Ledoux F./ Guéniot G.
Phytembryotherapy. The Embryo of Gemmotherapy

Reading excerpt

Phytembryotherapy. The Embryo of Gemmotherapy
of Ledoux F./ Guéniot G.
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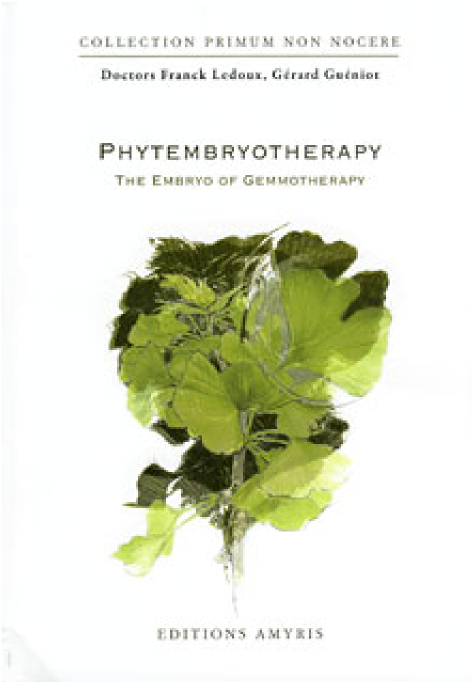

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"THE ARTIST CAN'T COPY NATURE,
BUT TAKE THE ELEMENTS OF] NATURE AND
CREATES A NEW ELEMENT."
PAUL GAUGUIN

CHAPTER 4 : FROM THE BUD TO THE MERISTEM

In botany, a bud is nothing but a *vegetal excrescence* appearing on parts of the plants. This growth will give rise to branches, leaves, flowers and fruits; it's protected from freezing by a differentiated structure: the scales. The bud is the minimum representation of the entire plant; it's somehow the "totum" of it.

With each bud formed, the plant covers a new stage of life; it regenerates, and it concentrates forces to spread out again.

The formation of the bud is related to an interruption of growth. Life of the plant can be concentrated in the bud when the conditions of real life are lacking. The interruption of growth is related to winter cold, and in spring, new life will restart with the apparition of the buds, thanks to the rise of the sap (centrifugal movement of energy).

The bud contains all the information of the plant: its genetic information, the different tissues (trunk, sap, stems, leaves, flowers, fruits, roots) and its various properties. All this is linked to the meristem cells contained in the bud.

The main reserved of plant meristems is found in the bud or young shoot. The meristem is somehow the *engine of construction of the plant* (cf book *"Aux origines des planted* by Francis Halle). (The Origins of Plants).

In mammals, the embryo is a copy at minima of his parents. In the plant, it's quite different! The embryo is very simple, even rudimentary; it's often composed of several embryonic leaves, a single stem and a single root. Even a giant like the Sequoia began its life this way.

So what's the use of this engine called the meristem? We owe the name of meristem to the Swiss Karl Wilhelm von Nageli (1817-1891) who was the first to observe the continuing! divisions in the apical cells of algae and mosses at the origin of organs and tissues. Dividing in Greek is *merizein*, hence the name meristem.

In the vegetal Kingdom, simple plants like mosses are formed from a single cell (apical cell). With the most elaborate vegetal, such as vascular plants (which have a circulatory system), the meristem consists in a group of several cells. From one apical cell, the meristem haa become a more structured multicellular zone.

In phytembryotherapy, we use simples that emerged from the Mesozoic Era, so from the! first trees. This is discussed in detail later. Meristems of algae, mosses, ferns, conifers! (Mesozoic Era) or flowering plants appeared in the Tertiary Era and will therefore!

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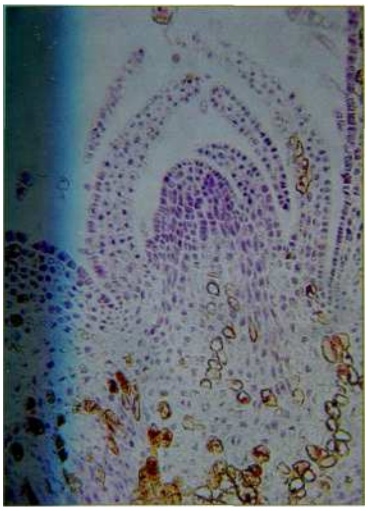

Meristem

be increasingly developed based on the evolution of the plant. One fact remains; the meristem is at the origin of the growth of each plant.

This meristem isn't only, as was said above, a *construction engine of the plant,* but a *factory* that will generate the production of leaves and stems. We now know that there are different areas in each meristem, each with a specific function and communicating with each other. This results in the *continued growth of the plant.*

So, from the undifferentiated element that is the meristem, the plant differentiates more and more, and builds into a tree, for example. Meristems are groups of undifferentiated embryonic vegetal cells.

