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FILTH-TEST ASSESSMENT OF ITALIAN AND AFRICAN HONEY QUALITY

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In honey, intrinsic elements like wax, pollen, propolis may be present, but also completely extraneous materials like animals or their parts, plant, wood, glass, plastic, soil particles, textile fibres, hair and coal residues can be found. Foreign substances can be incorporated into the honey during the production process for different reasons, often as a result of beekeeper's improper procedures: excessive use of smoke in the terminal stage of super removal in the apiary, inappropriate clothes, poor hygiene of vehicles and honey processing and packaging. The purpose of this research was to assess the hygiene and the cleanliness of Italian honeys, which were extracted by centrifugation and packaged in glass jars, and of African honeys, which were extracted with traditional techniques and packaged in various containers. Honeys were sampled at local markets in North West Italy and West Africa (Benin, Burkina Faso, Niger). A filth-test technique was performed on 73 honey samples which were diluted in deionized water, filtered through an Advantech membrane filter (45 mm diameter and 0.45 μm porosity), dried at 105 °C, weighed after cooling in a crystallizer, and observed under a dissecting microscope. Moisture and water-insoluble contents were also determined for each sample. Italian honey samples had a moisture content above 18%, but none exceeded the limit of 20% fixed by the EU Council Directive 2001/110/EC of 20 December 2001 relating to honey. Only one sample, with 0.16 g/100 g, had a water-insoluble content above the 0.1 g/100 g limit as indicated in the same directive. Several samples, although falling within the law limits, were found to contain foreign substances which are considered normally unacceptable under the existing legislation: impurities of animal origin (rodent hairs, mites, insect fragments), textile fibres, plastic material fragments, coal residues. Moreover fragments of wax and resin droplets, material intrinsic to the hive were also present. African honey samples had a moisture content between 13.0% and 19.8%. Insoluble substances ranged between 0.03 and 0.35 g/100g, with 7 samples with a content exceeding the limit of 0.1 g/100 g, but below the limit 0.5g/100 g for pressed honey fixed by the EU Council Directive 2001/110/EC. Observations of membrane filters made it possible to detect a consistent presence of wax due to the extraction system (manual or screw pressing), large quantities of pollen, also as a consequence of extraction, and some charred residues probably due to the use of smokers. Fibers of various origins (filter bags, clothing of workers) were almost entirely absent, and there were no insects or foreign hairs. The filth-test analysis yielded good or satisfactory results in most cases, but it has also highlighted the need of making corrections in the process of honey extraction/packaging in order to reduce substantially or eliminate completely the presence of foreign substances in the honey.