

Theoretical concepts of traditional European naturopathy and herbalism used in modern therapy

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Abstract

Traditional European Medicine as outlined in the *Corpus Hippocraticum* has two major therapeutic principles: a constitutional (holistic) therapy and a patient specific (in time, 'nature' and dosage) approach. The concept is often referred to as the doctrine of four humours. The available medication (mostly food and herbs) was analogously allocated to four categories: hot or cold and, in addition, wet or dry. Currently these concepts are still in use in naturopathy practise.

This literature study relates the classical European herb classifications to the evolutionary strategies of plant defence as described in chemo taxonomy and chemical ecology. It summarises the 'nature' of food and herbs as described in several medieval and renaissance herbals and compares the result with what is known of the role of secondary plant compounds in plant defence.

Keywords: European traditional medicine; herbalism; doctrine of humours; chemical ecology; cold-hot – wet-dry classification.

Introduction

Of all the (many) concepts that are still present in CAM practice in the Netherlands

- Concepts of 4 elements and temperaments (doctrine of humours)
- Doctrine of signatures
- Astrology (medicinal applications)
- Mesmerism / magnetism
- Shamanistic concepts
- Religious healing

I will talk today mainly about the concept of the doctrine of humours, and its meaning in current naturopathic herbal practice. In the European healing system astrology and the doctrine of signatures were additional aspects, whereas the shamanic and religious concepts are older. Although some of these concepts seem rather irrational there are increasing numbers of modern people who value them.

In the Netherlands and Germany, naturopathy draws strongly on the works of Hippocrates. These works are in fact not written by one person but by a group of physicians (in the period around 500-400 BC). For example the famous work *De natura hominis* is thought to be written by the son-in-law of

Hippocrates, Pólubos. The 58 works in the Hippocratic Corpus have in common a rational and empirical approach towards sickness and healing.

I refer to a study recently published by the Flemish professor Godderis (2005). He summarises the two major therapeutic principles that are lined out in the *Corpus Hippocraticum* (CH): a constitutional (holistic) therapy and a patient specific approach (in time, dosage and 'nature'). This is often referred to as the doctrine of humours. In this doctrine the world both outside and inside man is analysed as a result of certain processes, that were described as elements, but they are in fact the anchor points in a circular process, caused by two polarities working in opposite directions.

In *De natura hominis* several aspects of this doctrine are outlined, and other aspects were added later. It was in the post Aristotelian era (300-100 BC), but most thoroughly in the works of Galen 129-210 AD) that the concept ripened. From the "nature" of the elements you can see clearly that transformations take place until the end is the beginning: Wet-hot-dry-cold- and then –wet- again!

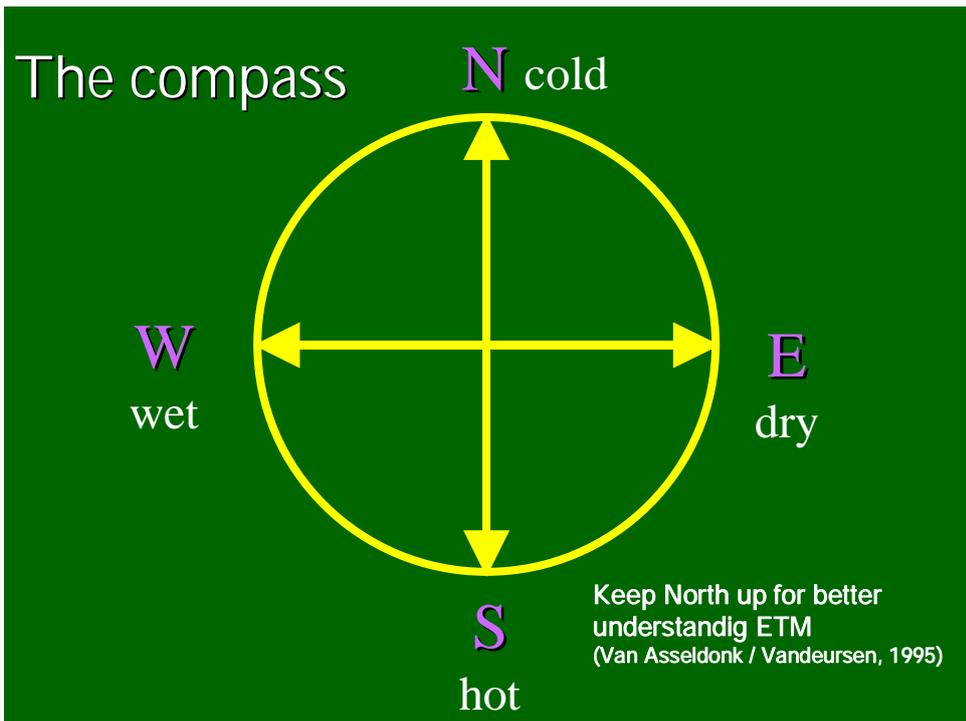
Overview of analogous relations between elements, humours, several natural processes and aspects of humoral medical diagnosis (slightly modified from Godderis, 2005; citing Herrlinger/Schöner, 1964).

