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**WORKSHOP SU INTEGRATORI
ALIMENTARI CONTENENTI
BOTANICALS: dagli aspetti
scientifici agli aspetti regolatori
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L'uso tradizionale dei *botanicals*

***Botanicals*: traditional use**

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**At first, we analyze the title of this
presentation**

“Botanical - Botanicals” :

- **Herbal drug (dried and chopped leaves, roots, flowers, etc.)**
- **Botanical preparations (different extracts, distilled essential oils, *etc.*)**

European Food Safety Authority EFSA, Parma

droga vegetale = herbal drug

The part of the plant with the highest content in active ingredients [on the human and/or animal body]

World Health Organization

Meaning of “tradition”

The term “tradition” from latin *traditio –onis* means “action of handing over”

“Tradition” derives from the latin verb *tradĕre*, *trans + dare*, “to hand over, hand down”

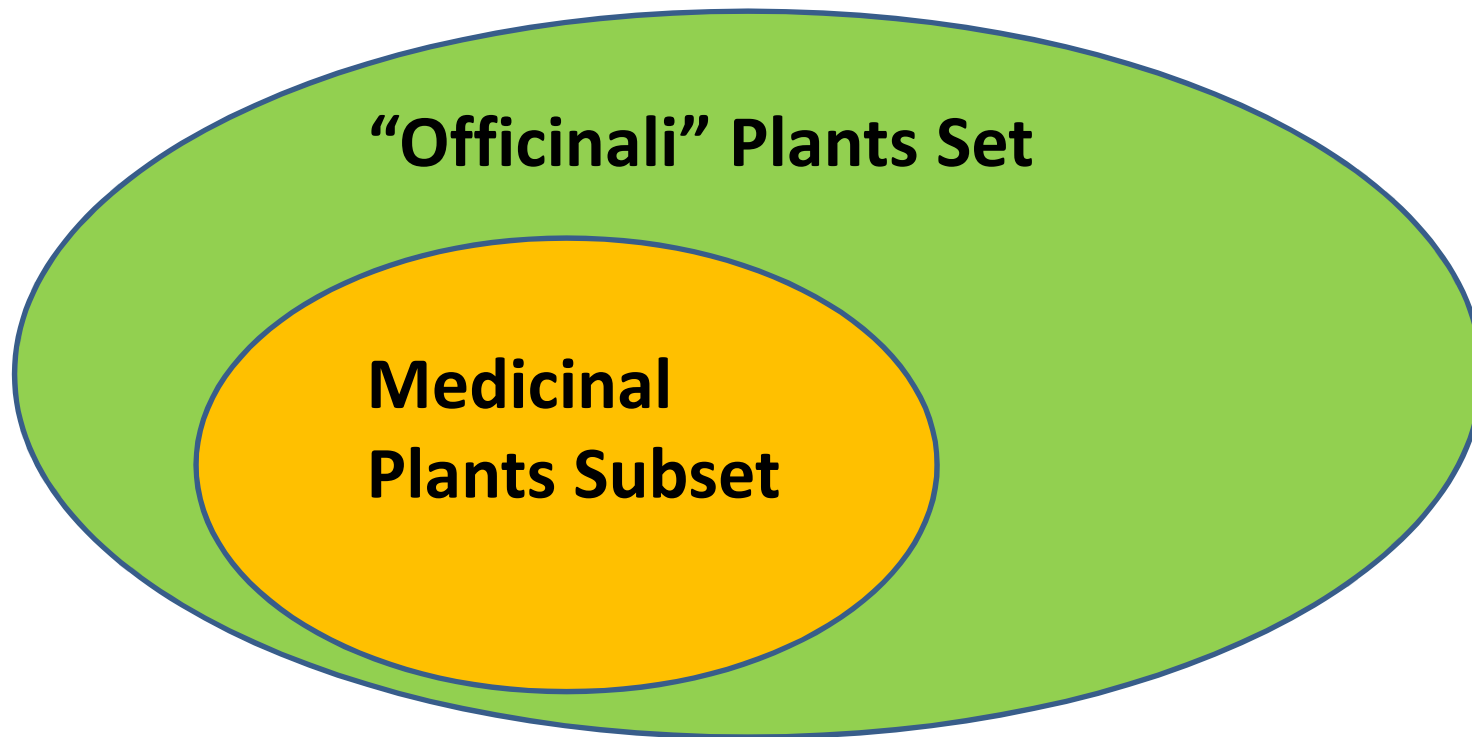
Webster’s New Encyclopedic Dictionary

Etymology of “officinale plant” definition

The term “**officinale**” doesn’t have an english translation: it derives from the Medieval latin “*officina*” or “*opificina*”, little laboratory inside a convent, monastery, or little farm where “**officinale**” plants where used to obtain different preparations : syrups, tinctures, liquid and solid extracts, pills, *etc.*

