Fundacja Ekologiczna ZIELONA AKCJA

The history of beekeeping, types of bee products

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PSZCZOŁY PROSZĄ O POMOC

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Lesson objectives

- Getting to know the history of the relation between humans and bees
- Learn the history of beekeeping in Poland
- Presentation of silhouettes of famous beekeepers
- Understanding the types of bee products

Introduction

The history of bees is a story a little longer than human history. Bees live on our planet more than 40 million years and for thousands years they are engaged in the production of honey.

Once the man discovered wonderful properties of honey and began to use it in many different ways, using the same time bees. Honey we see today mainly as a delicacy, sugar substitute and therapeutic agent.

A relatively new concept is apitherapy - the treatment with bee products. Although honey and its derived products have been used in natural medicine for centuries, only recently was discovered the scientific basis speaking of the mechanisms of action of these products on human body as well as clearly indicating their effectiveness. Therefore it's worth and important to know the history of beekeeping and bee products.

Beginnings of beekeeping

Since ancient times people interested in bees. The oldest message on the existence of beekeeping are wall paintings from the Paleolithic in the Arana cave of the province of Valencia in Spain showing people picking-up honey from nest of wild bees. They estimated at 10,000 years. In Jutland discovered honey drops petrified in amber dating to 30 million years.

Fig. 1 A woman choosing honey from wild bees (Palaeolithic declining, c. 9000 BC), a painting of the cave Arana Spain, Mi 2151 (28/04/1975).

The benefits flowing from the exploitation of bees have been known to all ancient civilizations. The ancient Egyptians, Babylonians, Sumerians and Chinese used honey as a therapeutic agent (medications). Honey has also been used for embalming corpses. The Babylonians burying their dead smeared with honey – it was a symbol of everlasting happiness. For the ancient Greeks it was the elixir of life and the nectar of the Gods. During the feasts they used it on a par with water, olive oil and milk.

Hatshepsut Queen in Egypt has established honeybee as a symbol of Upper Egypt and Ramses II paid his officials a part of the salary for their work in the honey. The famous Cleopatra cares about their beauty bathing in milk with honey. In one of the Egyptian pyramids discovered honey dating back more than three thousand years - it was crystallized but fit for consumption.

Photo 1. Pendant with Malia, showing the bees holding the disk, decorated with granulation (1800-1700 BC).

Hippocrates and his students have used over three hundred recipes for medicine with the use of honey and the Roman poet Virgil saw in bees a divine principle.

The largest beekeeping rise was observed in ancient Rome. In the area of modern Israel has found a lot of hives made of straw and clay dating back to 900 BC. Historical data indicate the capacity of about 500 kg of honey and 70 kg of wax per year.

Initially outside the Mediterranean area the man scan for wild bees nest and took them honey, moreover almost always meant the destruction of the colony. However, very quickly he is trying to get permanent access to honey. This predatory activity has been replaced already more than 500 years BC by bee-keeping - breeding of bees in the wild conditions. Gradually these initially wild insects began to domesticate and adapt infrastructure suitable for breeding: hollow tree logs, clay pots, woven baskets.

Beekeeping in Poland

Photo 2. “Figures - Hatshepsut”” by Mix 321 from Polish project Wikipedia.

Fig. 2 “Jozef Łapczyński - Selecting a hive of Kurpie”” - “Illustrated Weekly”” 1870, No. 134, July 23, 1870. Public Domain License based on Wikimedia Commons.

In the Polish territory in the Neolithic (stone age) which was lasted on our land in the period from 5200 to 1900 BC, was a significant increase in population and settlements developed. Therefore human clusters had a high need for honey and this fostered the development of bee-keeping. The oldest archaeological evidence of man-made hive is a hollow tree log extracted from the bottom of the Odra river estimated at 1.5-2 thousand years old. Bee-keeping has become one of the most important sectors of the Polish economy at that time, more important than hunting and timber trade. Working with wild beehives require huge knowledge and patience, tenderness, attention and finally the experience so beekeepers were surrounded by general respect and admiration. This is reflected in the old legislation.

Beekeepers were generally free people, have the right to wear weapon, hunting and fishing. There were also formed separate sets of laws and courts of bee-keepers.

Wild beehives were usually made of pines and oaks, less of lindens, elms, beeches and hornbeams. They had to be suitably old (over 100 years), thick (at 1.3 m at least 1 meter in diameter) and high.

One of the areas of intense beekeeping activity was Bialowieża Forest where you can meet beehives trees counting even many hundreds of years and also traces of beekeeping. There was the perception among Polish people and foreigners that polish lands are one big apiary. Poland was also the largest exporter of honey and honey was also basic product in domestic trade. Profits from the sale of honey a very long time exceeded those of imported wood.

Wild bee-keeping disappeared on Polish territory in the nineteenth century. Why? One of the reasons was to recover sugar from sugar beet or so-called Burgundian beetroot (so far it was a very expensive and luxurious product because it comes from overseas countries where sugarcane was grown). The second reason was the increase in demand for wood associated with the development of industry and architecture. Beekeepers were also accused of intentionally burning forest undergrowth and thereby setting fire to forests. Therefore, it disappeared completely and gave way to the creation of apiaries and hives gardens. The total number of hives in the Polish lands in the early twentieth century was estimated at 600,000 units.

