THE NATURE OF HONEY

Pollen Analysis isn’t Enough

Monofloral honey almost entirely from one floral source is of higher commercial value than a polyfloral honey in the U.S. as well as in Europe. Potentially, the legal value of honey is influenced by a combination of criteria, notably the indication of the source. Therefore, it is necessary to define clear criteria for the required characteristics of the honey.

The legal basis for the indication of honey is defined by the European Commission Regulation 1122/2007. This Directive is implemented by national legislation in member states with the possibility to harmonise the requirements of importers and officially authorised EU inspection bodies within the scope covered by the Directive. Furthermore, the legal basis for the indication of honey is defined by national law in each member state.

Bees have the tendency to forage mainly on one nectar source once it has been recognized as attractive, and flowers are abundant and available, thus producing monofloral honey. However, honey is unlikely to contain 100% nectar of one plant species. Other conditions can affect the composition of the honey.

The market needs a definition when monofloral honey is claimed. Monofloral honey requires certification to ensure that the honey is produced by bees in a specific nectar source.

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Follow good beekeeping practice. High counts of starch grains may indicate adulteration. Honey dew elements like spores, hyphae, algae are important for honey dew honey. The official method in Germany (§64 LFGB L-40,00-11; DIN 10760:2002) defines a microscopic test for counting the pollen. Pollen percentages then must be interpreted carefully in terms of nectar percentages considering naturally over- and under-represented pollen due to flower morphology, pollen size as well as beekeeping practice leading to over- or under-representation. No official and harmonized European or international (e.g. Codex Alimentarius) rules are approved up to now for interpretation of pollen counts in terms of nectar percentages. Experimental attempts have been made in order to define coefficients for some plants but it is impossible to define these figures for worldwide nectar sources plants.

BECKH and CAMPS collected literature data as well as statistical data from daily lab routine and summarized these as specifications (including Pollen%) of monofloral honeys (blossom and honey dew honeys labeling) in a publication. Based on this survey the German Food Commission established the already mentioned Guidelines in Germany which are recommended to be followed by the market and official controls.

In the U.S. it is common practice to “filter” honey in order to remove pollen from the honey for the purpose of stopping crystallization and keeping the honey liquid. As mentioned before it is not possible anymore to trace back the botanical or geographical origin by pollen analysis which may lead to fraud. In Europe it is mandatory to label the geographical resp. country of origin (EC-Honey Directive 110/2001, Article 2, 4.) It is also not allowed to label a filtered honey as monofloral e.g. clover or sage. For blends the packer may use the labeling EC and/or non EC. In order to control traceability of honey for importers, packers, retailers in EU it is routine to test honey for pollen analysis which gives them the chance to control their suppliers. Of course method is limited if pollen spectra of regional areas are quite similar due to the same vegetation covering more than one country. In this case new developed methods e.g. trace elements or isotopic elements can help if there is enough data on authentic honey available. Since food safety and consumer protection is one of the main objectives of EU-legislation traceability is mandatory for food business operators (see also 16–18).

The benefit of filtration, e.g. long-time texture is disproportioned to other quality features. Focusing on diversity of nature as well as maturity of consumer it is necessary to let the customer decide which honey he prefers – he is the expert on the favored taste in the end. QSI established in 1954, is the expert for pollen analysis, honey labeling and the other mentioned features as well in Germany, who is in charge for customers all over the world.

References:
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