Treccani - Italian Encyclopedia & Dictionary

“Officinali” Plants and Medicinal Plants



**English Translation: Officinali = Medicinal and Aromatic
Plants = MAP's**

The adjective “*officinalis* / -le / -arum” is largely used in latin botanical nomenclature to identify interesting aromatic plants, that can have a positive effect on human health.

Some examples

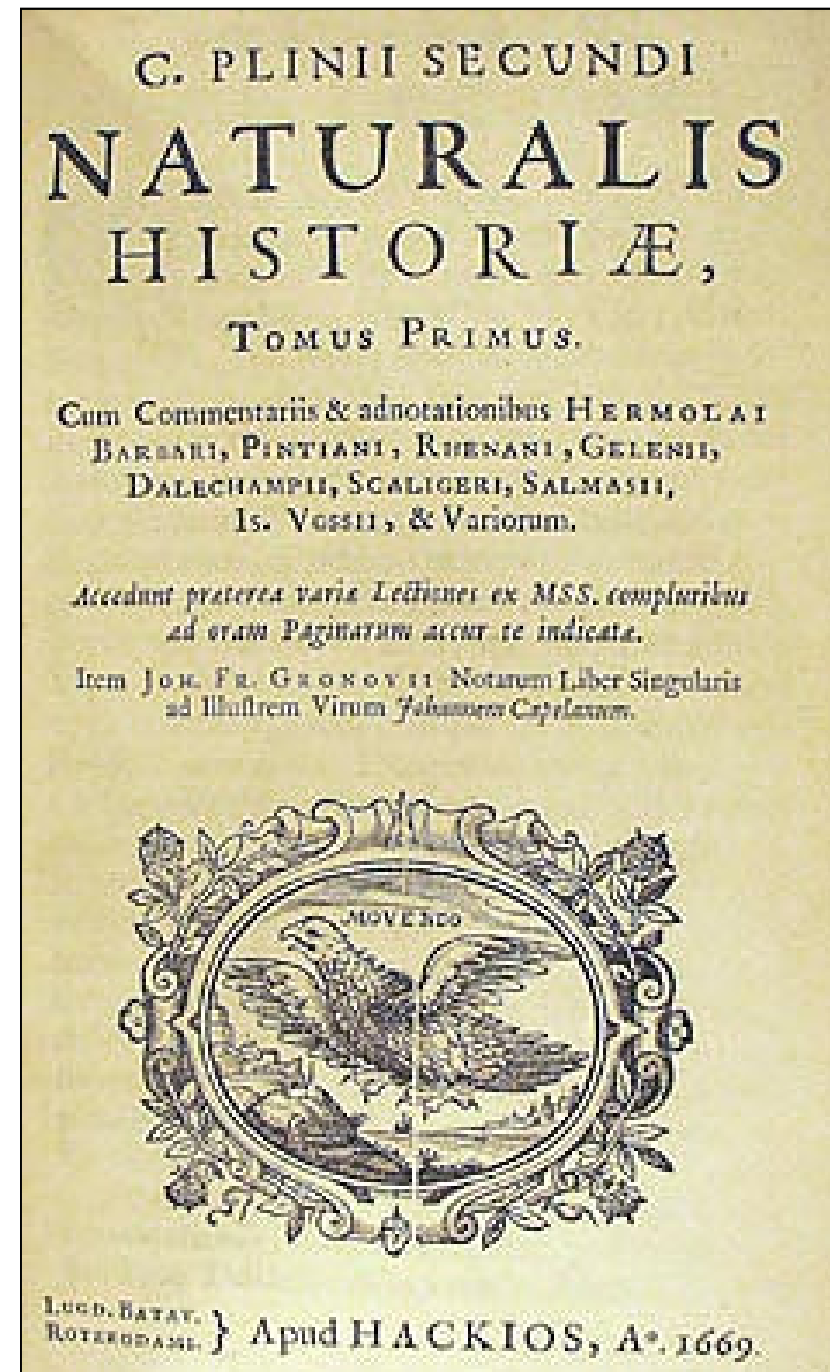
- *Valeriana officinalis*
- *Salvia officinalis*
- *Calendula officinalis*
- *Althea officinalis*
- *Parietaria officinalis*
- *Fumaria officinalis*
- *Saponaria officinalis*
- *Asparagus officinalis*
- *Jasminum officinale*
- *Levisticum officinale*
- *Cornus officinalis*
- *Alpinia officinarum*
- *Nasturtium officinale*
- *Paeonia officinalis*
- *Rosmarinus officinalis*
- *Taraxacum officinale*
- *etc. . .*