How is it today? Based on published data the number of bee colonies in Poland as of October 2013 was the 1,344,062. Most of colonies (over 100 thousand) was in Voivodeships: Lublin, Subcarpathian, Warmian-Masurian, Lesser Poland, Greater Poland and Lower Silesia. According to data from records kept by county veterinarians number of active beekeepers was 55,023.

Most of beekeepers (more than 5 thousand) was in 4 provinces: Lesser Poland, Lublin, Subcarpathian and Silesia. At least were (less than 2 thousand) in Podlasie, Pomeranian, Lubusz and Opole. It should be noted that a sufficient number of colonies in the region allows for proper pollination of crops. Today in the US and Western Europe beekeepers are paid for pollination of crops by bees bred by them.

Great Beekeepers

Photo 2. St. Ambrose "St.Peter am Wimberg Kirche - Kanzel 4 Ambrosius" by Wolfgang Sauber – own work. The license CC BY-SA 3.0 based on Wikimedia Commons.

St. Ambrose (339-397) – the patron of beekeepers, Bishop of Milan who lived from 340-397 AD. According to legend as a child he was sleeping in the garden where flew a swarm of bees putting a honey in his mouth. He made beehives from wicker baskets.

Jan Dzierżon (1811-1906) – the world-renowned Polish beekeeper who discovered the phenomenon of parthenogenesis in bees. He designed the first successful movable-frame beehive used for today and has been described as the „father of modern apiculture".

Lorenzo Lorraine Langstroth (1810-1895) – American explorer of bees life, known as the „father of American beekeeping". The constructor of the first in the US framework hive, a precursor of the US beekeeping industry.

François Huber (1750-1832) – Swiss blind beekeeper. The constructor of the first observational framework hive. He discovered the role of the antennae in bees and the fact of insemination the young queens during mating flight.

Mikołaj Witwicki (1780-1853) – the precursor of modern Polish and Russian beekeeping, the author of prominent apiarian books, the constructor of special hive. Since 1849 led apiaries in the area of Poltava in which he has kept almost 4 colonies of bees.

Karl von Frisch (1886-1982) – Austrian biologist, zoologist, a pioneer in the field experience of animal testing, winner of the Nobel Prize in Physiology and Medicine in 1973 for a detailed description of how to communicate bees, so-called the bee dance.

Types of bee products

Photo 3. Different types of honey.

Honey

What is this? It is the natural sweet substance produced by bees from the nectar of plants or from secretions of insects sucking juices from living parts of plants which the bees collect, pick-up by combining with specific own substances, composed, dehydrate, gather and leave to mature in honeycombs. This product can be fluid, sticky or crystallized. Honey is divided into: nectarine called floral and honeydew honey.

Where did it come from? Bees produce honey bringing a flower nectar or honeydew to hive. Under the influence of enzymes and formic acid the sucrose is converted into glucose and fructose in bees digestive tract.

How do we use it? Honey is a valuable nutritional product especially for people exhausted physical or mental work. It has antibacterial properties. Today, honey is included in the diet of athletes, mountaineers and divers. Simple sugars also take part in the detoxification, protecting to a certain extent against effects of environmental pollution and reducing the toxic effects of alcohol, nicotine and other drugs.

Located in honey acetylcholine lowers blood pressure and improves blood circulation, while choline has a protective effect on the liver and increases the secretion of bile. Metal ions contained in honey stimulate the production of red blood cells and hemoglobin.

Pollen

What is this? Pollen is a very valuable herbal product containing proteins, amino acids, simple and complex sugars, fats, flavonoids, carotenoids, vitamins and minerals. Pollen is one of the important components of bees food, providing a source of nutrients and minerals needed bees to produce royal jelly which is food for hatched larvae.

Where did it come from? Bees collect pollen from flowers, mixed with a bit of honey, nectar or saliva and in the form of shaped balls they transferred it to the hive in special baskets located on their back legs. Pollen in a pollen basket is called bee pollen.

How do we use it? Bee pollen is called miraculous remedy (panacea) because he has a very broad effect and properties. It helps in relieving stress, it mitigates states after a big effort. Bee pollen is also used in the treatment of allergies, especially hay fever or asthma. The study also confirmed its positive effect in treating prostate enlargement or duodenal ulcer.

Bee propolis

It's a mixture of honey, pollen and royal jelly. Where did it come from? Bees do specific mass with honey, pollen and royal jelly and place it in bee cells protecting with honey.

How do we use it? It increases immunity, helps in regeneration after surgery and heart attacks, it strengthens the nervous system and therefore finds use in the treatment of depression, has a positive effect on the digestive system – especially at ulcers, it is helpful in treating diarrhea and constipation, increases appetite and regulates metabolism.

Bee putty (propolis)

What is this? Propolis is a balsamic-resinous substance which the bees use to seal a nest and in a mixture with a wax to polishing honeycomb cells.

