especially those of phlegmatic and phlegmatic-bilious nature), stimulating the elimination of the latter and restoring the correct operation of body. Plants that do this are called **alteratives**. Indeed, as we will see below, the alterative action of nettle is also due to its ability to tonify the excretory organs (first among them, the kidneys and the liver). Its slight degree of bitterness drains gently and prevents any possible stagnation due to the tonifying action of the sweet taste; moreover, bitterness also contributes to the slight evacuating action already due to saltiness.
- It’s **slightly astringent** and this confers it the ability to contract body tissues and to inhibit fluid loss, so reducing transpiration, tissue relaxation and ptosis. For this reason, nettle is indicated for hemorrhages, leucorrhea, diarrhea (also mucous), excessive transpiration, and when the intestine, uterus and blood vessel walls need to be toned up. This makes the plant useful, for instance, in case of *leaky gut syndrome*, uterine bleeding or prolapse, in the post-partum period, in case of blood pressure problems (nettle modulates the tone of the blood vessels walls) and hemorrhages (even internal ones).
- The **slight pungency** of nettle makes the plant **stimulating, diffusive and diaphoretic**, able to reactivate the metabolic functions when these have “cooled off” and slowed down (especially at the level of kidneys, liver stomach, and pancreas), to move and regulate energy and matter (especially body fluids, lymph and blood included), to resolve infections, putrefactions, the syndromes caused by external factors (fever, colds, etc.) and the blood stagnations (including bruises). The diaphoretic action is strongest when nettle is taken with a hot liquid (i.e., as a hot herbal tea). Nettle is decidedly more pungent when fresh, so much that it may be used as a **rubefacient**, that is, to counter-irritate the tissue it touches, incrementing the superficial circulation and the local tissue metabolism: for this reason, fresh nettle has been traditionally used to gently whip the skin in order to alleviate rheumatic pains and to “awaken” numbed or paralyzed body parts. The nettle tincture, too, has a stimulating action but, unlike the fresh plant, it is not irritating. So, nettle has a **supplementing action upon the caloric aspects of the body**. Moreover, pungency allows nettle to put the fluids, already prepared for elimination, in motion and to expel them from tissues by means of the lymphatic system.
- Nettle is also a **blood tonic**, since it nourishes the melancholic aspect of blood, regulates its liquid and caloric components, supports its flow (thanks to pungency) and keep it within the vessels (thanks to astringency). According to some authors (for instance, [Tierra]), it cannot be considered a blood tonic *in the sense of TCM*, too, because it is too “eliminative” (diuretic and alterative) to fully accomplish such a function.

The nettle seeds have similar taste and qualities to those of the aerial parts, but they are sweeter and decidedly more pungent (even if the degree of heat is not high), and so their action is more nourishing, supplementing and diffusive (see also [Garran]).

An important feature of nettle is that it has opposite actions and qualities at the same time:

- it has a slightly hot nature and, at the same time, it's cooling; indeed, for instance, it's stimulating but also eliminates the phlegmatic-bilious wastes (it has an ambivalent action upon Yellow Bile);
- it's nourishing and, at the same time, "eliminative" (alterative);
- it's diaphoretic (increases perspiration) and astringent (limits fluid loss);
- it supplements the correct Melancholy and Phlegm but, at the same time, helps to reduce the corresponding perverted humors, since, as we have seen, it treats indurations (calculi, polyps, cysts, but also bruises) and accumulated or thickened Phlegm: we will say therefore that is a *regulator* of Melancholy and Phlegm.

The plants that are able to exert "contrasting" effects (we more correctly say these plants have *bivalent* or *ambivalent* effects) are particularly important in herbal therapy, because, on the first place, they can be used in multiple contexts and, secondly, because, instead of inducing or limiting certain body functions, they are rather able to "fine tune" them, reducing a function that is too activated or stimulating a function that is reduced.

So, we can summarize the main actions of nettle as follows:

- it *regulates* Phlegm and acts, at the same time, as a nutritive tonic and as an alterative, stimulating the removal of phlegmatic and phlegmatic-bilious wastes and stagnations, even those "hardened" due to a certain melancholic component;
- it *regulates* Melancholy (also acting upon the Blood);
- it *stimulates* the metabolic functions in general.

Moreover, nettle is a kidney *trophorestorative*⁸ (see below the paragraph "*Kidneys, adrenals and urinary tract*").

The ability to supplement Phlegm and Melancholy, together with the interesting nutritional profile, makes nettle particularly suited for deficiency conditions: undernourished, thin, weak, pale, emaciated people that lack vitality. It reinforces the connective tissue, supports the protein metabolism, treats the deficiencies of iron and corpuscular components of blood, stimulates milk production.