Elements	AIR	FIRE	EARTH	WATER
Nature	Wet, hot	Hot, dry	Dry, cold	Cold, wet
Humour/temp	Sanguine	Choleric	Melancholic	Phlegmatic
Taste	Sweet	Bitter	Acid	Salt
Colour	Red	Yellow	Black	white
Age	Child	Youth	Adult	Old age
Seasons	Spring	Summer	Autumn	Winter
Daytime	Morning	Afternoon	Evening	Night
Winds	South (west)	East (south)	North (east)	West (north)
Gender		Male		Female
Organs	Hart	Liver	Spleen	Brain
Discharges	Nostrils	Ears	Eyes	Mouth
Planets	Jupiter	Mars, Sun	Saturn	Venus, Moon
Fevers	Quick, superficial	Short, violent	Slow, intense	Tardy, superficial
Urine *	Thick, red, turbid	Thin, red, clear	White, turbid	White, clear

* This item stems from *De liber Magistri Avicenna & Herbarijs*, ed. Vandewiele, 1965

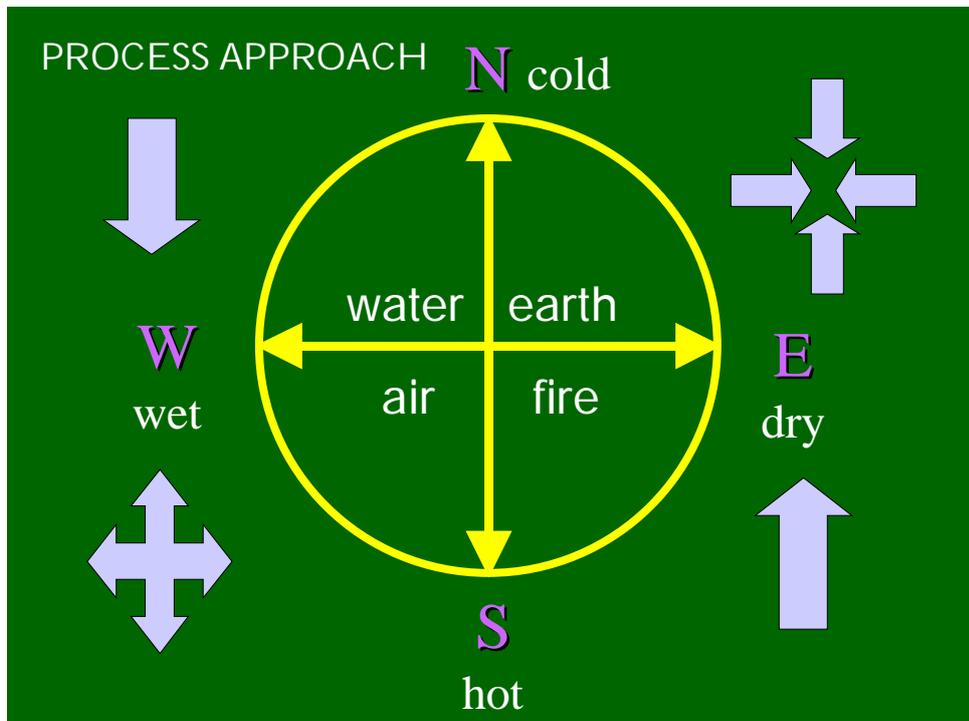
In the Middle Ages, ever more concepts were fit into this scheme; the most remarkable perhaps were the characters of the four apostles; but also zodiac signs, certain types of music, etc.

Several years I have been teaching about the four elements and the doctrine of humours to naturopathy students. When you use illustrations (like these), be it old or new; the position of the elements differs; sometimes the cold element is up, or down, left or right. Like in old land-maps, where North is not always at the top of the page.



