



Increased opportunities for professional development in APITHERAPY sector

– *Course* –





Apitherapy Course Outline

This **Apitherapy** curriculum is divided in 8 chapters, helping the trainees go through it step by step, following the guideline established by the European Qualifications Framework. This curriculum includes not only content about **Apitherapy**, bee products used in alternative medicine with their characteristics, indications and administration, but also Useful Links to various helpful website pages containing articles and pictures, Counter – indications, Glossary, where the trainees will find definitions of key words used in the content of the curriculum.



Apitherapy Learning Outcomes

The learner has knowledge about: what apitherapy is; ways of working; ways of implementing; benefits of bee products use in apitherapy; characteristics, indications and administration of bee products such as honey, propolis, bee pollen, bees wax, royal jelly and bee medicinal venom;

The learner has skills to: select and apply basic methods, tools, materials and information in the area of apitherapy;

The learner has competence of: being able to understand the curative properties of bee products and to implement the recommendations regarding the proper range of use of bee products in treating diseases; to adapt their own behavior to circumstances in solving problems.

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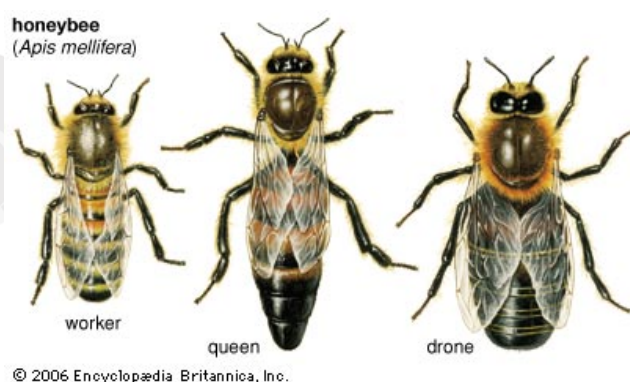
Introduction

The bee belongs to the order Hymenoptera, one of the most advanced groups of insects, characterized by social life and organization of individuals in a family. The bee family functions as a "supraorganism" where breathing, nutrition, reproduction and defense are found both at an individual and a social level.

The main characteristics of a bee family are the division of labor among its members, the process of joint activities related to the collection and processing of food, the care for their descendants, temperature adjustment during winter, etc.

For a thriving beekeeping, it is mandatory for the beekeeper to consider and understand the bees as a colony, as a family of 30,000 to 50,000 individuals. For a bee colony to function normally and smoothly for a long time, it needs three components: the queen, a number of drones and an "army" of worker bees. All of them are able to ensure the reproduction of bee larvae. The drones are missing during winter. For a proper maintenance of a functional colony, the three components of the bee family complement each other. Each member of the family has a certain task during a year, which is indispensable for the continuity of the colony.

The bee family consists of queen, drones and workers, as shown below.



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¹ <http://www.britannica.com/EBchecked/topic/279337/hymenopteran/39804/Communication>

The queen is the only female capable of breeding, mating with drones (it typically mates with up to 10 drones) and laying fertilized eggs (which will come out queens or workers) or unfertilized (which will come out drones). It differs slightly from other bees in shape and size, with a longer body, a smaller head and with the abdomen very developed and covered halfway through wings.

Worker bees are in size, the smallest individuals of the bee family, bee females with undeveloped ovaries, incapable of breeding. An exception is a colony without a queen and no chance to obtain one of the existing larvae. In this situation, some worker bees lay eggs without being fertilized, and of these only drones appear. The working bee's head has a triangular shape and the abdomen is equal in length to the wings.

The drones represent the males of bee family, and they are hatched individuals from unfertilized eggs. Their body is larger than the body of workers and queen. In the bee family, drones have the role of breeding with the queens, to ensure the perpetuation of the species.

Since drones do not contribute to the hive activities, they are no longer tolerated starting from July. Drones are considered useless in the winter, therefore they are stopped from having access to food and are driven out slowly by the rest of the family members.

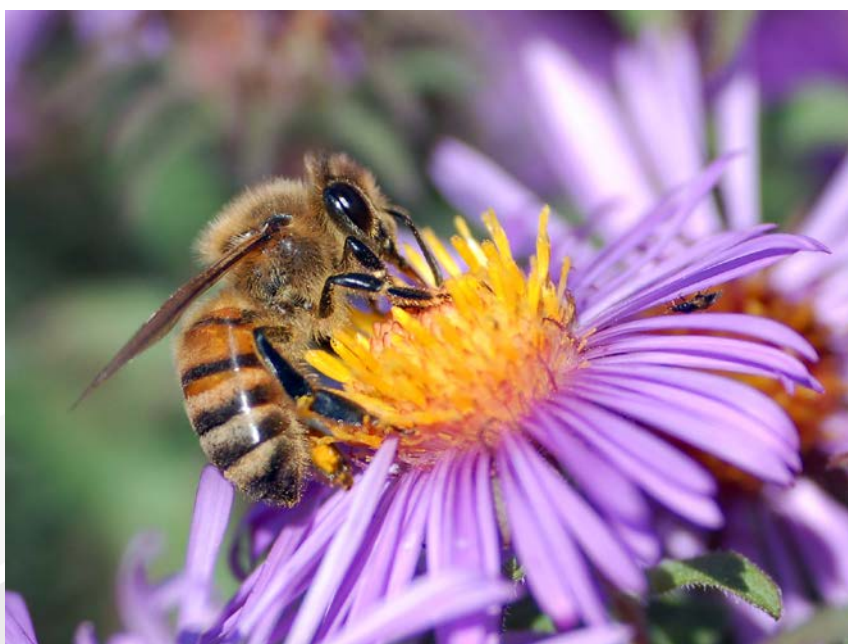
As a result of biological peculiarities in their possession, bees differ from other creatures cared for and exploited by man because they coexist in families consisting of a large number of individuals, who are really well organized, keeping the unity of the bee family.