On the other hand, it can treat excess conditions as well, particularly those of Phlegm and Phlegm-Bile excess (according to the TCM, the former corresponds to the Damp or Phlegm patterns and the latter to the Heat/Dampness patterns). In these conditions tissues are swollen due to fluids more or less "thickened", and a concomitant inflammation may also be present: in these cases, nettle drains the excess fluids while "quenching" the tissue heat. Nettle can therefore be used to treat the so called "*bad blood syndrome*" and its symptoms: chronic skin diseases, low grade infections (chronic but not overly intense), accumulation of Phlegm in tissues, digestive problems and liver "sluggishness".

According to some authors ([EvolHerb, Riley]), nettle is also effective on choleric people that tend to have outbursts of anger, with red, bloodshot eyes, red face, general irritability, and frustration⁹.

⁸ That is, a remedy that nourish a specific organ or system and restore both its structure and function. In this sense, trophorestoratives are similar to the Yin and/or Blood tonics according to the TCM.

⁹ These symptoms may correspond to some TCM syndromes, from Liver Qi stagnation to Liver Fire raising.

The seeds have an anti-enuretic (they treat “*bed wetting*”) and expectorant action; are indicated in case of cough (Dioscorides recommend to take them macerated with honey in wine); restore the kidney functions and are really useful in chronic renal failure (in clinical practice, they have prevented resorting to dialysis in several cases). In the latter case, the dried or tinctured immature seeds are the best [Wood].

For all these reasons, nettle is an extremely versatile herb, so much that David Hoffman, a well know Medical herbalist, says: “*When in doubt, try nettles!*”

Tropism

Even though nettle has an important action on the whole body, it nevertheless has a particular affinity for some specific organs, tissues and systems, among which: kidneys and adrenals, spleen, liver, stomach, pancreas, blood, epithelia (skin, mucous membranes, blood vessel walls), prostate and uterus.

Clinical actions

The clinical actions of nettle derive from the humoral actions. Nettle is a nutritive tonic, a kidney trophorestorative, a blood tonic, a metabolism stimulant, an alterative, diuretic, hemostatic, galactagogue, emmenagogue, analgesic, vulnerary, antiallergic herb.

Specific indications

Mind

- *Mental dullness, lack of concentration and mental acuity* [Wood]
- Memory lapses [Wood]
- Dead fish dullness of the eyes, without luster, drooping eyelids [Wood]
- Tired, hard to get out of a chair and get going; rises with a sigh or grunt, but stays on task once activated; begins the day slowly, hard to stop at the end of the day [Wood]
- Yawning, sighing, sleepiness [Wood]
- Mental dichotomy: calm, relaxed, easy, euphoric, witty people; or, rather, detached, separate, unsympathetic, irritable at work, and fearful, with dreams of panic about survival [Riley]

Cardiovascular system and blood

Nettle (aerial parts) has a peculiar action on blood, since it is able to restore a low iron blood level and a low concentration of red cells, neutrophils and lymphocytes [De Vico, Juma, Saeidi]. It increases albumin and the total protein level in serum [De Vico, Saeidi]. It has an ambivalent effect on blood pressure, since it is able to treat both hypotension and hypertension. It reduces platelet hyperaggregability [ElHaouari, Mekhfi].

- *Iron deficiency, low red cell count*

- *Low blood pressure*; with fainting on raising [Wood]
- High blood pressure
- Low total protein or low albumin in blood
- Antihemorrhagic

Respiratory system

- Mucus, bronchitis, asthma; especially *with grayish-pale skin color* (aerial parts, plant juice, roots) [Durante, Gerard, Giannelli, Mattioli, Wood]
- Pleuritis [Gerard]
- Cough (especially from cold), whooping cough [Durante, Gerard, Giannelli]
- Nasal polyps (leaves or seeds ground and put into the nose) [Culpeper]
- Inflammations of the throat; uvula relaxation (as a gargle) [Culpeper, Gerard, Mattioli]

Digestive system and metabolism

Nettle (aerial parts) has a tonic and slightly laxative action on bowels; it treats intestinal inflammation, removing any irritative stimuli that may cause it [Iozzi]. It softens the bowel "hardness", resolves meteorism and mitigates spasms [Giannelli]. Nettle stimulates biliary, pancreatic and enteric secretions, improving digestion (its action is also due to small quantities of secretin). It's a mild stimulating laxative.