So at a certain moment we decided with a Dutch group of naturopathy teachers to be consistent in using the contemporary way of holding a compass (with north on top) whenever the aspects and relations of elements, humours and temperaments were discussed. This was quite clarifying.

Some examples of the processes and polarities involved:

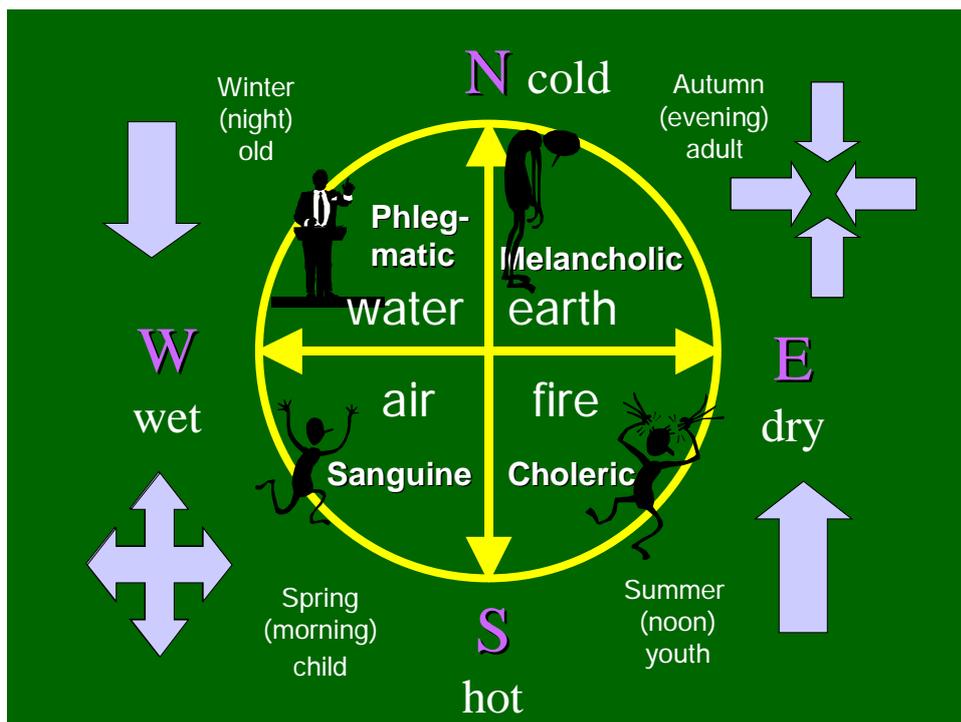


The polarity is not only between cold and hot, or between the expanding force of AIR and the concentrating force of EARTH; but also between the descending force of WATER and the ascending force of FIRE.

The use of the compass made it easier for students to understand what season is related to what wind direction. For example the southern wind comes with the spring with its moist and warmth.

We saw before that the double polarity with its transformations is a model for the natural rhythms of days, seasons, lifetimes.

Now, having more grip, both on the polarity and the circularity in this theoretical framework, it's simpler for students to understand the doctrine of humours. The core message of this doctrine is that people live under the ever-changing influence of nature's elements, leaving them vulnerable to imbalance. When they are unbalanced they are named after the process that has gone in excess: phlegmatic, sanguine, choleric, melancholic. But note, it is normal to be more melancholic in the evening (or in the autumn) than in spring. And if so, it will be food and herbs, that have absorbed the same kind of influences, that can help people to re-balance. Even Bill Gates seems to know certain psychological aspects of the temperaments, as Microsoft office provides us with the black figures (illustration).



Turning back again to the age of Galen. His work in explaining the doctrine of humours was one thing; but maybe more important was that he made food therapy and phytotherapy a rational science within this line of thought. All Medieval and Renaissance herbals I have studied, refer to him and/or to Avicenna, for the *nature of herbs*, although authors add discussion or even corrections according to their own experience. This *nature* of herbs was given simply as being hot OR cold, both could be in the 1st (this is a very low strength) until the 4th (the highest) degree. And, at the same time, the herb

could be wet or dry. For this qualification only 3 degrees were used. Of course it is not all about body temperature and water content. What is it about then? It's about physiology. An example.