Medicine is very interested in the so-called undifferentiated cells; they are called stem cells. Those stem cells are capable of generating differentiated cells (specialized) by cellular differentiation. Research tries, with stem cells taken from the umbilical cord of the newborn, to produce specific tissues such as skin. The meristem is somehow a vegetal similarity of stem cells: the undifferentiated capable of generating the differentiated (specific tissue). This is what the plant does throughout its life, from its undifferentiated meristems, it manufactures plant life.

The meristem is composed of "totipotential" cells, thus cells capable of differentiating according to their needs. Each plant cell is totipotent and is capable of producing an entire plant.

Therefore, it's easy to understand the major interest of healing using these meristems (which are similar to human stem cells).

When Dr. Pol Henry began working on plant buds, he compared the buds to the embryos, so he invented the term Phytembryotherapy: The therapy of plant buds.

The buds and the young shoots are huge reserves of meristems or undifferentiated cells. On a biochemical level, these "stem" cells contain a large amount of nucleic acids, thus genetic information, but they also contain many minerals, trace elements, vitamins, enzymes, growth factors and plant hormones. We will further consider the importance of these growth factors that disappear more or less as soon as the chlorophyll function begins (the energetic factory of the plant).

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There is another exceptional notion to this meristem: it's somehow endowed with a "vegetal intelligence". These few layers of cells are able to adapt to specific conditions of the plant. This means that an identical plant will have a different evolution under different living conditions, depending on the space it occupies, or the land or the climate, etc. This has absolutely nothing to do with the genetic information of the plant, which is reproduced exactly the same each time as a robot. The meristem adapts; it's aware of its neighbors and its environment. Scientists believe that the meristem can communicate and make collective decisions with its neighbors. All this is obviously far from the old genetic theories. However, this partly explains why nature is capable of producing intricate patterns from cells as simple as the embryonic cells of the meristem.

Long before our scientists, Goethe had sensed all these notions.

When using phytembryotherapy the patient is treated with those concepts of evolution and adaptation. So it's a living therapy that provides the ability to respond to each patient according to his ability, to fetch information in undifferentiated stem cells of the meristem.

Plant Hormones or Phytohormones

As we have seen, the cells of the meristem secrete phytohormones. There are four phytohormones: *auxins, gibberellins, cytokinins* and *abscisic acid.* The first three are Yang in nature, referring to Chinese Medicine; they create life and movement. The fourth is Yin in nature; it puts the bud in dormancy.

These different phytohormones are highly active in very low doses. They're able to act even at a distance from their place of synthesis, and they influence the function of the plant.
The chemical formulas of the three energizing hormones are balanced on a base 5 cycle (pentane). In nature, whenever there is a based 5 cycle, one is faced with an unstable mechanism.
In plants, it's almost constant in dicotyledons. This instability causes a reaction that's characterized as dynamic movement. It's the opposite of static, frozen, dormancy. Let's consider the first three: the energizing hormones.

1 - Auxin

The word auxin comes from the Greek *auxein* which means to grow. Discovered in 1926 by Went (Dutch physiologist), Auxin is a growth hormone essential for plant development. It's produced by cells belonging to the meristem buds. Its cofactor is Zinc. This phytohormone allows the growth in length of the plant. On short term, it increases the plasticity of the cell walls in young cells. In the long run, it activates the genes necessary for growth. Auxin has six main functions:

- Stimulates rhizogenesis.
- Stimulates embryogenesis.

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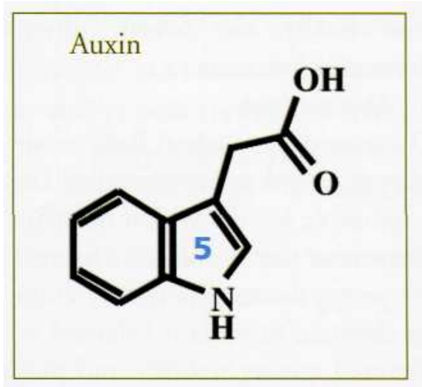
- Responsible for apical dominance.
- Increases roots, stems and buds growth.
- Plays the role of messenger to break up cellular linkage and facilitate elongation.
- It acts on cellular plasticity.

According to the different concentrations of auxin in the meristem, the cells are involved in the development of an organ if the concentration is high. However, if the concentration is low, the cells of the meristem are specified in a border area around the future organ.

