That is a crime

A number of recent studies point to a huge, active and hi-tech economically motivated adulteration (EMA) of honey1, made possible because the old style sugar cane or corn syrup additions, known as “C4” plants adulterations, evolved to falsify honey manufactured from beet, rice and other “C3” plant syrups, similar in nature to the nectariferous plants bees forage2, prompting standard authenticity analysis methods to become obsolete. Until now, no single test has been reliable. The European Parliament March 1, 2018 resolution3 and the Apimondia Statement on Honey Fraud4, January 2019, contain comprehensive measures that if implemented can stop this food crime. Both were published after the results of an European Commission analysis over honey adulteration5 (2016), which showed that of 893 samples, 14.7% were not compliant.

The fraud is carried out by some exporters from Asian countries, where mislabeled honey is manufactured and sold at a price up to one third of the commercial value of authentic honey6 to European food chains. This is food crime, affecting not only consumers and bee keepers around the world but also our environment.7

However, despite evidence and official statements, counterfeit honey trading in Europe continues to prevail.

The fraud has reached the media with scientific evidence from Australia, Spain, France, the US and India. Yet, despite the EU Parliament Resolution and the Apimondia Statement on Honey Fraud, this food crime is devastating beekeepers, the front line families in the effort to save bees. Latin American Beekeepers inspired by the recent success against the Monsanto attempt to convert Mexican agriculture into GMO, are determined to put evidence before responsible authorities and courts where adulteration is hurting consumers. Action began by buying jars of honey from major food retailers of the UK, the world main importer of Chinese honey. Jars were immediately sent to a fully accredited laboratory in Germany to be analyzed under a broad spectrum approach, meaning not only using one single adulteration detection method – as the fraud industry chooses for its cover up – but an array of methods.

The results confirm honey fraud.

Facts

The eight largest importers of Chinese honey in the EU, 2001-20188

2. Chinese honey imports into the EU, 20189

3. Import prices of honey in the UK, 2007-201810

The European Union and Chinese honey

Striking growth in UK imports

Honey fraud around the world... and especially in the UK

Honey fraud

One third of the international honey trade is not produced by bees from flowers

...but from syrups in factories

1. The eight largest importers of Chinese honey in the EU, 2001-20188

Tons


United Kingdom 38,000
Belgium 10,000
Spain 9,000
Poland 6,000
Germany 4,000
Portugal 4,000
Netherlands 4,000
Italy 2,000
Rest of the EU 5,000

Year

Price USD/Ton


From China 2%
From the world (average) 47%

1. United Kingdom 14%
Belgium 10%
Spain 11%
Germany 6%
Poland 9%
Portugal 4%
Netherlands 4%
Italy 2%
Rest of the EU 5%

From China 2%
From the world (average) 47%

From China 2%
From the world (average) 47%
Eleven samples, all labeled as a “blend of EU and non EU honey”, were purchased at nine large supermarkets in Brighton and London, UK, with selection criteria of a low price, and purchased between 10-12 November 2018 in: The Coop (2), ASDA (1), Aldi (1), Lidl (1), Tesco (1), Morrisons (2), Waitrose (1), Sainsbury’s (1) and Poundland (1). All honey jars but one –Rowse, bought in The Coop- are Retailers own label.

All were sent to FoodQs, an accredited German laboratory in Langenzenn.

Under bread approach testing, no single sample was found fully compliant. Under cover up test, all were compliant11.

• All have Psicose a generic fraud marker.
• Over 50% have honey foreign substances.
• Glycerol, develops when fraud impedes honey ripening in the hive, byproduct of fermented nectar dehydrated in factories.
• Only one brand demonstrated legal diastase biological activity.
• All EA/LC-IRMS C3/C4 results negative to adulteration, point this test as the fraud industry choice for cover-up. This explains why manufacturers of Fructose “Honey Syrup” advise “passes C3/C4 analysis”12. Laboratories collaborate with fraud while performing this method without a warning statement in their analysis reports13.
• To grasp the UK fraud size, the exactly comparable experiment in 10 Spanish Retailers shelves yielded 4 authenticity test failures, whilst 72 for the UK jars14.

Findings

Sampling

in main supermarkets

in the UK

Creating a strategy to defend authentic honey supported by a growing multidisciplinary international team:

1. Acting legally so competent courts order detailed and comprehensive analyses to be performed to every container of imported honey.
2. Providing information to specialised media and social networks to make the fraud knowledgeable to consumers, building respect and awareness for real honey and beekeepers, UK and worldwide, who already endure many hardships.
3. Sharing the science behind fraud findings and how honey fraud dramatically impacts the world’s bee population.
4. Encourage, consumers and retailers to boycott companies committing honey fraud.

Protocol to avoid honey fraud

To avoid honey fraud, the best strategy is to require mandatory broad spectrum analyses performed by an independent third party on every container imported.

1. Biological, nutritional properties and Composition of honey
   (Diastase, Invertase, Sugar profile, Nutritional Profile)
2. Geo-botanical marker (Pollens & botanical markers)
3. Bee activity markers (Proline and other Amino acids)
4. Generic Tests (Psicose, NMR, HRMS, IR, Laser)
5. Targeted markers (glycerol, foreign substance markers: colors, enzymes, etc.)
6. Sensory tests (Organoleptic)
7. Culminating in an expert determination of authenticity, assessing the origin and fair market value.

Authenticity is concluded after several analyses and a final expert determination, never one sole analysis.

Notes

3. Prospects and challenges for the EU apiculture sector establishing the prevalence of fraudulent practices in the marketing of honey” N° 5. Ecosystems and Environment.
5. Byzantine technique of high resolution mass spectrometry LC-IRMS was not very reliable in the 2004-2005 study. This technique was abandoned in 2007 due to its numerous shortcomings. The technique is not reliable anymore and the claims of honey fraud are not real. The method was designed in a laboratory, not in the field, and the results, therefore, not reliable.
6. The method was produced on lab data, without field verification, and also not reliable.
7. The author is a co-founder of the Honey Authenticity Project, 2019 hiveauthenticityproject@gmail.com
8. Clinical statement on honey fraud, January 2019
9. Scientific support to the implementation of a Coordinated Control Plan with a view to reinforcing and improving the monitoring of honey’s geographical origin.
11. But not so for the honey fraudsters.
12. Link to Alibaba advertisements of syrup for honey passes C3 C4 tests.
13. Link to UK and Spain samples comparison.
14. All EU honey law regulations around syrup for honey passes C3 C4 tests.
15. No 2018 sample in any category.
16. Discussion of honey adulteration with 13C Isotope ratio mass spectrometry (IRMS) for the detection of C3 (corn) or C4 (sugarcane) sugars.

Sensory tests: (Organoleptic)

1. Sensory tests (Organoleptic)