- *Diarrhea, dysentery, also chronic ones; mucus in stools* [Wood]
- Intestinal inflammation, intestinal gas [Giannelli, Mattioli, Iozzi]
- Diabetes [Grieve, HerbRem]
- *Gout*; with pains at the right deltoid [Clarke, Culpeper, Driope, Grieve, HerbRem, Reckeweg, Schwabe, Vermeulen]

Kidneys, adrenals and urinary tract

Nettle has an important and broad-range action upon these organs, since it stimulates diuresis (it's a mild diuretic that expels sodium, urea and urates), eliminates urinary calculi (whichever be their location), treats infections (especially the long lasting ones) and tones up tissues. It's a renal *trophorestorative*, useful in case of kidney failure, dialysis, any damage (both structural and functional) to the kidneys, and adrenal deficit or "fatigue". Any part of the plant has a trophorestorative action on kidneys, but the immature seeds are best. The seeds, especially when used fresh, can induce a certain activation of the nervous system: an anecdotal case has been reported of a man that was not able to sleep for three consecutive days after ingesting a tablespoon of seeds [EvolHerb]. It's important to know that the nettle seeds (either fresh, dried or tinctured) may give different results in people: some people may find them strongly activating and need to use a very low amount, other people may be less sensitive and need greater amounts.

- *Kidney failure, dialysis* (seeds) [Wood]
- Edema [Wood]
- Urinary calculi; with colic. Gravel. [Giannelli, Wood]
- *Chronic or recurrent inflammation of the bladder or the urinary tract; with abundant mucus discharge* [HerbRem, Wood]
- Bed wetting

Liver

The whole plant (aerial parts and seeds) stimulates the detoxification activity of liver. Some extracts are able to modulate the genic expression of the detoxifying liver enzymes. Specifically, it has been experimentally demonstrated that the seeds of *Urtica urens* are able to stimulate the induction of some isoforms of the P450 cytochrome [Hizlan]: it's important to keep this in mind in case of simultaneous intake of drugs and nettle seed dry extracts for extended periods of time. Nettle supports the hepatic protein metabolism. In animals, it bolsters albumin biosynthesis. [De Vico, Saeidi].

- Jaundice (root or strong decoction) [Hill, Quattrocchi, Wesley]
- Hepatic draining
- Scarce hepatic production of proteins

Genital system

Nettle (aerial parts) tonifies and stimulates the uterus, is emmenagogue and treats heavy menstrual bleeding. It is useful during the post-partum period, in case of uterine atony or prolapse and of dysmenorrhea/amenorrhea. Nettle treats the inflammation of uterine appendages [Iozzi]. Nettle root treats benign prostatic hypertrophy. The seeds are aphrodisiac.

- Aphrodisiac (seeds drunk with raisin wine or must) [Durante, Gerard, Mattioli]
- Male genital system:
 - Impotence, difficulty producing and keeping an erection; with low blood pressure [Wood]
 - Benign prostatic hypertrophy (root)
- Female genital system:
 - *Hypermenorrhea; anemia from blood loss* [Wood]
 - Premature cessation of menses [Wood]
 - Scanty periods; amenorrhea, dysmenorrhea (especially if taken with myrrh); "hysteria" [Culpeper, Durante, Mattioli]
 - Anemia and low blood pressure during pregnancy [Wood]
 - Deficient lactation [Wood]

- Uterus prolapse; “opens the mouth of the matrix” [Mattioli]

Connective tissue and extracellular matrix

Nettle (aerial parts) is able to drain the phlegmatic-bilious and melancholic toxins from the connective tissue (also thanks to the presence of salts and Silicon), and particularly the residuals of the protein catabolism (predominantly urates, see also [Fuller]), and to optimize protein synthesis, resulting in a “cleaning” and tonifying effect on the connective tissue and extracellular matrix. In case of wounds, it promotes collagen formation and stimulates the formation of capillaries, but minimizes the formation of fibrous tissue. Counteracts osteoporosis and the protein degradation of cartilages in case of rheumatoid arthritis. It inhibits (in vitro) some extracellular matrix proteolytic enzymes (elastase, collagenase) [Bourgeois].

Skin

Nettle (aerial parts) counteracts skin diseases that manifest with raised, red patches (wheals) that burn and/or itch (hives, insect bites, cold sores, etc.). It is a good vulnerary, and promotes the correct wound healing.

- Cold sores
- Rashes, hives, insect bites; *raised, red and burning or itching; with tendency to scratch in a voluptuous way*; in case of insect bites, the skin reaction is much larger than the bite (tincture for internal use, or infused oil or tincture for external use).
- *Burns*; with excess protein burdening the kidneys (tincture: as is, for internal use, or diluted with water for external use, on bandages) [Fuller, Wood]

Musculoskeletal system

- *Atrophy and paralysis of muscles (voluntary or involuntary)*; even as a sequela of anesthesia (tincture, whipping with fresh nettles) [Wood]
- Osteoarthritis, rheumatoid arthritis
- Rheumatism [Driope]
- Osteoporosis; possibly with urinary calculi
- Sciatica [Culpeper]

Other

- Hypothyroidism
- Uricemia, bilirubinemia
- *Fever, intermittent fevers, malaria* [Fuller, Grieve]

- Allergy, allergic rhinitis (especially *freeze-dried powder* or tincture)¹⁰ [HerbRem]
- Vulnerary: wounds, skin and internal ulcers, gangrenes, fistulas, abscesses; that heal poorly or with pus; stops hematemesis [Culpeper, Durante, Giannelli, Mattioli]
- Small tumors (growths), mumps [Durante, Mattioli]

Differences between the various species of nettle

The various nettle species have more or less the same effects, so they may be used interchangeably. However, some subtle differences exist.