Providing a healthy environment imposes the obligation to conserve natural resources. Bees can be considered vital biological resources. The pollination of cultivated and wild plants - a process with fertilization and therefore the formation of seeds, fruits and vegetables as a result - bees have an essential role in perpetuating and thus in the survival of hundreds of thousands of species that form the Earth's vegetation.

CHAPTER 1: What is Apitherapy?

Apitherapy is the traditional therapy that uses honey, pollen, beeswax, royal jelly, propolis, bee venom and other products related to the hive complex alchemy in order to heal and maintain health of the human body. The beneficial effects of these products are known since ancient times. In the oldest book of India, the Rig Veda, written between 3000-2000 BC, both honey and bees are mentioned several times. In Egyptian civilization, since the time of the first dynasty, the year 3200 BC, the bee is the symbol of the king. Honey is mentioned in ancient Greek literary works, such as the Iliad and Odyssey.

Bee products have been registered since the beginning of prehistory among natural elements used to supplement and improve the food and then to combat and prevent human suffering and pain. Apitherapy, as a traditional practice dates from immemorial time of human history.



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² http://upload.wikimedia.org/wikipedia/commons/1/1d/European_honey_bee_extracting_nectar.jpg

In the health field, a properly dosed combination of honey, pollen and royal jelly, has a very important role. This combination is used for mother and child care, adult health, recovering, vitamin deficiency, various diseases of the digestive tract and liver, in respiratory disorders, neurosis, asthenia, senility. Recommendations towards using apitherapy should be made only on the basis of precise medical diagnosis, laboratory tests, radiological and other investigations required.

However, of all bee products, bee venom has the best and oldest therapeutic use, with the purpose of treating rheumatic and joint pain, chronic inflammatory diseases (tendinitis, bursitis) and Multiple Sclerosis.

In the early 1950s, studies carried out worldwide have led to a better understanding of the qualities traditionally attributed to honey and propolis. In addition, they found benefits, until then unknown, of pollen and royal jelly.

The substances that bees secrete or produce, are obtained by collecting, processing and storing natural substances that man can collect from the hive or directly from the bees (venom). Honey, for example, contains more than 70 active ingredients. It can be seen not only as a medicinal product but also as food. Also, these wonderful bee products have proven their efficiency in cosmetic treatments.



Cosmetics based on bee products positively influence physiological functions of skin cells: regenerates, protects the skin from free radicals, harmful influences of the environment, adjusts metabolism, stimulates collagen production, delays degenerative changes, increase defense power.

Bee products are natural foods containing substances that are indispensable for life. Basically, in bee products are found all essential amino acids needed by the metabolism,

vitamins, minerals, proteins, carbohydrates, directly assimilated without any processing in the human body, lipids, enzymes, co-enzymes, organic acids, etc.

But of all existing foods on earth, honey has the chemical formula closest to that of human blood. Moreover, no other food is more complete, better tolerated and more easily assimilated by the body. Therefore, if a complete classification of biological food would be made, bee products would occupy the first place, not only because of their content (a real fuel for the body), but also because they can be harnessed by the human body without any effort, with resonance at the cellular level, the best regenerative cells.

They also provide substances for skin reconstruction, they visibly improve the structure, elasticity, color, skin suppleness and smoothness. Cosmetics based on bee products are ideal for prevention of skin aging phenomena. Honey, beeswax, and propolis are used as healing and pampering agents in a number of body care products including soap, lip balm, cremes, salves and lotions.

Why do we need Apitherapy?

Apitherapy uses since the dawn of history, beehive products (honey, pollen, wax, propolis, royal jelly, etc.) in treating a wide range of conditions, which cover the entire body.

The benefits of treatments based on materials collected and processed by bees, passed from empirical to scientific medicine, process which confirmed the undeniable value of bee products in healing various diseases.

Bee products have a lot of benefits for their users, benefits such as:

- ✓ preventing diseases when they are consumed on a regular basis;
- ✓ as opposite from chemical treatments, bee products don't have side effects when properly used;
- ✓ they are extremely rich in nutrients and active compounds which can protect the human body against various diseases.

CHAPTER 2:

HONEY – Characteristics, indications and administration

Honey has as potential sources over 2,000 flowers; as a result, it has extremely variable characteristics. Therefore, the therapist must be able to determine the overall quality of honey and / or its therapeutic qualities.



Honey is better known worldwide as food than as medicine.

For this reason, perhaps, the price of honey is too low for beekeepers to have satisfactory benefits from its collection. Today it is reconsidered the importance of honey for human and animal health.

Many specialists from countries like New Zealand, France, India etc. have shown that honey is also a medicinal product if it is obtained and used in certain circumstances.

Raw honey (which is not filtered, heat treated or processed) is an effective remedy, whether internal or locally administered. Its chemical composition makes it easier to digest than sugar and its metabolism does not stimulate insulin secretion in the same way as sugar.