The herbal tradition in Italy

Some historic links and events

✓ **Pliny the Elder** (23 -79 AD)
naturalist, and natural
philosopher, spending
most of his time studying,
writing natural and
geographic phenomena

✓ He wrote ***Naturalis
Historia***, a model for all
such works written
subsequently.



According to Latin authors (Lucrezio, Virgilio, Varrone, Elio Sparziano, *et al.*) ancient Romans people prefer vegetables, fresh fruits, bread, salad, olives, cheese, wine, nuts, spelt and other wholemeal grains.

The common Roman diet included very little meat or fish.

Herbs and spices were regularly added to sauces, as well as fruit and honey, lending dishes a strong sweet and sour flavour.

The Carrot was well known to the ancients, and was mentioned by Greek and Latin writers by various names, but it was Galen (second century A.D.) who called it *Daucus* to distinguish the Carrot from the Parsnip.

Carrot *Daucus carota* L. and parsnip *Pastinaca sativa* L. have often been confused in historical references and in many cases were interchangeable, as those early carrots which were "dirty white" were very similar (in looks at least) to parsnip.

They were not originally cultivated for food, but for their aromatic leaves and fruits (achene).



***Pastinaca sativa* L.**



Parsley : an interesting plant used as social symbol and then considered a food plant

The botanical name "*Petroselinum*" comes from the Greek word for "stone", which is "petro", rock-parsley, given to parsley because it was found growing on rocky hillsides in Greece.

Although the **Ancient Greeks did not use parsley in cooking**, it was revered as a symbol of oblivion and death and as a funeral herb.





Selinunte – Sicily – Southern Italy

It was founded, as we learn from Thucydides, by settlers of Megara Hyblaea, in *Magna Graecia*.

The name is supposed to have been derived from the quantities of wild parsley (*sélinon*) which grew on the spot; and for the same reason a leaf of this parsley was adopted as the symbol of their coins.



Didracma - 540/530-510 aC

Petroselinum (parsley) for the Ancient Romans

The Romans had different ideas about parsley. Wreaths of parsley were used at weddings to protect against evil spirits.

The Romans are said to have used it at orgies to cover up the smell of alcohol on the breath, while also aiding digestion.

Parsley was the best “antidote” for bad breath especially for **reducing garlic-odor** when some food containing garlic has been consumed.

***Petroselinum* sp.**



Inula helenium L.

Inula, the Latin classical name for the plant, is considered to be a corruption of the Greek word *Helenion* which in its Latinized form, *Helenium*, is also now applied to the same species.

“Julius Augustus - said Pliny - let no day pass without eating some roots of Enula, considered to help digestion”.

The herb became a traditional consumption for the people of ancient Rome and Greece : they took the sugary roots as candied and eaten as sweetmeat.

The cooked leaves, rather bitter and aromatic, were used as a potherb by the ancient Romans.



The first italian example of “Orto dei Semplici” *Hortus Simplicium* Dominican chemist-friars



Officina of St. Maria Novella – Florence, 1221



Among the other preparations still produced following the old formulary of the Dominican friars is **Aromatic Vinegar or Aceto dei Sette Ladri**, very useful in the case of fainting-spells, whose formula dates back to 1600.

Acqua Antisterica, today known as **Acqua di Santa Maria Novella**, relaxant and antispasmodic, created by Fra' Angiolo Marchissi in 1614.

The **Acqua di Rose**, an excellent refreshing tonic for red eyes. A very famous **liqueur** is the **Alkermes**, also held in high regard are **Elixir di China** and **Liquore Mediceo** which was named in honour of the Medici family and the **Elisir di Edimburgo**, an excellent bitter, etc.