For instance, according to Dewitte and Leunis, *Urtica dioica* and *Urtica urens* have more or less the same properties, even though the former, with a hyper- $\beta\gamma$ -, hyper- γ - and hypo- γ -eu-globulinic profile, is indicated in the fibrosis and disorganization phases, while the latter, with a less evolved profile, is indicated in the reaction, deposition and fibrosis phases [DewLeunis].

According to John Gerard, among the (European) nettle species, the most efficacious is Roman nettle (*Urtica pilulifera* L.) [Gerard].

Methods of administration

Nettle can be taken as a herbal tea, decoction, macerate, hydro-alcoholic tincture or *freeze-dried powder*. It can also be used as food.

Suggested dosages:

- herbal tea or decoction: 20-30 g (dry leaves), 6-9 g (dry root)
- dry seeds: from 1 teaspoon up to 2 tablespoons a day; start with low doses: it may prove very exciting in some people
- hydro-alcoholic tincture of aerial parts, roots, seeds: from 1 drop up to 2-3 ml, up to 3 times a day (or more, in case of aerial parts tincture); start with low doses of seeds tincture.

In case of hyper-reactivity, in order to prevent an overstimulation, it is advisable to use a low dosage of nettles, for instance, 1-5 drops of the tinctured aerial parts, up to 3 times a day, incrementing gradually the dosage only if needed.

Contraindications and collateral effects

Nettle is generally very well tolerated, except for some minor gastric troubles.

Some people may experience headache after drinking a string nettle tea. [HerbRem]

Being drying, nettle may accentuate a pre-existing systemic dryness.

As a diuretic herb, it can interfere with diuretic drugs. The seed dry extracts, used for sufficiently long periods (> 14 days), can interfere with the plasma level of some drugs.

¹⁰ In particular, nettle has a specific indication for allergies with red nose and eyes and abundant loss of "subtle" transparent fluids (tearing and dripping nose).

Parts used and their collection

All the parts of the nettle plant are used in therapy: leaves and apical parts collected before flowering, flowering aerial parts (used mostly in homeopathy), seeds (mostly collected when unripe) and roots.

The leaves and apical parts are collected just before flowering. The stems can be cut at the ground level, gathered in bundles (ten stems per bundle maximum), and hung to dry upside down, in a shady, airy and dry room or in a dryer at low temperature. Once dried, the leaves and the apical parts must be separated from the stems that are discarded since they are fibrous.

Alternatively, the leaves and apical parts (collected without the fibrous stems) can be used to make liquid extracts (hydro-alcoholic tincture, vinegar tincture, etc.).

The flowering aerial parts are collected, obviously, when the plant is in full bloom and before the flowers wilt or the seeds start forming. They are mainly used to make an alcoholic tincture.

The seeds should be collected when they are still unripe but already “full”: the floral stems that bring the female flowers before and the seeds after are directed upward when the plants are in bloom, but bend decidedly downward because of the weight of the seeds when the latter are “full”: this is the best moment for collecting them. One can choose to collect only the seeds, or to collect the entire flowering stems or the whole apical part of the plant that carries the floral stems and then removing the seeds at a later time. The seeds so collected can be dried or used to make a tincture.

The roots must be collected during the autumn.

The aerial parts of nettles always host a lot of insects so it's important to remove them before drying or extracting the herb. This can be easily done by putting the collected parts upon a flat surface (table, floor, etc.): normally, the insects go away by themselves in a short time.

For tincturing, the drug/solvent ratio and the alcoholic proof vary a lot according to the traditions. Tinctures can be prepared starting both from fresh and recently dried material: obviously, in the former case the obtained tincture is richer and more effective.

The mother tincture is prepared with fresh plant material, extracting with a 45% alcohol solution (90 proof).

In the American tradition, the drug/solvent ratio (herb weight expressed in oz. and alcohol volume in fl. oz) from 1:2 to 1:5 for the leaves (either fresh or dried), and an alcohol concentration in the 50-90% range (100-180 proof); for the roots and seeds, the drug/solvent ratio is usually 1:3-1:5 and the alcohol concentration about 25-30% (50-60 proof).