Unlike sugar, honey develops and protects human intelligence. The brain, in order to maintain and perform its functions, it needs glucose, which is its only food. Honey, with very small differences, usually contains about 32% glucose, being a part of the directly assimilable monosaccharides category.

Often, people ask the question: "*How much honey should we consume daily?*" The most common recommendations assessed that 1-3g per kg of body weight of honey consumption, would be normal and healthy.

The glucose found in honey, unlike lipids which act slower, is the fastest physical and intellectual energizer, instantly restoring the effort capacity (quickly replacing the glucose consumed during effort).



To preserve its qualities, honey should not be exposed to direct sunlight. Produced in the darkness of hives, although nectar is brought from sun-spoiled flowers, honey is photosensitive.

The body's ability to absorb almost all the ingested honey, exceeds the level of assimilation for any other food. Per 1 kg of honey consumed, the degree of assimilation is 98% (so, from 1000 g of honey, only 20 g become residues).

No food is more sterile than honey. Even honey seeded with bacteria soon becomes sterile. The explanation is simple: the bacteria can't live without any amount of water; honey, strongly hydrophilic, extracts the water and bacteria are killed.

Honey can be successfully used for prevention and treatment of gastro-duodenal ulcers (honey being considered a gastric bandage), for the treatment of burns or wound healing, with a strong anti-infective effect.

³ <http://santmagazine.com/wp-content/uploads/2014/11/generic-honey-image-from-a-number-of-different-sources-on-google.jpg>

The main therapeutic and curative properties of honey:

Honey is antibacterial:

- Honey contains small amounts of water, fat and protein, it has a relatively low pH, a high osmolarity, which means "harsh conditions of life" for bacteria;
- Bioflavonoids found in honey have a direct antibacterial effect;
- Many of the enzymes found in honey are all antibacterial.

Honey is antibiotic:

- the spectrum of anti-microbial properties of honey is quite broad.

Honey is an anti-oxidant in food:

- Honey has anti-oxidative capacities; low oxidation in food means better nutrition; better nutrition means better health.

Honey is an anti-caries bee product:

- Honey is, in general, an antibacterial substance;
- Honey nourishes gums, helping to better feeding teeth.

Honey is anti-inflammatory:

- Honey is a good antioxidant;
- It contains bioflavonoids with anti-inflammatory properties;
- Honey can absorb more "fire" from the inflamed area, according to Traditional Chinese Medicine.

Honey is bio-stimulating:

- Honey is a "living food" with a lot of bio-energy;
- Provides the best energy for living cells.

Honey is depurative:

- Helps the body's detoxification mechanisms; honey contains more fructose (especially honey made from acacia) which helps directly the energetic mechanisms of the liver; a healthy liver means a better biochemical detoxification.

Honey is energetic:

- Carbohydrates from honey burn easily and most often (when oxygen is sufficient) to water and CO₂, so no residue remains to reduce the quality of the energy;
- Fructose contained in honey increases energy levels of human body.

Honey is laxative:

- Honey is hygroscopic (attracts water);
- It regulates bowel flora;
- Helps the pancreas and liver function better; therefore these organs will produce more digestive juices.

Honey is nutritious:

- Carbohydrates found in honey help in building the conjunctive tissue;
- Honey represents the best energy for all muscles, including the heart, which is primarily the "muscle pump".



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⁴ <http://today.tamu.edu/>

So there are many properties that show that honey can be considered a natural medicine. Due to its properties, honey healed burns, bacterial infections, wounds or heart failures of thousands of people in the world.

Indications for honey use:

- **Diseases that affect the entire body:** anorexia, convalescence (honey provides energy after surgeries or consumptive diseases), fever (honey provides energy to leukocytes that can easily eliminate the causes of fever: bacteria, viruses, dead cells, etc.);
- **Diseases of the mouth and lips:** ulcerations (honey is a natural antibacterial and regenerative agent), caries (honey feeds the gums, which in their turn feed the teeth), gingivitis;
- **Otorhinolaryngology:** pharyngitis and sore throat (honey is anti-inflammatory, antibacterial and regenerative);
- **Respiratory diseases:** asthma (honey is a source of energy for bronchial musculature), coughing (honey is an antibacterial and emollient agent), colds (honey helps the immune system);
- **Cardiovascular diseases:** heart diseases (honey is the best source of energy for heart cells, helps blood circulation and decreases the blood pressure when it is too high, it also improves the structure of blood vessels)
- **Nervous system disorders:** asthenia (honey provides energy to all body cells), insomnia (especially honey made from linden flowers is a very good sedative when used before bedtime), neurasthenia (honey is an excellent energy source for the nervous system, at least 30% of it is glucose, which is food for the brain);
- **Hepatic diseases:** liver cirrhosis (honey, especially if it's made from acacia flowers, contains large amounts of fructose that is used to increase the glycogen level from the liver);
- **Blood disorders:** anemia (honey improves appetite, helps iron absorption, provides energy to the bone marrow, liver and spleen).