Officina of St. Maria Novella is considered the oldest Officina in Europe. Its activity is continue since 1221, without interruption.

At present it is an authorized factory designed by the Italian Ministry of Health for the production of food supplements in tablets, gelcaps and oral liquids.

The Officina St. Maria Novella is also a **herbalist's shop.**

Botanic Gardens

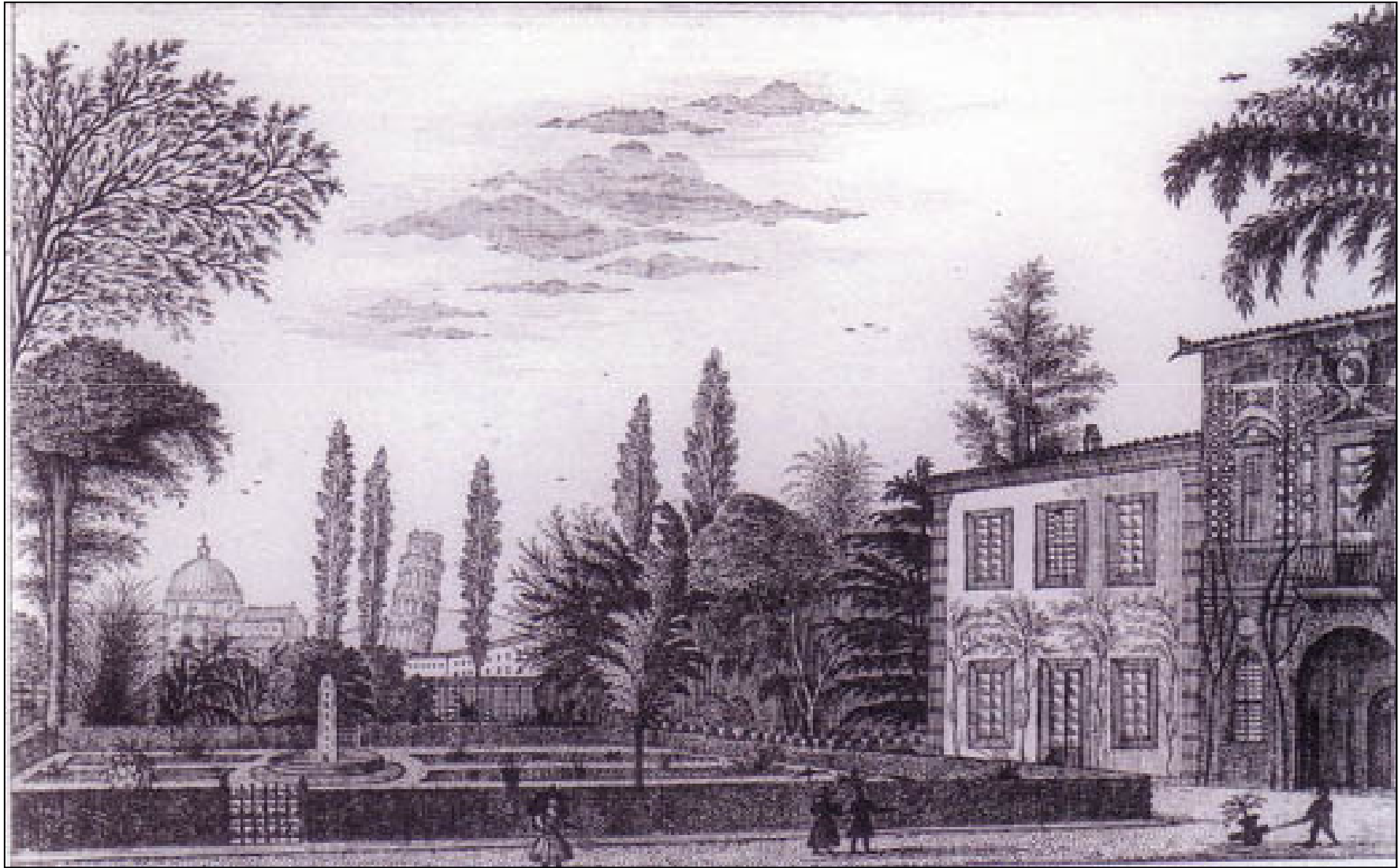
Its origins lie in the monastic herbal gardens of the medieval period. The observation of plant specimens for educational purposes led to the establishment of numerous Botanic Gardens.

