The alarms

- Producer prices of honey fall despite rising demand and adverse environmental conditions, deforestation, and the Colony Collapse Disorder (Fig. 1).
- While America exporting countries have a logical correspondence of exports and increased domestic consumption to their hive low growth (Fig. 2), the increase of exports by major Asian exporting countries is totally abnormal with the base growth. (Graph. 3).
- The price of Chinese honey is around half the international average price, totally abnormal with the hive growth. (Graph. 3).
- Multiple findings of mass adulteration of “honey” of Asian origin exported to Europe and the U.S. have been documented. One third of exported honey is from China.
- For the mimicking of honey these ingredients –widely available in the market– are added by means of high precision dosing machines.
- Abundant and cheap inputs. While a metric ton of honey reached a international price of US$5,000, the average price of C3 syrups is US$500, more than seven times lower. Additionally, the world production of honey is 1.5 million tons per year, well below the more than 2.390 million tons of rice, beet, cassava, wheat and potatoes per year, a huge source of inputs for fake honey syrups.
- Purification with resin technology. To eliminate the substances that reveal adulteration or falsification of honey, perpetrators use filtration technologies based on resins.

How is this possible and what are the consequences?

The European Union and Chinese honey
Striking import growth


5. Chinese honey imports into the E.U., 2015

6. Comparison E.U. import prices between honey from the world and from China
The United States and Chinese honey shows adulteration. In 2000, the U.S. determined an anti-dumping tariff for honey imports from China, due to unfair commercial practices that allowed prices well below the market value. As a result, imports from countries that were not historic producers and exporters of honey, increased abnormally.

A federal investigation revealed the scheme of illegal imports of Chinese honey through intermediary countries (Russia, India, Indonesia, Malaysia, Mongolia, Philippines, South Korea, Taiwan and Thailand) that gave rise to the highest food import duties fraud in American history, named by Federal agencies prosecuting the crimes as “Honeygate”.

As a result of the investigation, six companies and eleven individuals were charged with a global conspiracy to illegally import Chinese honey into the U.S. (“Honey laundering”).

The anti-dumping tariff is maintained to date. Currently honey imports from Viet Nam, India, Ukraine and Thailand into the U.S. show characteristics that suggest they are China’s intermediary countries: abnormal growth and low prices.

In the graph, a fraction (2%) of the spectrum of honey in general is shown in colors. In the red center are the most typical values of the different components of honey, while in the blue ends are the most atypical values. The black line is the profile of a honey adulterated with rice syrup. It is clear that part of its profile is completely outside the pure honey spectrum, which shows adulteration.

A new powerful and promising tool against adulteration and counterfeiting is the Nuclear Magnetic Resonance (NMR).

NMR spectroscopy is a technique that is already applied widely for success in several foods to detect adulteration. In honeys works from the development of a database comprised of multiple profiles of pure honeys, and superimposed time a strip which represents to some extent the general profile of honey in the world (color strip in that graph). Of course, the most honey profiles are registered into the database, the better it will represent the universal honey profile. The development, certification and socialization of this database is the main challenge to make the NMR the main technical tool to prevent the adulteration and counterfeiting of honey.

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“Any honey selling at prices lower than the cost of authentic honey will be taken as adulterated.”

2. Brunswick E., 2017, Economic Context
5. Economic analysis linked to honey, Honeypath, 2008-2012, November 2014 
7. Brandt R. et al., 2016. Detection of honey adulteration with rice syrup 
8. FAOSTAT, 2014