Classification of honey:

Besides the general effects of honey, there are particular properties, depending on its origin:

- **Linden honey** – it has the most pleasant and most powerful flavour of all honeys. It has soothing and antiseptic qualities being recommended for the treatment of: nervous system disorders, insomnia, fever, stomach pain, migraine prevention, prevention of pneumonia, asthma, tuberculosis.
- **Sunflower honey** – it has tonic properties, it is an aphrodisiac and it stimulates immunity.
- **Manna honey** – this kind of honey has the strongest laxative properties than any other type of honey; it also has anti-inflammatory effects on the digestive tract, and it helps with the elimination of toxins.
- **Locust honey** – is transparent immediately after harvest, but its colour will depend on the honeycombs in which it was made. Thus, it can have shades of pale yellow or light yellow. Locust honey has a nice taste, it is a viscous fluid, and gives no sign of crystallization when fresh. It has a soothing effect on coughing, locust honey is antiseptic, it is useful in treating fatigue and also in the treatment of neurosis.
- **Coriander honey** – it has a reddish colour, a strong flavour and scent. It has beneficial effects on treating ulcer and hyperacid gastritis. Coriander honey also protects the liver and it helps treating constipation, bloating and indigestions.
- **Conifer honey** – it has exceptional properties on the lungs and respiratory system, benefiting from the anti-infective and antitussives properties.
- **Mint honey** – it is used as an antitussive, analgesic, antispasmodic. It eases digestion and it combats bloating.
- **Polyfloral honey** - because it includes nectar from dozens or hundreds of herbs, polyfloral honey borrows their therapeutic properties and thus it is one of the most complex honeys taking into consideration its therapeutic actions. The main

properties of this type of honey are: disinfectant, antiseptic, sedative, diuretic, laxative.



CHAPTER 3:

PROPOLIS – Characteristics, indications and administration

Of all bee products, propolis is probably the most "medicinal". Its composition is a fascinating subject, its pharmacological properties and indications being studied by thousands of researchers. There are a large number of compounds that can occur in propolis.



Quantitatively, propolis contains:

- **55% resin** (resin is a term used for substances that are usually sticky and insoluble or slightly soluble in water or organic solvents due to the insolubility, seem to be important only for their structural properties) and balms (balms are natural substances, liquid or semi-liquid, usually obtained through special methods of tree bark - Opriş, 1990);

- 7.5 to 35% wax (Ushkalova and Topalova (1978) showed that the wax is an essential component of propolis, although the proportion depends on the region where it was extracted by bees, on collection method and other factors);
- 10% of essential oils (volatile oils are compounds which usually have pleasant scents);
- 5 % polen;
- 5% of fatty acids;
- 4.40 to 19% of impurities;
- terpenes, tannins type substances, secretion of salivary glands of bees and accidental components.

Qualitatively, the propolis contains: flavonoids, aliphatic acids and their esters, long chain aliphatic acids, short-chain oils, esters of short-chain oils, aromatic acids and their esters, benzoic acid and derivatives, aldehydes, alcohols, cinnamic acid and derivatives, acids and derivatives, ketones, phenols, and aromatics, terpenes, sesquiterpenes and their derivatives, alcohols, terpenoids and other compounds, volatile hydrocarbons, aliphatic hydrocarbons sterols and steroids, sugars, lactones, alpha and beta - amylases , amino acids, nucleic acid derivatives, vitamins, minerals, transhydrogenase anaerobic H + donor substances, and other substances insoluble in water and organic solvents and pollution.

Propolis is the most natural antibiotic ever used by man. It is remarkable that this discovery dates back over 2000 years. Its bactericidal effects are known since the appearance of the first historical writings. In folk medicine propolis is well known and widely used.

The Greeks, Romans and Egyptians reported the use of propolis for its healing properties, especially on skin lesions. Today these properties have been demonstrated scientifically. It is as effective as antibiotics such as streptomycin and penicillin, when administered frequently. Propolis, as industrially produced antibiotics, has decisive action on a mass of germs such as staphylococci, streptococci and other bacteria.

In addition, propolis, compared to industrial antibiotics, do not have side effects. It is believed that the antibiotic effect of propolis is due to the high content of flavonoids (41

types). Flavonoids have a role in hair growth, stimulating blood circulation. It also stimulates the elimination of bile, urine and endocrine secretion, especially the thyroid gland, pancreas, with an adrenal effect on the entire body.

Therapeutic and curative properties of propolis:

Propolis, the "medicinal" bee product with over 70 proven pharmacological properties, has hundreds of indications and has been used for therapeutic purposes since ancient times.

Propolis, a true "protector of life" has been used successfully in the treatment of diseases of the following medical fields:

- **The oral cavity:** common chronic recurrent thrush, moniliasis, chronic peripherals periodontitis, stomatitis after tonsillectomy, ulcerative stomatitis, ulceronecrotic stomatitis;
- **Otorhinolaryngology:** acute tonsillitis, acute inflammation of the middle ear, chronic pharyngitis, pharyngitis post-traumatic, hearing loss (hearing impaired);
- **Ophthalmology:** microbial inflammatory disease of the anterior pole of the eye, burns of ocular annexes, eye injuries, trauma of ocular annexes.
- **Pulmonary Diseases (Pulmonology):** asthma, bronchiectasis, asthmatic bronchitis;
- **Digestive Diseases:** subacute and chronic colitis, constipation, gastritis.

Method of preparation for propolis tincture:

- at 100 g of alcohol of 80 ° - 86 °, 20 g of solid propolis, kept in the refrigerator, is added. The combination of alcohol mixed with propolis is placed in a flask, heated to 30 ° C-40 ° C and mixed well. This procedure is repeated for 6-7 times in a week, then the mixture is allowed to settle, for the clean liquid to be poured.