The experimental method that was gradually beginning to dominate scientific study, together with the requirements imposed by the cultivation of plants, soon began to overshadow the aesthetic qualities that had characterized the Renaissance and Baroque garden.

The world's first botanic gardens were the Gardens of Italy in the 16th and 17th centuries. The first of these Gardens was the garden of the **University of Pisa** which was created by Luca Ghini in 1543.

After this, other Italian universities opened Botanic Gardens: **Padova** (1545), **Firenze** (1545) and **Bologna** (1547). These gardens were only for the academic study of “officinale” and aromatic plants. By the 16th Century the Botanic Gardens had spread to universities and apothecaries throughout central Europe such as Cologne and Prague.

Botanical Garden - Pisa - 1543



**Some examples of traditional plants
used to improve human health from
Renaissance to XXI century**

Liquor with bitter almond kernels in hydroalcoholic infusion = “Amaretto”

Amaretto is an Italian sweet almond-flavoured liqueur. It is made from a base of apricot or almond pits, or both.

The bitter almond - *Prunus dulcis* (Mill.) D. A. Webb var. *amara* (DC.) Buchheim – is a native to the Mediterranean climate region.

In 1525, the artist **Bernardino Luini** was commissioned to paint a **Saronno church** with frescoes, and he received as a gift a liquor prepared with apricot and bitter almond kernels in hydroalcoholic infusion. **“Amaretto” traces its roots back to 1525 in the town of Saronno (Northern Italy, 30 km North of Milan).**

Licorice tablets to fluidize the dry throat

This preparation is specific of Piedmont, North-West of Italy, and it is dated 1843.



Hypogeous organs and stolons of *Glycyrrhiza glabra* (licorice) one libra (~500 g.) in boiling water, plus two handfuls of *Hordeum vulgare* seeds (barley), and four “Renette” apples. After boiling 4 – 5 h, all vegetables are crushed and filtered. To the filtered juice, one libra of sugar, then one ounce of liquefied tragacanth are added. After mixing them on a slow fire, the mixture is spreaded on oil-paper, cut in little pieces until cold.

***Adiantum capillus-veneris* L. – a fern used as herbal tea**



***Adiantum capillus-veneris* L. – Venus hair fern**

In the past time, the Venus hair fern was employed as herbal tea, mainly in the North Western region of Italy (Piedmont)



St. Fosca Pills

Giovanni Gerolamo Zannichelli became famous for the preparation of the "Santa Fosca Pills" (Venice, 1701), which were effective to regulate bowel activity. **The pills continued to be sold for two and a half centuries, until 1970.**

The pills formula was the first trademark to be registered in 1701, in Venice.



Chemestesis and plants

Chemesthesis is the chemical sensibility of the skin and mucus membranes. Chemesthetic sensations arise when chemical compounds activate receptors associated with other senses that mediate pain, touch, and thermal perception.

These receptors are present in all skin, chemesthetic sensations can be aroused from anywhere on the body's surface. Mucus membranes are more sensitive to chemesthetic stimuli because they lack the barrier function of cornified skin.



White mustard



Brown pepper



Hot chili pepper

“Chinotto” beverage = *Citrus myrtifolia* Raf.

Citrus myrtifolia, the **myrtle-leaved orange tree**, is a species of *Citrus* with foliage similar to that of the common myrtle.

It is a compact shrub or tree with small leaves and without thorns.

The fruits of the tree are sour or bitter, and are commonly called by their Italian name, **chinotto**.



Chinotto is a non-alcoholic drink produced from the juice of the *Citrus myrtifolia* fruit and other herbal extracts. It is dark in colour with a bittersweet taste.

Herbs for liquor or “bitter” from Alps tradition

Gentiana punctata



Dryas octopetala



Achillea erba-rotta



Peucedanum ostruthium



Liquor or “bitter” of Alps tradition



*Peucedanum
ostruthium
Artemisia mutellina
Artemisia species
Angelica archangelica
Gentiana lutea
Gentiana punctata
Achillea millefolium
Dryas octopetala
Achillea erba-rota
Vaccinium myrtillus
Euphrasia officinalis
etc. etc.*



Liqueur Genepy Piemonte

Génépi Liqueur is produced by steeping the aromatic wormwood flower heads in a strong, clear alcohol and the procedure is recognized as a specific technique for this liqueur [Italian Decree Agriculture Ministry N°2634 / 24/04/2012]



Artemisia umbelliformis Lam. (*Artemisia mutellina* Vill.)