Culpeper wrote in 1652: Hot remedies make offending humours thin, that they may be expelled by perspiration, open pores or bring heat (outward application), warm up the blood, cut tough humours. Cold remedies qualify the heat of the stomach, cause digestion, abet fever heat and refresh suffocated spirits, make humours thick, limit choler, repress perspiration. Drying medicines consume humours, stop fluxes, bind and strengthen nature, and stiffen parts. Moist medicines are lenitive (softening) and make slippery, make airways less rough, loosen the belly, make the body watery and phlegmatic.

After this brief introduction I will introduce now the hypothesis of our literature study:

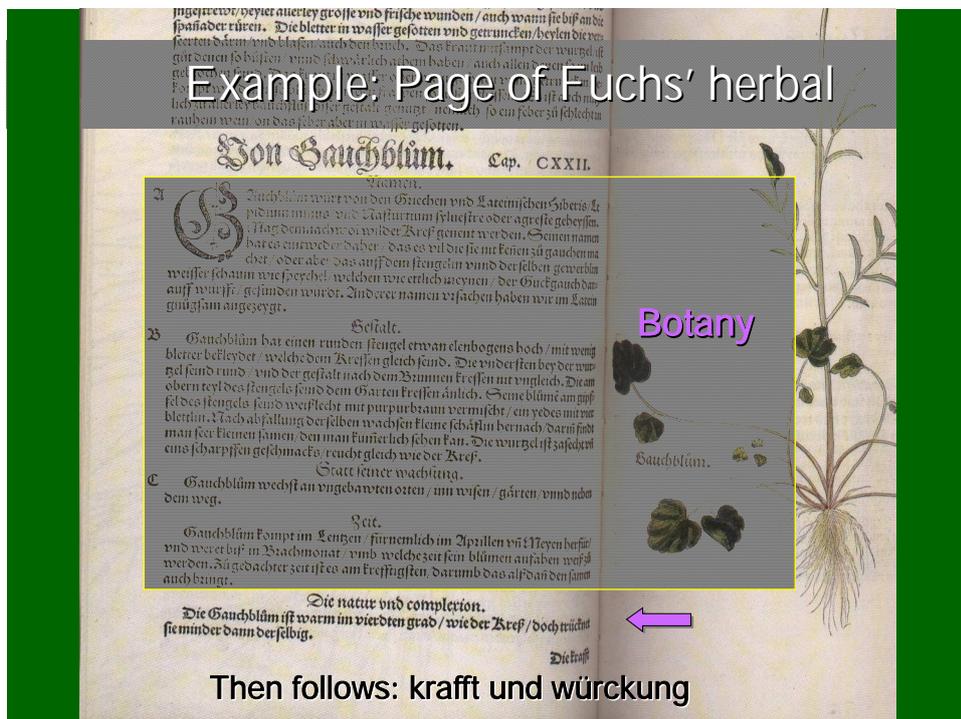
can the allocation of herb 'nature's' by medieval and renaissance authors be related to modern chemical ecological insights?

Why ecological?

The doctrine of humours represents a holistic approach towards human health. The way it describes the influences man undergoes through lifestyle, food and environment resembles modern human ecology, which in our age is an undervalued discipline in healthcare.

Why chemical?

Old herbals have pretty much the same approach as herbals today. An example from Fuchs' herbal, but most herbals write like this:



For each herb they mention: Names, botany, nature, indications (power).

Correspondingly in modern herbals like ESCOP or WHO monographs we find: Names, botany, chemical compounds, indications.

So it seemed obvious to look for a relationship between the nature of herbs in earlier days and the chemical compounds nowadays.