CHAPTER 4:

BEE POLLEN – Characteristics, indications and administration

Pollen is one of the richest natural sources of selenium, and vitamins (B1, B2, B3, B5, B6, B9, C0) minerals, trace elements and amino acids.

Pollen will help in combating nutritional deficiencies, regulates the activity of the liver, kidney, stomach, intestine and nervous system, fights against intellectual and physical fatigue, nervousness, insomnia and has antiviral and antibacterial effects.



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This lovely floral and beekeeping product, has the potential source of over 1000 different flowers; as a result, its composition and, of course, its properties are highly variable. By its

⁵ <http://www.feelguide.com/2013/06/19/everything-you-need-to-know-about-bee-pollen-one-of-the-most-powerful-superfoods-on-earth/>

nature and its purpose of element pollinator of flowers, pollen has a special and complex chemical composition, distinguishing it from all other vegetal products and gives a surprisingly broad spectrum of influence on many diseases and dysfunctions of the human body.

The main properties of pollen are related to greater richness in nutrients (amino acids, vitamins, enzymes, etc.).

Due to the complexity of its component elements, pollen was used as "medicine" or as "stimulent for growth" for a long time.

Numerous researches conducted over time revealed multiple application possibilities for poliflor pollen collected by bees, in prophylaxis and human therapeutics, yielding very good results in preventing and combating anemia, nervous system and endocrine diseases, digestive tube diseases and hypovitaminosis, etc.

Therapeutic or curative properties of pollen:

Bee pollen is anabolic:

- pollen contains many vitamins and other nutrients that are involved in increasing appetite and helps build new cells;

Bee pollen is anti-atherosclerotic:

- pollen, due to its complex composition, reduces blood pressure when raised, improves blood circulation by improving liver function and promotes cell regeneration of arterial endothelium.

Bee pollen is antibacterial:

- the flowers that produce pollen are not "interested" to feed bacteria, so they will add antibacterial substances such as bioflavonoids.

Bee pollen is antidepressant:

- pollen contains all the amino acids needed for the nervous system and creates them on its own, natural antidepressants such as endorphins.

Bee pollen is *anti-inflammatory*:

- pollen contains, among other substances, small amounts of bioflavonoids which are known for powerful anti-inflammatory substances.

Bee pollen is *antitoxic*:

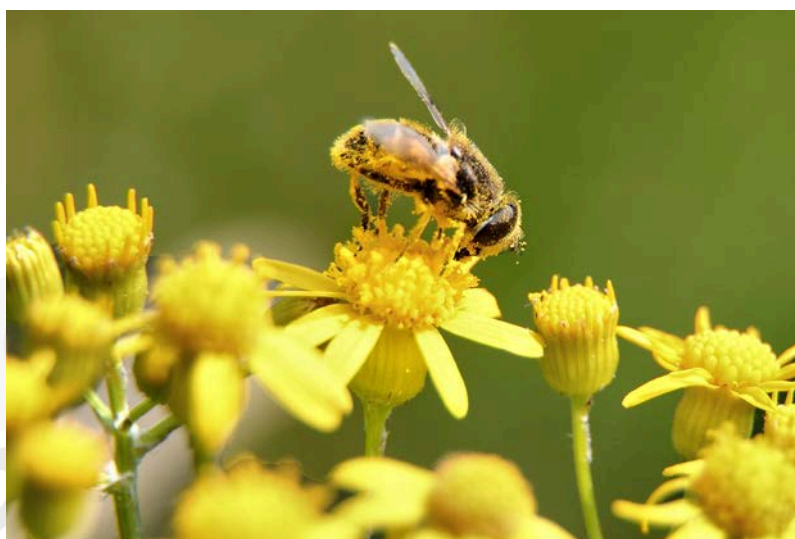
- pollen is the best food for the liver; a healthy liver can neutralize toxins better.

Bee pollen is *dietetic*:

- pollen is a very good food, as was mentioned above; it is a very well balanced vegetarian source of nutrients; therefore it is recommended for obesity, hypertension, gout, etc.

Bee pollen *improves all brain functions*:

- due to the presence of large quantities of incredibly different nutrients found in its composition; these substances directly feed all neuronal cells; the indirect effect is due to feeding the liver; a healthy liver in return produces other important substances for brain function.



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⁶ http://upload.wikimedia.org/wikipedia/commons/1/18/Bee-pollen-macro_-_Virginia_-_ForestWander.jpg



Bee Pollen contains a large amounts of vitamins, enzymes, and it is a source of bioenergy. The effectiveness of apitherapy, like many other therapies depends, of course, on the quality of "medicinal products".

In principle, it is very important to provide our cells (ill or not) high quality nutrients and / or active compounds as diverse as possible. Pollen contains thousands of these components, ready to manage and sustain life.



CHAPTER 5:

BEES WAX – Characteristics, indications and administration

Beeswax is produced by bees as a stable substance that does not interact with honey, pollen and royal jelly and has some important properties for apitherapists.

Indications for internal and external use:

- **external:** back pain (combined with propolis), arthrosis, acne, cosmetic use (depilation);
- **internal:** hay fever, gum disease, constipation.



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Properties of beeswax are directly related to its contained substances, but also to the fact that bees add small amounts of propolis inside each cell of the honeycomb, especially in those originally constructed for larvae.

⁷ <http://lataifas.ro/frumusetate/20448/crema-de-fata-cu-uilei-de-catina-ceara-de-albine-si-plante/>

Thus, beeswax has properties such as: antiseptic, emollient, anti-inflammatory, healing.

