

New evaluation of the Honey-Profiling™ by means of NMR:

After 3 years (since 2014) of Honey-Profiling™ on the market with our classical evaluation system into typical and untypical, QSI decided to change their honey evaluation to be more clear and precise for their customers.

The current system declares a honey into typical (as defined by the Annex I and II EU Honey Directive 2001/110 and based on the current Honey-Profiling™ database of Bruker BioSpin GmbH and our expert interpretation) if no deviations in the parameters and the entire NMR profile (fingerprint of the honey) can be observed. An untypical honey according to the Annex I and II EU Honey Directive 2001/110 shows indications of adulteration in the NMR profile mainly in the sugar area or also in deviating quality parameters, like a higher HMF concentration above the thresholds of 40 mg/kg and 80 mg/kg (topical origin).

From the beginning of August 2017 QSI will implement the new evaluation system. This system shall simplify and specify the evaluation of honey by means of NMR. In general if a honey comes in for testing we are looking for two aspects, first of all for adulteration with either sugar or syrup and second for the quality and authenticity of the honey. An addition of sugar or syrup would clearly lead to an “adulterated” honey evaluation (figure 2) and quality issues like high HMF concentrations (figure 3) or fermentation indicated by high ethanol content automatically to an untypical evaluation (please see figure 1).

