



Bee positive about your honey

by Savvas Xystouris, Technical/Development Manager, Proficiency Testing, LGC Standards.



Food fraud is an international problem and it is expected that cases of adulteration to goods, particularly those of high-cost and high-value will increase in the future. Naturally sweet foods such as honey can be diluted with low-cost sweeteners but sold or marketed as 100% natural. The need for food authenticity testing is therefore more critical than ever to protect both consumers and producers

The EU Directive 2001/110/EC as amended by 2014/63/EU defines honey as 'the natural sweet substance, produced by *Apis mellifera* bees [...]'. The Directive prohibits the addition of any food ingredient other than honey, including food additives. Within the European Union, there are approximately 17 million beehives and 600,000 beekeepers. The EU is the second biggest honey producer in the world after China.

The Directive clarifies that if the product is to be placed in the market as 'Honey', or used in any food product intended for human consumption, it must meet specific analytical composition criteria. According to the EU Directive as well as the FAO/WHO CODEX Standard -12-1981 revised in 2001, these criteria are:

- Fructose and glucose
- Sucrose
- Moisture
- Water insoluble content
- Electrical conductivity
- Free acid
- Diastase enzymatic activity
- Hydroxymethylfurfural (HMF)

The regulations are generally intended to preserve the purity of honey as an unprocessed raw agri-food product with only minor modifications to its initial chemical composition. However, there are some differences between European legislation and revised Codex Alimentarius standards regarding the definition of honey, the country of origin statement, honey of low enzymes and the adoption of Baker's honey in the EU directive. In addition, several countries have adopted different national quality criteria. In 2015, the European Commission organised a control plan to check the prevalence of honey fraud with sugars or honey mislabelled with a false botanical source and geographical origin. All 28 Member states participated in the control plan and 14% of the samples they tested were found to be non-compliant and contained added sugar.

Away from the EU, there are over 2.7 million honey producing colonies in the US alone. US FDA has recently (February 2018) issued a non-binding recommendation relating to 'Proper labelling of honey and honey products', which specifies the definition of honey and honey products and helps to prevent adulteration or mislabelling of such products.

LGC Proficiency Testing can help to ensure honey quality testing is performing to the highest standard, with a new sample in the QFCS food chemistry PT scheme for testing the essential composition and quality factors in honey including pH, fructose, glucose and sucrose content. The analytes and related methods are routinely used as part of analysis to determine the quality of honey and to meet the regulatory requirements.