Homeopathy

Urtica urens

[Boericke, Clarke, Riley, Vermeulen]

Urtica urens is the only *Urtica* species that has been proved homeopathically. Clarke, however, reports that the *U. dioica* and *U. Urens* has similar if not identical properties [Clarke].

The symptoms reported by Riley are often quite different from those reported by other authors; for this reason, they are separated from other symptoms and specifically referred to as “(Riley)”. Only Riley posted mental symptoms.

CLINIC

Agalactia. *Lithiasis*. Profuse discharge from the mucous surfaces. Enuresis. Urticaria. *Disorders of the Spleen*. *Adverse effects from eating shellfish*. Symptoms recurring annually. Gout and uric diathesis. Promotes elimination. *Rheumatism associated with urticarial eruptions*. *Neuritis*. Dizziness. Whooping cough.

POLARITY OF ACTION

Breasts. Genitourinary organs. Liver. Spleen. Skin. Joints.

Variable side: pains more on the right side, but also on the left hypochondrium (spleen); left pupil more dilated than right.

PULSE: Accelerated (“Sets all my pulses beating”, Clarke).

MOUTH: N / A.

Mind

- Mental dichotomy: calm, relaxed, tranquil, euphoric, witty or detached, separate, unsympathetic, irritable at work, and fearful, with dreams of panic about survival. (Riley).
- Anger. Clairvoyant experiences. Aversion to company and estrangement. Difficult concentration with wandering thoughts. Confusion. Dullness as if too tired to think or dulled senses. Detached from self or the situation and indifference. Dreams. Dreams of killing or murder, of being betrayed or estranged. Fear of poverty. Irritability when working. Quarrelsomeness. Relaxed and peaceful as from drinking. Euphoric. Laughing and witty. Weeping from disappointments, but ameliorated when walking outside. Feeling of terror and fear of survival. Yelling. (Riley)

General

- Pains:
 - *stinging / burning*.
- Uric acid diathesis; lithiasis, uricemia. Acute *gout*. Rheumatic and gout pains:

“Burnett concluded that *Urtica* was a remedy for acute gout, which would cut short the attack ‘*in a safe manner*, namely, by ridding the economy of the essence of the disease product, its actual suffering-producing material.’ He usually ordered five drops of the tincture in a wineglassful of quite warm water every two or three hours. Under its action the urine became more plentiful, dark, and loaded with uric acid” [Clarke]
- Pain in the right deltoid (from gout).

- Burns:
 - [especially after very hot water] with a burning sensation and violent itching.
 - First and second degree burns:

“Old burns, also! that have never healed. One small boy came up with terrible scars and contractions on thigh, and with considerable areas still ulcerated. These began to heal rapidly when compresses of *Urtica* were applied. And a cottage woman, one remembers, where an old burn just above the wrist had refused to heal, did heal promptly under the magic touch of a stinging nettle compress.” [Tyler].
- Angioneurotic edema [Apis].
- Energy increased with less need to sleep. Lassitude during the daytime. Weariness after menses improves. (Riley)
- Aching bones and sensitivity to pressure and touch. (Riley)

Local

- *Skin*:
 - *Itchy swelling*, stinging, burning, redness (including on face, limbs, shoulders and chest).
 - Dryness. Pimples or skin eruptions that are itching. (Riley).
 - *Urticaria*:
 - high grade:
 - & Rheumatism.
 - & Nematodes (*Enterobius vermicularis*).
 - from allergy to *shellfish*; cheese; strawberries; milk.
 - [raised skin with a white central area and a red areola]:
 - Unbearable itching and burning.
 - > *rubbing*.
 - Rash and itching > lying down.
 - < Getting wet; from violent efforts; slight warmth.
 - alternating with rheumatism (urticaria during attacks of rheumatism).
 - lumpy (*Bov.*)
 - Insect bites:
 - & allergic skin reaction.
 - & Burning itch and severe swelling of an area much larger than the area of the sting [*Ledum palustre* has a limited swelling].
 - Cold sores with burning sensation and stings.
 - Erythema.
 - Vesicular erysipelas.

- *Chickenpox (Dulc.)*.
- “Profuse discharge from mucous surfaces” (specific indication, Eclectics).
- *Head:*
 - Headache, with spleen pain. Vertigo, with a *feeling of fullness* in the head. Rush of blood to the head, and dulling.
 - Pain in the forehead or temples. Dull head pain over the eye or at the temple. Throbbing pain on the forehead, temples, or left side, and on waking. Pains that are better from eating, lying, or from pressure. Head pain during heat. (Riley)
- *Eyes:*
 - Pain in the eyes as from a blow, with sensation as from sand in the eye. Weak and sore eyes.
 - Dryness or lachrimation from tiredness or of the left eye, making it difficult to keep the lids open. Burning pain or scratching sensation. Heaviness of lids. (Riley)
- *Ears:*
 - Itching in the ear better from boring. Noises in the ear like humming or ringing with cold symptoms. Piercing pain causing them to gasp with pain.(Riley)
- *Nose:*
 - Congestion of the nostrils on both sides. Dry and itching inside. Discharges that are watery or blood-streaked. Sneezing with coryza. (Riley)
- *Smell:*
 - Odors noticed more. (Riley)
- *Face:*
 - Aphthae or cracks on the lips. Pimples on the chin that itch. Itching on the chin or cheeks. Red discoloration about the eyes. Swollen face. (Riley)
- *Mouth:*
 - Dryness of lips. Swelling of gums on the left. Ulcers on the edges of the tongue. Vesicles on the lips or tip of tongue. Fasciculations¹¹ of the tongue. Sore tenderness of the tongue. (Riley)