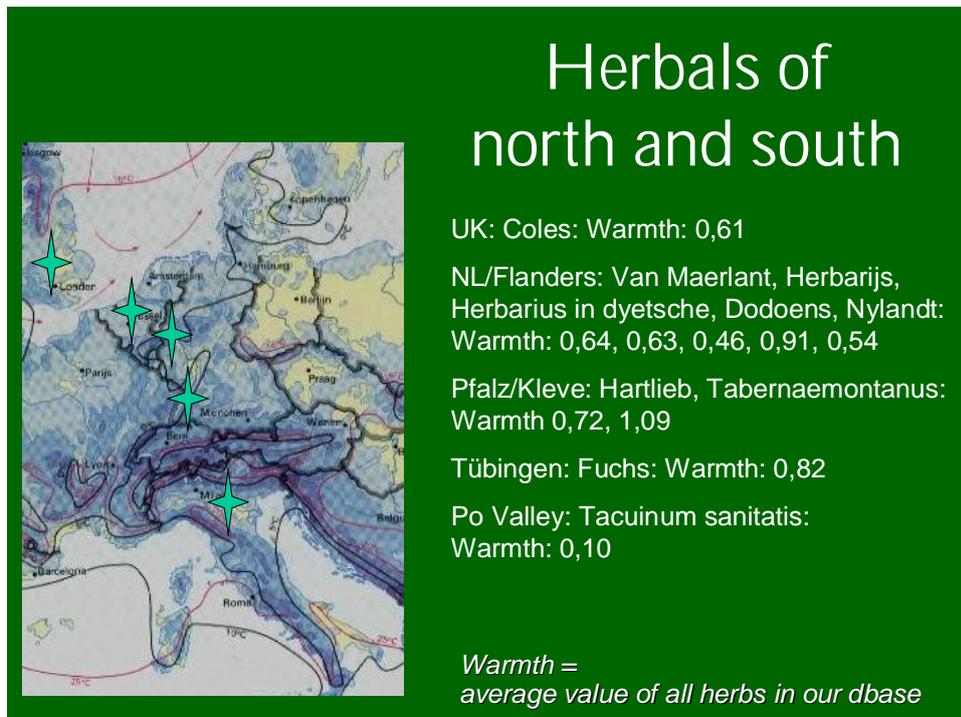
Materials and method

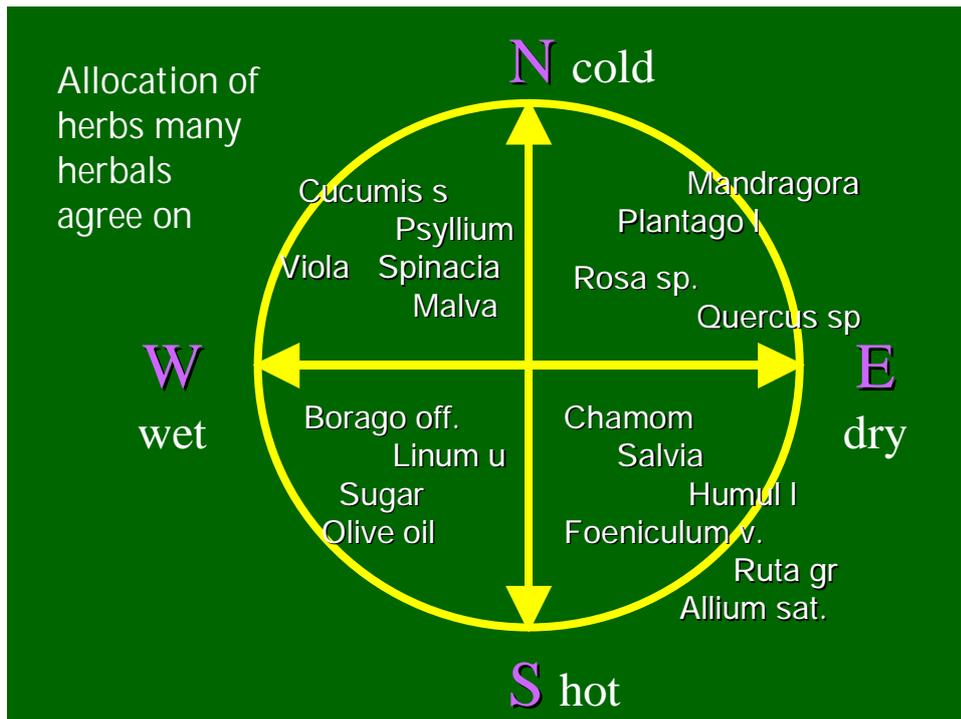
To get a better insight into the allocation system, we compared 12 old herbals and brought for 90 herbs the allocations in all of these herbals together in a spreadsheet. It seems rather disproportional to do statistics relating to old herbals, but we calculated average values and standard deviations to pick out some herbs that everybody apparently agreed upon to be hot, cold, wet or dry.

There are 12 herbals involved in this study (see reference list). Naturally for us the Dutch are of most significance, but we also included some Italian, German and English works. However, both Hildegard von Bingen and Nicholas Culpeper have rather deviating classifications of herbs. Hildegard because she sees phlegm as the cause of nearly all diseases and Culpeper explains the effects of herbs in terms of astrology. They can be traced back again to the four basic elements but obviously these present additional complications. Thusly, the remaining ten herbals may represent something like a scientific mainstream group in discussing herb "natures".