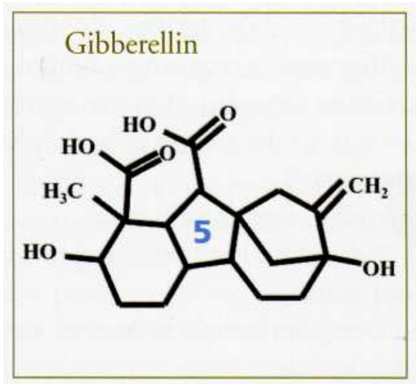


Base 5 cycle

2 - Gibberellin

Discovered in Japan in 1926, there is more than one type of gibberellins, which forms a family of phytohormones. There are more than eighty different gibberellins known today. It has six main functions:

- It stimulates meristems synthesis.
- It stimulates floral buds.
- It stimulates the growth of young leaves.
- It triggers blooming.
- It acts on cellular plasticity.
- It disappears at the onset of chlorophyll.



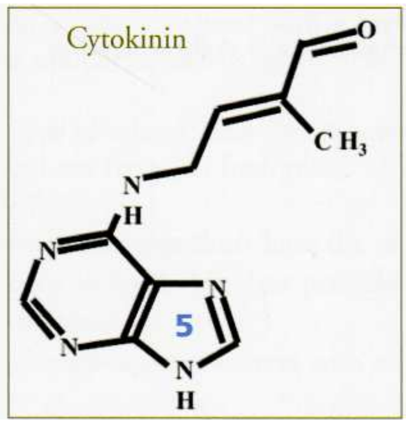
Instability

Example of gibberellin:

3 - Cytokinin

It was discovered in 1940 in a callus (a mass of undifferentiated cells) of corn. Again, there are several types; they are very close to the auxins. It has six main functions:

- It stimulates the cellular metabolism of young shoots.
- It promotes the growth of seedlings.
- It stimulates leaves formation.
- It stimulates chlorophyll production.
-Activates cell division (chromosome separation).
- It slows down leaf senescence.



GA452D (the most common gibberellin molecule)

Example of Cytokinin: Zeatin

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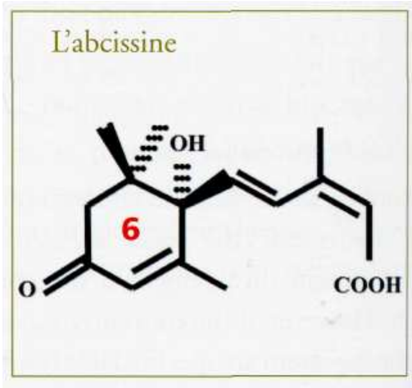
And finally, the fourth phytohormone, the dormancy hormone. 4 - Abscisic acid



Discovered in 1963; A.B.A, or abscisic acid, is a phytohormone sometimes called *Dormin* because it's responsible for the winter dormancy of the buds. Remember that the buds are formed in late fall, and the young shoots appear only at the end of winter. Its chemical formula is balanced on a base 6 cycle (hexane), giving stability and placing the bud in quiescence or absence of dynamic movement. Whenever nature generates a base 6 spatial configuration, it creates stability and strength. In plants, it stabilizes the monocots. Bees use this method to construct the alveolus in their hives (configurations requiring a minimum volume for maximum strength). It as five main functions:

- - It stops the growth of buds (winter dormancy).
- Inhibits seed germination.
- "Adaptogen hormone"; improves drought resistance.
- "Stress hormone", in cases of water or nutrient deficiencies.
- It strengthens the defence mechanisms of the plant.

Pentane: Base 5 cycle = Instability

Hexane: Base 6 cycle = Stability

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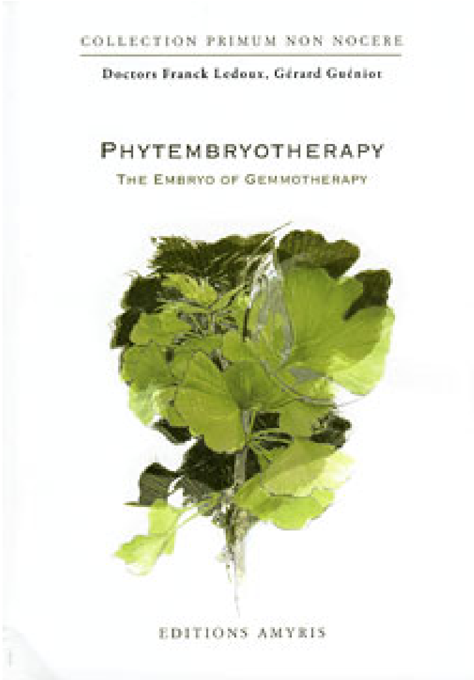

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