Wax helps the skin to have a smooth and elastic structure (aspect), so it is widely used in cosmetics, in preparing different masks. It is also used for depilation.

The main methods of administration are:

- **External (on skin or lips):** alone or combined with raw propolis, propolis extract, resins, sunflower oil or olive oil in warm patches (poultices), ointments against: external localized pain; various skin diseases and / or conditions such as acne, infections of the skin, foot calluses.
- **Internal administration for diseases of the mouth, nose, sinuses, pharynx, larynx:** for this purpose, the extraction of the wax from the hive it is done before the extraction of the honey ("cap"); this beeswax, which contains small amounts of honey and propolis or small amounts of pollen, it is better than the "classic" type of wax because it contains numerous active compounds; the method of administration in this form is chewing the wax for at least 15 minutes, after that the remains must be spit, or swallowed in small portions.
- **Oral administration (swallowed):** beeswax represents a good moisturizer so it can be used in addition to other remedies against internal irritation or even inflammation; it can be easily used to relieve gastrointestinal irritation / inflammation.
- **As emollient (soothes and calms the skin or an internal surface irritated, inflamed):** wax can be used internally for diseases of the large intestine, thus entering the composition of suppositories (combined with extract of propolis, honey etc.).



In the early stage, beeswax is a colourless liquid produced by glands located in the abdomen of the bees. After it is chewed and processed, bees attach it to the honeycomb. Thanks to its high content in nutrients, beeswax is useful in improving the aspect of skin when applied locally. The main ingredients make beeswax a completely non-toxic bee product. In the hive, it is shaped in hexagonal cells in which the bees store honey and eggs, nurturing and growing the next generation of insects there.

Used as a building material in the hive, beeswax is loaded with substances that gradually change its composition and it passes through all shades of yellow, then brown to almost black after a few years. The chemical composition of the beeswax is very stable as a pure product secreted by the glands.

In the hive, beeswax absorbs impurities but does not transform, allowing its recovery after several years of use, using simple processes such as reheating and purification.

Beeswax belongs to a large chemical family, of the waxes, which are fat bodies, lipids, of various origins: animal, vegetable or mineral. All waxes have similar chemical properties. In their compositions are only carbon, hydrogen and oxygen.



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⁸ <http://www.beelovable.com.au/beeswax-uses/>

CHAPTER 6:

ROYAL JELLY – Characteristics, indications and administration

Royal jelly has a highly stable composition obtained from different breeds of bee colonies. Its stability probably underlies the genetic stability of the bee colony. Therefore it is extremely important for the life of the colony.



The main constituents of royal jelly are: water, proteins, sugars, lipids and minerals. Water constitutes approximately 2/3 of fresh royal jelly, but from the dry part, proteins and sugars (fructose and glucose) are by far the largest fractions.

A total of 29 amino acids and derivatives have been identified in the royal jelly, thereof the most important being aspartic acid and glutamic acid. All the essential amino acids for human body are present in the composition.

Another very important substance present in royal jelly, is acid 10 - hydroxy – decenoic, its concentration being a good indicative for the validation of royal jelly's quality. This should be more than 1.8% of dry matter.

Royal jelly is a complex substance produced by worker bees to feed the hive queen (queen bee). Its nutrient concentration allows the queen to survive more than 5 years, while the average lifetime of a worker bee is only 2-4 months. The composition of the royal jelly is so nutritious, that the queen bee is able to deposit 2,000-3,000 eggs in one day.

Indications for use of royal jelly: nutritional and metabolic diseases, diabetes, blood diseases, cardiovascular diseases, diseases of the lungs, otorhinolaryngology, stomatology, diseases of the immune system, renal, rheumatology, endocrinology, diseases of the adrenal glands, infectious diseases, paediatrics, oncology.

Therapeutic and curative properties of royal jelly:

Royal jelly has beneficial effects on the liver:

- Reduces liver weight, improves its structure and its functions;
- Increases the level of the albumin / globulin, having a very important effect in the treatment of liver diseases, particularly hepatitis;
- Indicates an increase in liver cell multiplication.

Royal jelly has beneficial effects on liver and miocardic tissues:

- Increases the oxygen consumption;
- Royal jelly has general effects of harmonization; it develops the living structures, and their energy.

Royal jelly has effects on inflammation:

- Stimulates and accelerates the progression of aseptic inflammatory process;
- Helps with the healing of inflamed tissues.

Royal jelly has beneficial effects on the cardiovascular system:

- It reduces atherosclerosis;
- Royal jelly is well known as a natural product that extends the life, not only of the bee queens, but also of the people; longevity is always related to health, and biologically to the youth of arteries.

Administration of royal jelly:

INTERNAL:

- **For the mouth area:** alone or combined with other natural remedies; raw, royal jelly can be used locally to treat conditions of the oral cavity, such as bleeding of the gums.
- **For pharyngeal-laryngeal disorders:** lyophilized royal jelly spray;
- **For gastrointestinal area:** raw, alone or combined with honey, herbs, and other natural remedies;
- **As additional or medicinal product:** tablets, capsules, lyophilized.
- **As subcutaneous injections:** it helps stimulate the immune system, especially for the elderly.

EXTERNAL:

- **For ocular disorders:** as molecular micelles; royal jelly can be combined with micro-sprayed physiological saline in the eyes with a special device; as an ointment, for eyelid diseases;
- **For healthy skin as:** creams, lotions, shampoos, soaps.