Opuntia ficus-indica liqueur – South of Italy - Sicily



**“Limoncello” = lemon liquor
with *Citrus limon* (L.) Burm.**

The yellow and wrinkled **lemon** skin is the essential ingredient of this liquor.

The “limoncello” has to be produced with the **"oval" sorrentino fruit**, denomination of Protected Geographic Indication (PGI).



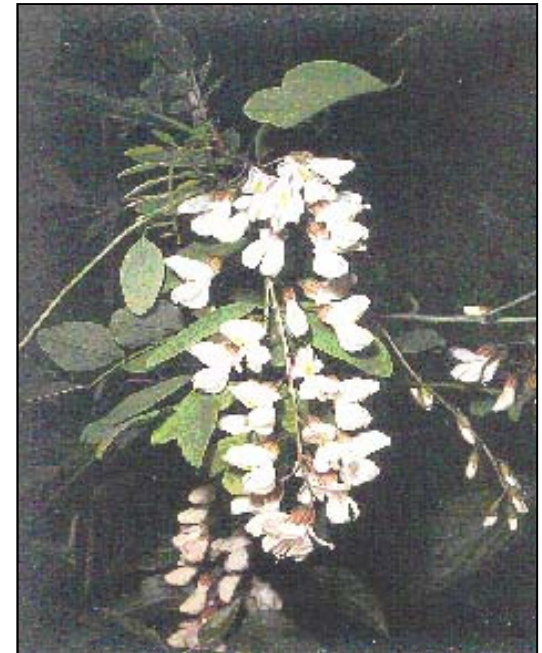
The **original lemon of Sorrento** has to be produced in the territory that goes from **Vico Equense** to **Massa Lubrense** and the **Capri island (Naples province)**.

Honey and fritters with *Robinia pseudoacacia* flowers

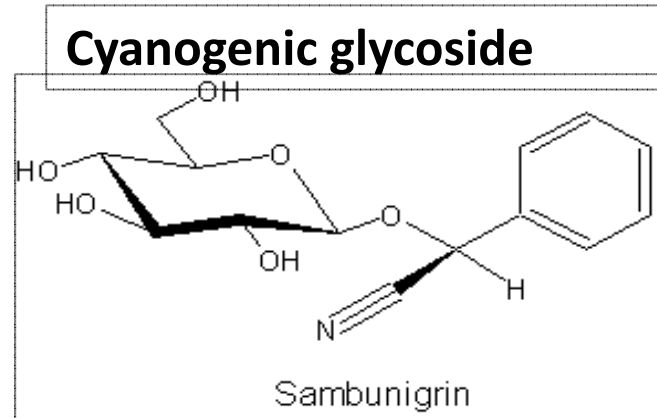
Robinia pseudoacacia, commonly known as the **Black Locust**, is a tree in the subfamily Faboideae of the pea family Fabaceae. It has been widely planted and naturalized in Europe, and is considered an invasive species. **It is a toxic plant (toalbumin): only the flowers are edible.**



Honey produced from this tree is of a light golden colour and ranks among the lightest of honeys



Sambucus nigra L. – a species rich in cyanogenic glycoside



As a consequence of the use of medicinal and aromatic plants since many and many years, in Italy there are:

① about 5.000 herbalist's shops in which dried herbs are sold, unpacked or not

② a specific first level degree in Herbal Sciences in Italian Universities

Some final considerations

The traditional use and knowledge are determining factors to support and validate the physiological effects of a plant and/or its extract .

The food cultural heritage has to be preserved because the memory is a crucial factor to permit to hand over and to keep from one generation to another.

Many food plants possess toxic parts, are toxic unless processed, or are toxic at certain stages. The toxic plants despite this - may be used as food (in the correct way), **but we have to know the more recent scientific researches and we have to know the history of our roots.**

SCIENTIFIC OPINION

Scientific Opinion on a Qualified Presumption of Safety (QPS) approach for the safety assessment of botanicals and botanical preparations¹

EFSA Scientific Committee^{2, 3}

European Food Safety Authority (EFSA), Parma, Italy



Thank you for your kind attention