Results

This figure shows the herbals positioned in relation to their origin. An interesting question we would like to explore further is whether the same plants are considered to be cooler in the south of Europe than in the north.





Chemical ecology

Plants defend themselves from grazing in several ways; the two main strategies are

1. structural adaptations to avoid grazing and
2. chemical adaptations.

These chemical adaptations come in two varieties:

1. Compounds that give a reduced digestibility: (hemi) cellulose (large CH), silica (Si), lignins and tannins (polyphenols), proteinase inhibitors (Solanaceae)
2. Smaller compounds of a slight toxic character: alkaloids, terpenoids, glucosinolates, cyanogens, (steroid) saponins, lectins (protein), toxic AA, coumarins, etc.

Now the structural adaptations have had their influence on the doctrine of signatures that we will discuss in this lecture no further; and

→ The chemical items are the ones we will look at today. Most of them are called secondary plant compounds.

The synthesis of secondary plant compounds, more in particular the toxins, is often induced by insect attacks (phyto-alexins), drought-stress, etc.

The pharmacological effects of compounds vary but mostly they are:

- in a low dose: beneficial; they can correct small health problems; and
- in a high dose: poisonous because then they can give drastic changes.

Nearly all known medicinal effects of herbs are related to specific effects of these many different compounds.

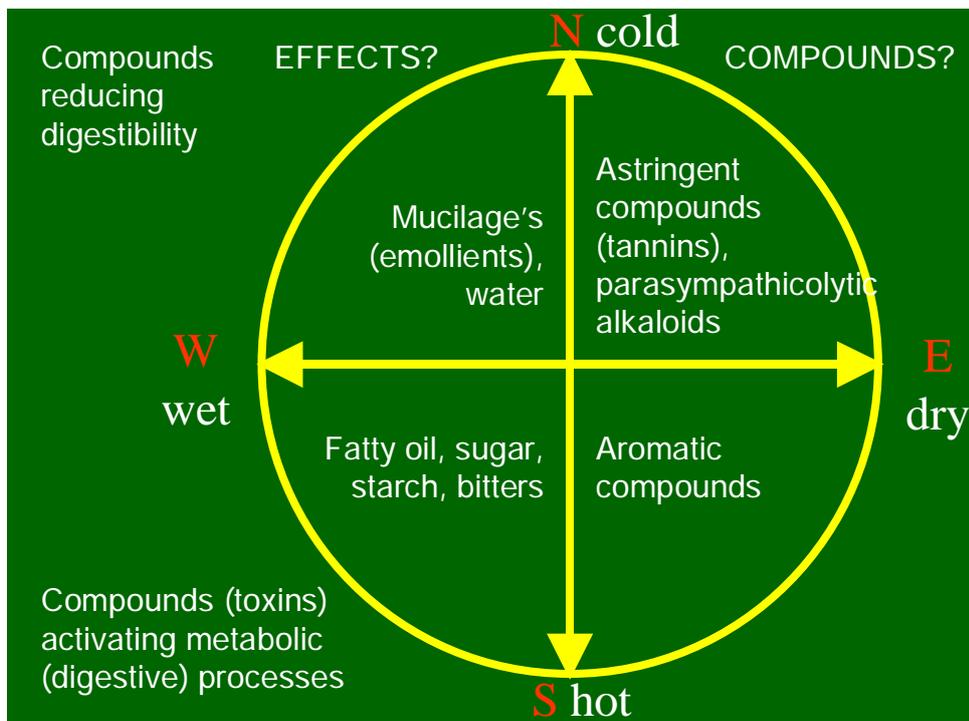
And in the course of the 19th and 20th century the most powerful plants (eg *Papaver*, *Mandragora*, *Belladonna*: often allocated cold in 4th degree) were used for isolation of modern drugs

We turn once again to the 18 herbs that most authors agree on. We have added the pharmaceutical effects and the compounds that are currently (as in Wagner 1988), thought to explain these effects.