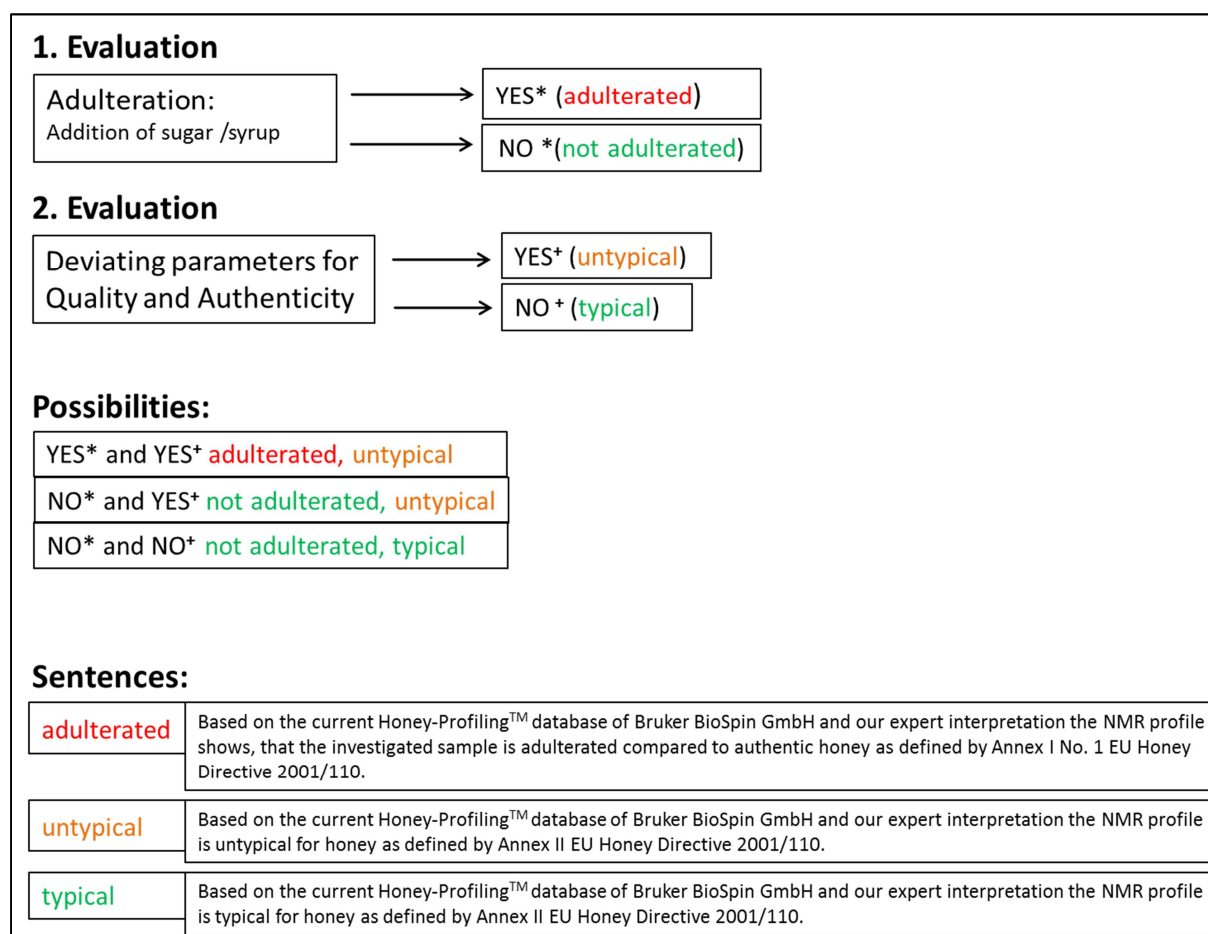


Figure 1: Overview of the honey new evaluation system by means of NMR with its possibilities and its corresponding sentences.

If the honey shows no sign of adulteration or quality issues the honey will be declared as not adulterated and typical (figure 4). The authenticity concerning the botanical or geographical origin of such evaluated honey can sometimes not be confirmed. For example a Romanian sunflower honey looks rather like a polyfloral honey (containing a lot of sunflower) and comes from Bulgaria instead. This honey remains still as not adulterated and typical and an additional remark about the origin would be written.

Test report of an adulterated honey:


VA40500 - NMR Screening, honey profiling for authenticity and quality	
Parameter	Result
Adulteration	verfälscht/adulterated
Quality	untypisch/untypical
Deviations/Remark	Deviation from authentic honey observed in profile of sugars.
-	The sugarprofile does indicate an adulteration.
-	Deviation from authentic honey observed in profile of aromatic hydrocarbons (e.g. flavoring substances), caused by too high HMF concentration.
-	HMF = 100 mg/kg
-	
-	

Bruker Honey Profiling Release 1.0.0 and expert interpretation by QSI

Conclusion:
 Based on the current Honey-Profiling™ database of Bruker BioSpin GmbH and our expert interpretation the NMR profile shows, that the investigated sample is verfälscht/adulterated compared to authentic honey as defined by Annex I No. 1 EU Honey Directive 2001/110.
 Based on the current Honey-Profiling™ database of Bruker BioSpin GmbH and our expert interpretation the NMR profile is untypisch/untypical for honey as defined by Annex II EU Honey Directive 2001/110.

This examination is the basis for special decision guidance.

Quality Services International GmbH Version 1 replacing Version 0


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Test report of an untypical honey:


VA40500 - NMR Screening, honey profiling for authenticity and quality	
Parameter	Result
Adulteration	nicht verfälscht/not adulterated
Quality	untypisch/untypical
Deviations/Remark	Deviation from authentic honey observed in profile of aromatic hydrocarbons (e.g. flavoring substances), caused by too high HMF concentration.
-	HMF = 100 mg/kg
-	
-	
-	


Bruker Honey Profiling Release 1.0.0 and expert interpretation by QSI

Conclusion:
 Based on the current Honey-Profiling™ database of Bruker BioSpin GmbH and our expert interpretation the NMR profile shows, that the investigated sample is nicht verfälscht/not adulterated compared to authentic honey as defined by Annex I No. 1 EU Honey Directive 2001/110.
 Based on the current Honey-Profiling™ database of Bruker BioSpin GmbH and our expert interpretation the NMR profile is untypisch/untypical for honey as defined by Annex II EU Honey Directive 2001/110.

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Test report of a typical honey:

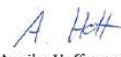
VA40500 - NMR Screening, honey profiling for authenticity and quality	
Parameter	Result
Adulteration	nicht verfälscht/not adulterated
Quality	typisch/typical
Deviations/Remark	keine/none
-	-
-	-
-	-
-	-
-	-


Bruker Honey Profiling Release 1.0.0 and expert interpretation by QSI

Conclusion:
Based on the current Honey-Profiling™ database of Bruker BioSpin GmbH and our expert interpretation the NMR profile shows, that the investigated sample is nicht verfälscht/not adulterated compared to authentic honey as defined by Annex I No. 1 EU Honey Directive 2001/110.
Based on the current Honey-Profiling™ database of Bruker BioSpin GmbH and our expert interpretation the NMR profile is typisch/typical for honey as defined by Annex II EU Honey Directive 2001/110.

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If you have further questions about the upcoming evaluation system or need more information, feel free to contact us.