¹¹ Fasciculations are involuntary rapid muscle twitches that are too weak to move a limb but are easily felt by patients and seen or palpated by clinicians. Most healthy people experience fasciculations at some time, especially in the eyelid muscles. Isolated fasciculations without other neurologic findings are benign.

- *Teeth:*
 - Aching pain in the molars. Piercing pain in teeth when walking. (Ridley)

- *Throat:*
 - Burning in the throat; with hawking of scant frothy mucus; which causes cough.
 - Swollen and tender left cervical glands. Sensation of a plug on swallowing. Thick, sticky, green mucus. Scratching pain. Sore pain on swallowing. Swollen sensation making it difficult to drink. (Riley)

- *Chest:*
 - Hemoptysis with minimal pulmonary effort.
 - Tight sensation above the nipples. Desire for deep breathing, as if the chest is numb. (Riley)

- *Respiratory system:*
 - Whooping cough. Scarce and foamy sputum.
 - Sensation as if breath lost and unable to inspire deeply. Difficult inspiration. Sighing. (Riley)
 - Thick, sticky, green mucus. (Riley)
 - Yellow mucus. (Riley)
 - Productive cough with expectoration. Cough from breathing deeply or mucus in throat. (Riley)

- *Back:*
 - Pain between the spine and the scapula as from a pulled muscle. (Riley)

- *Stomach:*
 - Nausea, with burning in the throat. - Vomiting from suppression of urticaria.
 - Decreased appetite. Acid reflux. Full sensation. Many symptoms of nausea. Nausea alleviated by drinking cold milk, eating, warm drinks, or air or walking in open air. Nausea in the abdomen, after eating, or on motion. Thirst that is increased. Heavy sensation during the nausea. (Riley)

- *Abdomen, rectum and anus:*
 - Painful abdomen that sounds as if it were full of water on pressure. Pain in the left hypochondrium. Chronic diarrhea with large mucus secretion. Anal burning and itching.

- Distention that is uncomfortable. Sensation of fullness or heaviness. Cramping pain from rumbling flatus or in the navel region. Sore pain in the navel region. Pain in the umbilical region. Pain that is pressing, sore, or cramping. (Riley)
- Diarrhea with urging. Urging before stool or preceding diarrhea. (Riley)
- Acrid or burning stool. Hard. Loose. Frequent. Yellow. (Riley)
- *Urinary system:*
 - Suppressed urine; stranguria; with edematous swelling of the trunk. Lithiasis, gravel. Bladder bleeding.
 - Burning pain before urination improves. Frequent waking to urinate or urging at night. (Riley)
- *Male genital system:*
 - Itching of the scrotum, which keeps the patient awake at night and torments him the whole day; swelling of the scrotum; with stinging and itching sensation, with dryness.
- *Female genital system:*
 - Swelling of the breasts.
 - *Decreased milk secretion, agalactia;* after delivery, for no apparent reason.
 - Stops milk secretion after weaning.
 - *Pruritus vulvae*, eczema of the vulva; with violent burning and itching, stinging sensations and edema; dry, desquamating, fissured mucous membranes; with uncontrollable desire to scratch and sexual arousal due to itching.
 - Menorrhagia; intense uterine bleeding.
 - Leucorrhoea, with acrid or excoriating secretions, with itching.
- *Extremities:*
 - Rheumatic pains in limbs, wrists and ankles, <right arm. Pain in the right deltoid (from acute gout).
 - Clumsiness. Dryness of skin on hands and legs. Itching especially on the forearm, hand, patella, or legs that may be ameliorated by scratching. Painful tingling sensation down the front of thighs. Weakness of the right hip or left upper arm. Aching of the left upper arm extending to the elbow. Sore or bruised knee, calf, or hip. Sprained sensation of the hip. Pain in the calf or hip. Painful spasm in the hamstring with trembling. Pain from standing or ascending. (Riley)
- *Sleep:*
 - Drowsiness while reading.