ADMINISTRATION:

- For adults, the usual daily dose is about 500 mg (800-1000 mg, if necessary).
- For children, the dosage is 30-50% of normal adult dose.

- For oral and gastrointestinal use, it is good to take raw royal jelly under the tongue, lyophilized tablets or until completely dissolved in saliva (minimum 2-5 minutes).

Clinical research has proven an euphoric action of royal jelly justifying its use in cases of fatigue, anorexia, weight body loss or of constitutional deficiency.



CHAPTER 7:

MEDICINAL BEE VENOM – Characteristics, indications and administration

Bee venom is a perfectly adapted / created compound for its functions: bees and colony defense. It is synthesized in the venom glands of worker bees and of queen bee and kept in venom bags. During the puncture, the venom is released through the needle in liquid form.



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The active components of bee venom, in small amounts (equivalent to less than 100-300 bites for an adult) can be very beneficial to human health when administered by trained people in an individualized manner. If administered incorrectly, unwittingly, bee venom can cause to some people, allergic reactions and irritation.

Therefore, it is necessary before its use for therapeutic purposes, to take all measures to protect the patient (allergy testing, correct dosage) and labour protection; the apitherapist must ensure the safe handling of this product.

⁹ <http://inhabitat.com/study-finds-that-nanoparticles-loaded-with-bee-venom-can-kill-hiv/>

Bee venom can be found in two main forms: liquid, as it is after extraction or as soon as it is injected through the needle by a bee, and dry, after collection with special mechanisms (venom collectors). Bee venom is a colourless liquid, with a pungent and bitter taste and an aromatic smell like ripe bananas. Pure dried venom has a yellow – brownish color.

Therapeutic and curative properties of the venom:

Medicinal bee venom has antibiotic properties:

- **Bactericidal effect on:** Staphylococcus aureus, Streptococcus pyogenes, Escherischia coli, Salmonella typhi, Bacillus brevis, Bacillus cereus; bee venom inhibits the growth of bacteria and fungus;

Medicinal bee venom has beneficial effects on:

- **The skin:** medicinal bee venom has a skin rejuvenating effect due to better blood circulation and an increasing effect of capillary vessels permeability.
- **The stomach:** Increases the production of gastric juice.
- **The Musculoskeletal System:** In large doses, medicinal bee venom contracts the smooth muscles; it enlarges the osteoblastic reactions.
- **Circulatory system (in small doses):** it adjusts the heart rate; it increases the energy levels, the heart function and the permeability of blood vessels;
- **The nervous system:** it reduces pain in certain areas where bee venom was applied several times; it blocks transmission of nerve impulses and decreases transmission speed of the stimulus in the nerve center.

Medicinal bee venom administration:

The main method of administration of bee venom is through the skin.

There are at least four common methods of administration of venom:

1. Pure bee venom administered through the needles of bees.

2. Solution of bee venom administered by injection.
3. Creams and ointments with bee venom, typically administered by simple local application, through massage and / or acupressure.
4. Bee venom solutions, ointments or salves administered by special physiotherapeutic methods such as: iontophoresis (introduction of soluble salt ions into body tissues using electric currents, method often used in therapy).



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Bee venom can be administered alone or, ideally, in combination with other treatment methods. A simple bite or bee venom injection will not bring about any benefit to our health if used alone. Therapeutic virtues of bee venom are known for a long time, even from antiquity. They were reported by beekeepers, who observed that painful rheumatic joints became painless due to bee stings.

In recent years, bee venom therapy has increased in popularity. It is now used in the treatment of many autoimmune diseases, including rheumatoid arthritis, lupus, scleroderma, and MS. Currently, up to 10,000 people with MS are undergoing this type of treatment.¹¹

¹⁰ <http://keepingbee.org/wp-content/uploads/2012/10/Honey-bee-venom.jpg>

¹¹ <http://www.neurologycare.net/bee-venom-therapy.html>

CHAPTER 8:

APILARNIL - Characteristics, indications and administration

Apilarnil is a product obtained from the larvae of drones, and it also has in its composition the nutritional content found in the cells of the honeycomb, harvested in a specific larval stage. Apilarnil, the male counterpart of royal jelly is a natural bee product made of drone larvae and of nutritious ingredients containing hormone precursors, minerals and vitamins. Drone cells are harvested at 10 days after their deposit for the preparation and they are crushed, homogenized and filtered for maximum health.

The composition of Apilarnil is highly complex, similar to that of the royal jelly. It contains 19 amino acids, beta-carotene, vitamin A, B1, B2, B6, E, minerals and trace elements, proteins, carbohydrates and lipids. It can take several forms, such as following:

- Freshly harvested (non – homogenized and unfiltered);
- Homogenized and filtered;
- Lyophilized.

Apilarnil has a homogeneous consistency, a milky yellow colour with shades of gray and a slightly astringent taste. It is perishable and therefore, it must be stored in the freezer in its raw form.¹²



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¹² <http://www.proapicultura.ro/apilarnilul.htm>

¹³ <http://www.e-miere.ro/wp-content/uploads/2011/04/apilarnil.png>

The apilarnil production in hives is achieved by using frames seeded with drone eggs by the queen. The process of obtaining this bee product consists in the continuous increase of drones in the hives to a certain larval stage, followed by the harvest. The optimal period for the production of apilarnil begins along with the blossoming of the fruit trees, in April – May, when the weather is warm enough, and in the bee family there is a large number of young bees, and it lasts until the end of July, beginning of August.