Where did it come from? It is created in the hive brought by collators secretions of the buds of poplar, birch-tree, willow, pine, spruce, fir, alder, oak, ash and other trees. These substances after enrichment by bees with secretion of guttural and mandibles glands and a small amount of wax and pollen give so-called bee putty (propolis).

How do we use it? It is recommended for treatment of diseases: cardiovascular, hypertension, gastric and duodenal ulcers, respiratory tract, throat, prostate, hemorrhoids, fungal infections and psoriasis. Today propolis defines as „natural antibiotic of XXI century „.

Bee venom

What is this? This a gland venom secretions of worker and mother bee. Drones don't have it.

Where did it come from? Venom is produced in venom glands in the rear part of the abdomen and is collected in a venom tank. This tank may contain approx. 80 micrograms of venom. Bee-Queen produces venom a lifetime while bee-worker from 2 to 20 day of life. The venom is used for defense. It is used most of all in rheumatic diseases.

Bee wax

It is a secretion of waxy glands located on the ventral side of the abdomen of bee workers.

Where did it come from? The liquid wax flows through the channels on the surface of the cuticle bees and solidifies thereon as white thin husks.

How do we use it? Wax is used to make candles, as a substance impregnating wood, canvas, paper and as a binder for paints (of best quality). In the pharmaceutical industry is used in addition to ointments and slices, in cosmetics for making creams, lipsticks, pencils, shampoos, soaps, lotions as well as in the textile industry for thread impregnation.

Royal jelly

What is this? It is a gelatinous substance with the consistency of thick cream, white color with a pearl tint and a bitter taste. Where did it come from? Milk is produced in the throat glands of the young bee-workers. Milk is used to feed drones and workers larvae in the first three days of their lives and also to feed larvae which develop bee-queens to the fifth

Photo 4. Working on the apiary.

Photo 5. Traditional apiary.

day of their lives and then (after leaving the nursery) - lifelong bee queen-mother.

How do we use it? Royal jelly has a valuable nutritional properties, stimulates biological regeneration of tissues. A set of biologically active substances contained in it improves mental and physical efficiency. Improves brain function, memory and thinking functions and ability to concentrate. It shows a positive effect with atherosclerosis, inflammation of the veins, after a heart attack, diseases of the blood and circulatory failure. It also slows the aging process and as a natural aphrodisiac counteracts male impotence.

Photo 6. Traditional apiary.

The air from the hive

Air from the beehive has healing properties in cases of oral mycosis, respiratory diseases, catarrh mucous membranes, sinusitis and also allergic ailment to pollen and various kinds of allergies. This allows the characteristic microclimate swarm of bees: inside the hive is warm and wet, there is any bacteria, viruses or pathogenic fungi.

Meads

Mead is an alcoholic drink of honey and water. The proportion of honey and water determines the amount of alcohol in the beverage. The mixture of water and honey is called

wort. A distinction is in natural honey obtained by fermenting uncooked honey and honey stirred up with boiled wort.

Conclusion

Albert Einstein: *"If the bee disappears from the Earth, a man will have only four years of life; no more bees, no more pollination, no more plants, no more animals, no more people..."*.

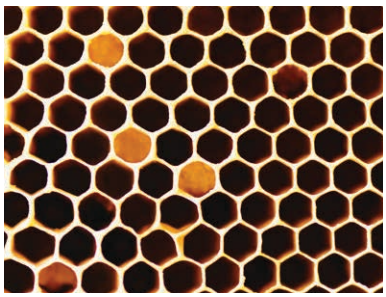

Photo 7. Honeycomb.

For centuries honeybee was for a man one of the most important insect species. We used it mainly for the production of honey and acquisition of other bee products.

Today honeybee has a completely different status. Except for honey acquisition,

apitherapy and use of the products of bee in many areas of the economy, more important is the fact of pollination human cultivation by this species.

It is estimated that globally about 1/3 of crops is achieved thanks to the activity of the honeybee and other pollinator species. A man wanting to intensify this process domesticates today other species such as: bumblebees and wild bee Megachile. Therefore, the hypothesis that without bees human life would not be possible seems to be by all means correct.

Exercises

1. Apitherapy is :
a) treatment with antibiotics,
b) treatment of diseases through the use of bee products,
c) treatment with light,
d) otherwise rehabilitation.

2. The use of honey for embalming corpses discovered the ancient:
a) Egyptians,
b) Greeks,
c) Romans,
d) Babylonians.

3. The honeybee was the symbol of:
a) Upper Egypt,
b) medieval Rome,
c) Poland XII century,
d) Empire of China.

4. Wild bee-keeping is:
a) breeding bees in hives,
b) breeding bees in hollow tree logs,
c) special production of honey,
d) way to smoke-out bees.

5. Wild bee-keeping in Poland disappeared because:
a) beekeepers were accused of setting fire to forests,
b) was invented a way of cheap sugar production,
c) increased demand for wood,
d) all of the answers correct.

6. Bee propolis is:
a) a blend of honey, pollen and royal jelly,
b) secretion of venom gland of bees,
c) balsamic-resinous substance used by bees to seal a nest,
d) natural sweet substance produced by bees from the nectar of plants or from secretions of insects.

Answers:
1. b
3. a
4. b
5. d
6. a