Allocation	Plant spp	important compounds	pharmaceutical effects
water	<i>Cucumis sativus</i> (fruit)	water	little (food item)
water	<i>Malva</i> spp (leaf)	mucilage (CH)	emollient
water	<i>Plantago psyllium/afra</i> (seed)	mucilage (CH)	emollient, laxative
water	<i>Spinacia oleracea</i> (leaf)	water	little (food item)
water	<i>Viola odoratum</i> or <i>V. sp</i> (herb)	saponins	diuretic/diaphoretic
fire	<i>Allium sativum</i> (bulb)	glucosinolates	carminative
fire	<i>Foeniculum vulgare</i> (seed)	volatile (ess oils)	carminative
fire	<i>Humulus lupulus</i> (flower)	volatile (ess oils), bitters	digestive
fire	<i>Matricaria recutita</i> (flower)	volatile (ess oils)	carminative, spasmolytic
fire	<i>Ruta graveolens</i> (leaf)	volatile (ess oils)	emmenagoge, spasmolytic
fire	<i>Salvia officinalis</i> (leaf)	volatile (ess oils), tannins	carminative
earth	<i>Mandragora officinalis</i> (root)	alkaloids	analgetic (anticholinerg)
earth	<i>Plantago lanceolata/major</i> (leaf)	tannins, Si	astringent
earth	<i>Quercus robur</i> (bark/acorn)	tannins	astringent
earth	<i>Rosa</i> spp (fruit)	tannins	astringent
air	<i>Beta vulgaris</i> (sugar)	carbohydrates	little (food item)
air	<i>Borago officinalis</i> (herb)	tannins, Si, mucilage, f.oil	antidepressant (trad)
air	<i>Linum usitatissimum</i> (seed)	mucilage, fatty oil	laxative & emollient

It shows that important secondary plant compounds are more or less concentrated in the same groups as the four elements.

If we look at the effects of the herbs and of the compounds involved, the picture becomes like this: cold and wet plants have relatively much water, or mucilages; cold and dry plants have tannins and parasympatholytic alkaloids, hot and wet plants have compounds like fatty oil and sugar and hot and dry plants contain essential oils or glucosinolates; possibly combined with tannins.



Now our suggestion would be (and we would welcome any discussion on this topic) that in general plants with a characterisation of 'coldness' have compounds that reduce the digestibility (like large carbohydrates, silicium and tannins; but also parasympatholytic alkaloids) and 'warm' plants are characterised by small toxic molecules that enhance physiological processes like salivation, bile production, sweating, etc.

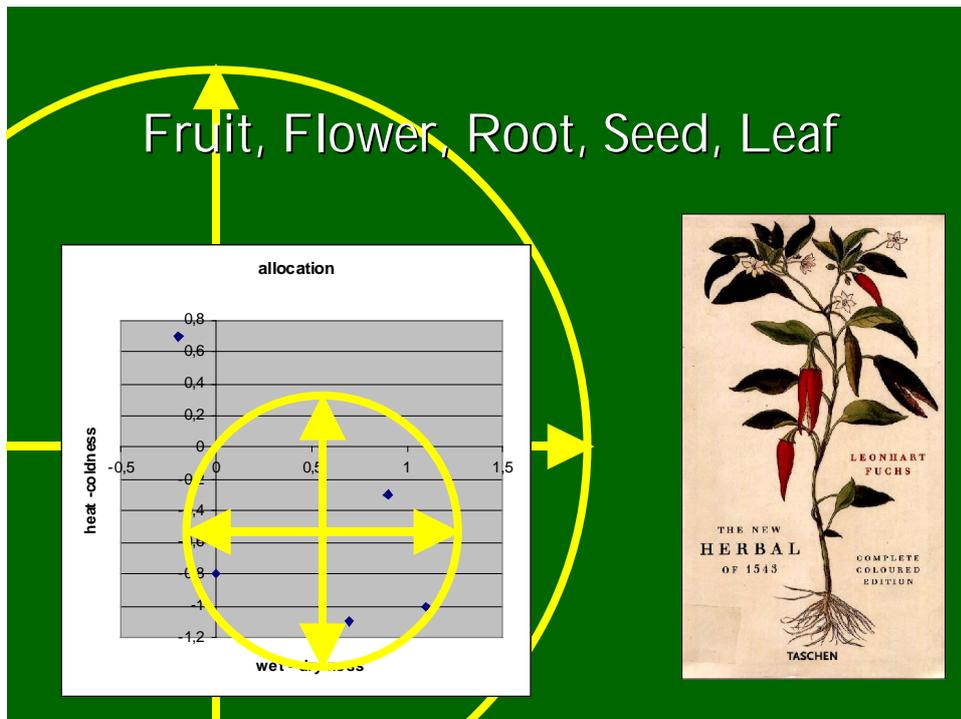
Again, with some generalisation, we could say that the main polarity in ETM (hot/cold) is related to the chemical defence strategy of plants: cold plants bring the parasympathicus activity down because of reduced digestibility; warm plants activate the metabolism of either the digestive and/or detoxifying organs because of the presence of (small) toxic molecules.