Due to the similarities to royal jelly's content, apilarnil is a natural, biologically active and energizing bee product. Therefore, it is used for the prevention or the treatment of certain diseases, either pure or mixed with other bee products or drugs.



Therapeutic and curative properties of apilarnil:

- It stimulates anabolism;
- It is antiviral like royal jelly;

- It is biostimulant;
- It increases the power of the immune system: due to the high quality of the nutrients contained in the extract; drones have great respiratory energy; good breath means sufficient oxygen throughout the body, including for white blood cells.
- It improves memory: the high quality of nutrients improves all the processes of memory.
- Improves menstrual cycle for women: due to endocrine balance given by the pre-existing natural hormones in apilarnil.
- It increases the intellectual performance of children in elementary schools: high quality nutrients help the overall development of the nervous system.
- It increases the appetite: like royal jelly and other anabolic stimulants.
- It increases the body's energy, vitality and regenerative power: due to the high quality of nutrients and bio-energy (found when apilarnil is in its raw form).
- It increases the overall resistance to diseases: because of the active compounds and nutrients that can help or nourish every cell of the human body.
- It is psycho-stimulant: it has a high content of amino acids, vitamins, magnesium, etc.
- It is recommended for the treatment of: metabolic diseases such as diabetes, obesity, gout; fatigue, asthenia, chronic fatigue syndrome; diseases of the stomach and liver (digestive tract); nervous system disorders; insomnia; premenstrual syndrome; flu and various infections, etc.

Indications for apilarnil:

Apilarnil is recommended to be administered both internally and locally, and also external.

Internal use of apilarnil:

- **for the mouth and throat area:** alone or combined with other natural products; gross can be used locally to treat conditions of the mouth, such as gum bleeding;

- **for gastrointestinal area:** gross, alone or combined with honey, herbs and other natural remedies; tonic solutions and syrups; these products can also be stored in small vials (eg 10 ml each);
- **as additional or medical product:** tablets, lyophilized apilarnil; apilarnil lyophilized in honey; Apilarnil lyophilized in pollen, honey and royal jelly; chocolate with lyophilized apilarnil (for children).

External use of apilarnil:

- **for ophthalmic diseases:** as solution for eyes (drops), as ointment to treat eyelid diseases;
- **for diseases of the nose:** as instillations, drops, spray, aerosols, inhalations, lavage (flushing) with dilute solutions.
- **for ears disorders:** as ear instillations, ointments, powders, suppositories.
- **for skin disorders:** for skin care, creams, lotions, shampoos; for skin diseases wet compresses, lotions, ointments, spray.
- **Apilarnil is also an active compound in cosmetic products:** creams, lotions, shampoos, face masks, etc.

Indicated dosage for apilarnil:

- The usual daily dose for adults is about 300 mg (600-800 mg, if necessary).
- The dosage for children is about 30-50% of normal adult dose.

For mouth - throat and gastrointestinal areas it is better to keep the apilarnil sublingual, in a lyophilized form or as tablets, until the complete dilution in saliva (minimum 2-5 minutes), then it must be swallowed.

The rules and principles of apilarnil administration:

- At first the apilarnil should be used in small dosages to determine if the treated person has an allergy or not;

- After 1 or 2 months of treatment, a break should be taken, according to the individual's conditions;
- In terms of apitherapy, fresh apilarnil is better than in processed products;
- Keep all products containing apilarnil, (especially solutions and / or preparations) in the refrigerator, because apilarnil is quickly destroyed by high temperatures. If not chilled or lyophilized, its lifetime decreases dramatically.

CHAPTER 9:

COUNTER-INDICATIONS FOR BEE PRODUCTS

HONEY: The most important contraindication for honey is diabetes. Exceptions: acacia honey (which contains mostly fructose) which may be given in small quantities in the morning. Honey is sweet because it contains 70% carbohydrates and can't be given in large quantities to those people who have "sweet" blood (hyperglycaemia).

There is another situation where honey is not recommended: pollen allergy (especially that related to the digestive tract). Honey contains more than 1% pollen in its composition. People suffering from this disease can't eat honey because even extremely low content in pollen allergies can lead to digestive or respiratory allergies.

PROPOLIS: There are about 1-2% of people with allergy to propolis, or with allergic reactions to certain substances that enter into its composition. As a result of allergies, propolis is not recommended for those people who suffer from such allergies.

BEE POLLEN: Some people may develop allergies to pollen or they simply can't support it very well in the stomach or in their digestive system, complaining of a heavy stomach, bloating, etc. To avoid many of these cases, it is always a good idea to advise patients to begin the consumption of pollen in very small quantities.

BEESWAX: Pure Beeswax contains mainly inert substances, but sometimes it can contain small amounts of propolis and / or pollen that may be responsible for certain adverse reactions. So, beeswax, through its additional compounds can also cause allergic reactions.

ROYAL JELLY: is contraindicated in the following conditions: asthma attack, Addison disease, royal jelly is astringent and can cause broncho-constriction.

BEE VENOM: is the most dangerous of all bee products, that's why it is really important to test the patients for allergies before applying any medicinal bee venom treatment.

APILARNIL: So far, no adverse reactions were found as toxic or allergic related to the use of apilarnil. However, since apilarnil contains small amounts of pollen, propolis and honey, we can assume that its use can lead to risks similar to those associated with its compounds.

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