



How to process raw honeybee pollen into food for humans, Argentina

Source	Food and Agriculture Organization of the United Nations (FAO)
Keywords	Beekeeping, value added product, pollen, pollen grains, human nutrition
Country of first practice	Argentina
ID and publishing year	8755 and 2016
Sustainable Development Goals	No poverty, good health and well-being, and decent work and economic growth

Summary

Bee pollen is one of the most sources rich in protein, it has a wide range of applications in medicine making it an attractive product for processing and commercializing. This practice describes how to dry and store pollen, and recommendations on when to collect pollen granting the highest quality.

Description

Pollen is composed of 40 to 60 percent simple sugars (fructose and glucose), 2 to 60 percent proteins, 3 percent minerals and vitamins, 1 to 32 percent fatty acids, and 5 percent diverse other components. Bee pollen is a complete food and contains many elements that products of animal origin do not possess. Bee pollen is richer in proteins than any animal source. It contains more amino acids than beef, eggs, or cheese of equal weight. About half of its protein is in the form of free amino acids that are ready to be used directly by the body. Bee Pollen can also be used medicinally for a wide range of conditions from prostate health to skin conditions and can help correct specific nutritional imbalances within the body.

1. How to preserve pollen to be consumed later

To avoid spoilage, fresh pollen should be dried or frozen within few days of collection. A simple drying method uses a regular light bulb (20 W).

- Spread the pollen evenly in one layer on a carton or a tray.
- Remove any visible debris (parts of bees, little stones, etc.).
- Suspend the light bulb high enough above the pollen so that the pollen does not heat to more than 40°C or 45°C.

Pollen can also be dried using a solar drying system. The pollen itself should be covered to avoid direct sunlight and overheating. A simple way to make a pollen solar dryer is using a box, of any kind of clean material, with a thin layer of pollen on the bottom and cover it with an opaque cover to avoid sunlight to damage the good properties of pollen. The box should be placed in the sun during the day and taken inside if the humidity during the night increases too much. The time needed to dry the pollen varies depending of the place where you are so the best is to turn the pollen every day until you feel the pollen pellets are dry.



2. How to store pollen

It is important to store pollen correctly to avoid spoilage and/or avoid losing the nutritional value of pollen. As mentioned earlier, fresh pollen stored at room temperature deteriorates because of bacteria and fungi that can start growing on the pollen. Therefore, fresh pollen should be frozen or dried within a few days of collection. Stored in a freezer, pollen will keep most of its nutritive value up to one year. When dried to less than 10 percent (preferably 5 percent) moisture content at less than 45°C and stored out of direct sunlight and in an airtight container, pollen can be kept at room temperature for several months. Dried pollen may be refrigerated at 5°C for at least a year or frozen to -15°C for many years without quality loss. Since sunlight, such as UV radiation, destroys the nutrient value of pollen, other more subtle characteristics probably suffer worse damage. Storage of dry pollen in dark glass containers, or in dark cool places, is therefore a requirement.

3. Quality control

Only a few countries, such as Switzerland and Argentina, have legally recognized pollen as a food additive and established official quality standards and limits. Since air pollutants and agro-chemicals have been shown to accumulate in pollen collected

by bees, pollen should originate from unpolluted areas with the lowest chance of contamination by agrochemicals, industrial pollutants and drugs applied by beekeepers. Pollen should not be collected during and several weeks after the foraging area has been treated with pesticides. Bees visit plants over a distance of 3 up to 10 km around the hive, so ensure that in that area, no pesticides have been used.

4. Further reading

- FAO. Value added products of the beehive": [URL](#)

5. Agro-ecological zones

- Tropics, warm

6. Objectives fulfilled by the project

6.1 Women-friendly

The technology is accessible and easy to use by all.

6.2 Resource use efficiency

The technology improves bee pollen quality, assuring its protein content. This allows it to be used widely in medicine and can be commercialized more advantageously.

6.3 Pro-poor technology

Through bee pollen quality improvement, the technology not only provides a higher quality source of food but also provides an additional source of income as well.