- Sleepiness in the afternoon or daytime and must nap. Difficulty falling asleep at night. Waking at 2 or 4 a.m. or from shocks. (Riley)
- Warm on waking (Riley).
- *Perspiration*
 - On waking. Intermittent during the day. (Riley)
- *Fever:*
 - General heat on getting into bed, with soreness over abdomen. Gouty fever. Tropical fever.
 - Sensation of internal heat. (Riley)

MODALITIES

Sensations: burning, stinging, itching and soreness are the main symptoms. As from a blow in the eye; like sand in the eyes. Right arm muscle as bruised.

Timing: symptoms return annually (at the same season)

Aggravations: Cool/cold [snowy weather, fresh and humid air; application of water]. Annual. Burns. Stings. Suppressed rashes. Eating sea shellfish. After delivery. After scarlet fever. Night. After sleep (burning of the skin). During rheumatism. From the touch, lying on one arm. From violent exercise (hemoptysis). Physical activity (Riley).

Improvements: Rubbing. Lying down (hives; stomach ache does not change).

FOOD

Aversions: alcohol, spiced teas, sweets (Riley)

Desires: N/A

Aggravations: sea shellfish. Fish; bad quality meat.

Improvements: N/A

COMPARE: *Medusa; Nat. Mur.; Lac can.; Ricin* (decreased breast secretion); *Bombyx; Rhus; Apis; Chloral.; Astac.; Puls.* (urticaria); *Boletus luridus e Anacard.* (tuberous urticaria); *Lycop. e Hedeoma* (uricemia); *Formica.*

NOTES

Notes on humors

According to the Hippocratic-Galenic medicine, four humors rule the human body:

- *Bile* (or *Yellow Bile*), corresponding to the Fire element, responsible for all the caloric activities of the human body, both in a physiological sense (e.g., body heat) and in a pathological sense (fever, inflammation, etc.);
- *Blood*, corresponding to the Air element and to the physical blood;
- *Phlegm* (also called *Pituita* or *Lymph*), corresponding to the Water element, responsible for everything that is fluid in the body (body fluids, lymph, blood plasma, synovial fluid, cerebrospinal fluid, etc.)¹²;
- *Melancholia* (also called *Black Bile*), corresponding to the Earth element, responsible for everything that is hard and structured (bones, teeth, but also growths, polyps, stones, tumors, etc.).

Heat and body fluids are governed by Yellow Bile and Phlegm respectively. When there are no further specifications, the terms “heat” and “fluids” can be used, in this text, to indicate the corresponding humor.

The functioning of the whole body is governed by the mixing (*crasia*) of such humors: if the ratio between the humors is proper (we speak of *eucrasia*), the body functions at its best and the health is guaranteed; if they are blended improperly (we speak of *discrasia*), illness results.

A humor is defined *correct* when both its “quantity” and its “quality” are proper; when it prevails over the others, generating dyscrasia, it is said that it is *superabundant*, and when its quality is not appropriate it is said that it is *corrupt*. We say in general that a humor is *perverse* when it is overabundant or corrupt. In this text, in order to facilitate comparisons between different systems of medicine, we resort to an extension with respect to the classical conception and define a humor as “perverse”:

- when its “quantity” is not optimal, that is, it is excessive (superabundant humor) or deficient (deficient humor) with respect to the condition of eucrasia (the classical theory allows only excess; deficiency is due to the prevalence of another humor with opposite qualities), or
- when its “quality” is different from the physiologically appropriate one (corrupt humor)¹³.

An excess of heat in the body can overheat and “cook” the humors, altering their characteristics. Phlegm thickens and becomes more viscous, giving rise to the so-called *thickened Phlegm*. If the excess heat is important or lasts for a long time, all humors can end up “burning” (in this case we call them *adust humors*). When burned, humors always produce Melancholia. Unani-Tibb medicine provides four types of perverse melancholia produced by the combustion of humors: *malankholia damvi*, produced by the combustion of Blood; *malankholia safravi*, produced by the combustion of Yellow Bile; *malankholia balghami*, produced by the combustion of Phlegm (generally due to fermentation) and *malankholia saudawi*, produced by the combustion of “correct” Melancholia.

¹² In this sense, it is conceptually different from the *Phlegm* of Chinese medicine, which corresponds specifically to the *thickened Phlegm* of humoral medicine when it is located in the upper part of the organism.

¹³ Melancholia, for example, can be in excess with respect to the physiological condition of eucrasia (generating excessive structures) or in deficit (generating deficient constructions), but it can also be generated by the combustion of humors by heat (see below); in the latter case, it is always perverse (therefore it is perverse in quality rather than in quantity). In classical humoral medicine these three conditions are usually not so sharply distinguished from each other.