Also it is now understandable why some remedies are being called "wet"; they have a high water content, or mucilage (cool), or sugars or fatty acids (warm) that make smooth; whereas "dry" plants are tannin-rich plants with astringent properties.

Taste sessions, that I did for several years with my students, confirmed that most people can make allocations based on these principles by using smell, taste and mouth texture. The astringent properties due to the acidity of vinegar I mentioned before are recognised as tannin properties for example in unripe grapes or in acorns.

Discussion

Once our database has been completed it may be of interest to do more analyses, for example it would be nice to see if the parts of the plant that are used for medicine have specific characteristics according to this system.



At this moment we have to little data to make an analysis but preliminarily we can show what this looks like; and the interesting thing is that these classifications, because they are relative, can be represented in a fractal way (Asseldonk 2001); in stead of saying “apart from fruit (water) they are all in the fire area” they can be related to each other and so it may be stated that a flower is more “airy” and a seed is more “earthy.”

I just wanted to share with you a few suggestions for further research in our institute and I will now come to a conclusion.

Why should we bother to do all this research?

I have several reasons for this.

- European Herbals from 1700 onwards give many clinical indications for herbs, but they lack a philosophical and strategical background for health promoting (unlike Traditional Chinese Medicine)
- It's therefore possible that an important aspect of the traditional European health promoting system got lost
- Contra-indications (based upon the patients temperament) were not taken seriously and this may be the cause of some disappointing results in clinical studies with herbs.
- Currently Dutch herbalists still use the Dodoens herbal and the Hippocratic humours doctrine in their daily practice.

I will give you just a few examples how this is used in naturopathy practice. First the hot constitutions. Remember that constitutions are not fixed but modified by seasons, age, etc.



Sanguineus.
*Unser complexion sind von luftes vil.
 Darumb sey wir hochmütig onezpl.*



Cholericus.
*Unser complexion ist gar von feuer.
 Schlabt vñ kaegen ist vnser abentzuer.*

EXAMPLES (HOT)

Sanguine persons lose energy quickly, they can have benefit from tannins (to get a grip); do not give too much oil, fat, bitters

Choleric persons with too much fire can be helped with bitters to open and spread; do not give a hot substance like garlic, this will worsen their condition

If the patient is (temporarily) a sanguine constitution, he will lose energy quickly, he can benefit from tannins (to get a grip); you should not give him too much oil, fat, or bitters;

If he is a Choleric, with too much fire he can be helped with bitters to open and spread, but he should not use a hot substance like garlic, this will worsen his condition.

This goes for the cold constitutions:

Phlegmatic persons lack heat; they can benefit much from aromatic herbs; do not give cold or slimy foods or herbs like cucumber or lattice.

Melancholic persons are very cold and tight; both warm and bitter herbs will serve them; do not give cold and dry herbs (such as oak) or food (s.a. vinegar, barley).



¶ *Phlegmaticus.*
Unser complex ist mit wasser mit getan
Darum wir subtilen eit mit mügen lan.



¶ *Melencolicus.*
Unser complexion ist von erden wüch
Darüb seþ wir schwärmüthigkeþt gleich

EXAMPLES (COLD)

Phlegmatic persons lack heat; they can benefit much from aromatic herbs; do not give cold or slimy foods/herbs like cucumber, lattice

Melancholic persons are very cold and tight; both warm and bitter herbs will serve them; do not give cold/dry herbs (oak) or food (vinegar, hordeum).

This "constitutional" treatment is still in use by Dutch naturopathic herbalists (probably also in other countries), but there has been no research into the effectiveness of this approach. As it is far from standardised and uses non validated diagnostic techniques (such as iridology), only a black box approach is possible at the moment.

So I must state:

Do these people work evidence based? No!

But: if we throw away the experience of the traditional European practitioners, we will never profit from it to make holistic healthcare evidence based.

So I would like to promote, even in the 21st century, the study of classic herbals.

Acknowledgements (Thanks)

I would like to express my gratitude to prof. Heinrich from London University and dr Snelders from VU University of Amsterdam for helping me with a paper which will explore this subject in more depth.

Also I thank the many volunteers who made old herbals accessible to everyone on the world wide web. Maria Rasing for her help with the translation. Last but not least I thank Anna Elling, with whom I wrote the Dutch textbook on naturopathy.

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