Phlegm is cold in the first degree and damp in the second and is a mobile and flowing humor. When coldness becomes excessive, however, the Phlegm can thicken and become viscous (cold indeed makes viscous), producing once again *thickened Phlegm*.

Phlegm itself, when it accumulates and stagnates for any reason (for example due to a lack of heat or an excess of Tension, see below), generates, by “compression”, secondary heat that can condense the humor and make it viscous.

Furthermore, in nature stagnant dampness favors fermentation and putrefactive processes, especially when there is concomitant heat. Also in the human body an accumulation or stagnation of Phlegm may cause the onset of fermentation or putrefaction (phenomena that today’s medicine generically indicates as *infections*), which are certainly supported by the natural heat of the body and by any secondary heat generated by compression of the Phlegm. Moreover, the fermentation and putrefaction generate further secondary heat¹⁴. All these phenomena are characterized by the coexistence of perverse dampness and heat, even if, to be more precise, they should be described as due to the presence of pathological dampness associated with a certain degree of perverse heat (it is therefore more correct to think of them as due to “heated” humidity rather than moist heat). From a clinical point of view, the disorders characterized by this humoral picture include the phenomena known as *putrefaction*¹⁵ which are manifested by the emission or collection of purulent material, often even hardened (e.g., abscesses)¹⁶.

The conditions described so far (thickened phlegm, adust humors, putrefaction) are perverse not due to an incorrect quantity of the humors, but because of their “bad” quality.

Tension

In this text, for the exclusive purpose of simplifying any comparisons between different systems of medicine (for example, Chinese and humoral), we add the pseudo-humor *Tension*¹⁷, which is responsible for the “functionality” of the whole body or its parts (e.g., the organs). In this sense, it corresponds to the *Qi* of Chinese medicine but also to other concepts, such as that of the *Four Virtues* (attractive, retentive, alterative and expulsive) of organs according to Galen (see for example [Giannelli]) and it can also be related to the *vasoconstriction* and *vasorelaxation* conditions of Physiomedicalism and to Matthew Wood’s *Constriction* and *Relaxation* tissue states [Wood].

Tension, defined as a *pseudo*-humor because it is not contemplated by the classical humoral theory, can be thought of as formally derived from Fire to which a sort of “constraint”, “limitation”, or “obstacle” has been applied. Like Fire, in fact, it is a form of “energy”, mobile in itself and activating; but whereas Fire tends to move only upwards and centrifugally, thus expanding indefinitely, the movement of Tension is more “structured” and so to speak “oriented” towards specific, defined forms and modalities. We can therefore see it as a kind of Fire to which a structuration (element of “terrestrial” nature) has been applied.

14 The fermentation and putrefaction processes are generally exothermic or generate a “hot” response from the human body..

15 Corresponding to the *toxic heat* of Chinese medicine. This condition also includes diseases characterized by macular or maculopapular eruptions (e.g., exanthematous diseases).

16 The conditions known as *Dampness/Heat* in Chinese medicine (which include, for example, problems often related to the urinary tract or gallbladder, some cases of jaundice, etc.) also fall within this picture.

17 Name borrowed from Matthew Wood’s tissue states model [Wood].

We can resort to an image taken from everyday life as an example. If we pour water on the fire, the latter goes out and the water disperses or evaporates. If we place a hard (i.e., cold and dry) element above the fire (for example, a terracotta or metal container) which prevents the water to directly “mix” with the fire, we are able to let the water heat up without dispersing, and to use it warm for specific purposes (for example, to cook food). By applying a cold and dry “obstacle” (the container) to the fire, we “functionalize” the heat that otherwise would disperse or make the water disperse or evaporate.

Tension can therefore be described, in a humoral sense, as derived from a sort of “functionalization” of Fire by a factor (a principle rather than a material cause) of a cold and dry nature. For this reason Tension is hot and dry, with a lower degree of heat than Fire (because of the cooling due to functionalization).

Even Tension can be correct or perverse and, in the latter case, it can be perverse both in quantity (excess or deficit of Tension) and in quality (think for example of the *Qi ni*, or *counterflow Qi*, of Chinese medicine). Given the correspondence, described above, of Tension with Qi, the various manifestations of perverse Tension will typically have a more or less specific correspondence in Chinese medicine (for example, “Tension deficiency” corresponds to “Qi deficiency”). In general, Tension imbalances correspond to Qi imbalances and/or to “Wind” (intended as a pathogenic manifestation).

An imbalance in Tension can also affect other humors, potentially making them perverse. For example, an excess or a stasis (stagnation) of Tension can prevent the body fluids from being moved correctly, generating stagnation of Phlegm and/or Blood; Tension stagnation can generate “compression” which in turn can produce heat (Chinese medicine speaks, for example, of “implosion of stagnant Qi” which generates Fire, understood here not as the element but as a specific manifestation of heat).

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