

Maharishi Honey

Laboratory Results

*Quality Services International GmbH
Bremen*

V/M/11-12-03

Healthy Honey

Item Tested	Range	Result	Comments
Water	Below 18-19%	18.6%	Ideal is below 18% German Law says it should be less than 21% Meets import standard
HMF (Hydroxymethyl- furfural) <i>Indicator of whether the honey has been heated</i>	<15 mg/kg	1.7 mg/kg	Each time honey is heated, a chemical HMF is created. Freshly extracted honey contains very little or almost no HMF.
Diastase Activity <i>Indicator of how the bees are working to change starch into sugar. It is influenced by honey storage and heating and is thus an indicator of honey freshness and over- heating.</i>		34.3	Present standard is that it should not be lower than 8.
Invertase Activity	7-30	10.6	It is particularly sensitive to heat and storage damage and is used as a freshness indicator. It is an indicator of whether the honey has been heated. Enzymes are not stable at high temperatures. The range is 7-30, it has to be 8, and if lower the heat inhibits the enzyme activity and destroys protein in the honey.
Sugar Spectrum	0.9-1.9	1.15	Measures the fructose/glucose ratio. Looking at the ratio we can determine if there is any adulteration, if any artificial honey or sweeteners were added. Reducing Sugars: Fructose, Glucose, Turanose, Maltose, Isomaltose, Maltotriose. Reducing Sugars give energy.
Adulteration 13C isotope-mass		No adulteration in our honey	Spectrometry assesses if there was an adulteration to the honey with cane sugar.
Water-insoluble solids content		0.01 g/100g	

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Element Analysis— Vitamins & Minerals			Indicates the nutritional value.
a. Manganese	0.3 mg/kg	0.4	
b. Chromium	0.2 mg/kg	<0.1	
c. Selenium	0.05 mg/kg	<0.2	
d. Zinc	3.5 mg/kg	2.5	
e. Copper	0.9 mg/kg	<0.1	
f. Potassium	450-500 mg/kg	140	
g. Calcium	36-60 mg/kg	30	
h. Magnesium	16-55 mg/kg	<10	
i. Sodium	20-100 mg/kg	20	
j. Phosphorus	40-200 mg/kg	60	
k. Iron	9-20 mg/kg	15	
Electrical Conductivity		0.25	Measures the mineral content in the honey. The higher the mineral content, the higher the electrical conductivity. The range varies with the different kinds of honey, for example, blossom honey—up to 0.5, mixed blossom/honeydew—0.1-0.79, forest/honeydew—0.8
Antibiotics		Not detectable	Antibiotics tested: Streptomycins, Sulphonamide, Tetracyclines.
Heavy Metals		Not detectable	
a. Cadmium			
b. Lead		0.05	
c. Mercury			
Chloropesticides		Not detectable	
Phosphorous Pesticides		Not detectable	These pesticides revolve around Phosphorus functionality.
Chloramphenicol		Not detectable	

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PH value	3-6	3.9	PH value is a measure along with the parameter of acidity. The pH value depends on blossom or honeydew: 3.3–4.6 blossom 4.2–5.5 honeydew
Acidity	10-50	18.6 mmol/kg	Acidity is an important quality criterion because honey fermentation causes an increase of acidity.
Pollen		Mimosa	The predominant, secondary and minor pollens were tested. The whole sediment is checked. Honeydew is characterized by special sediment components e.g spores of fungi, hyphae of fungi, which belong to the normal honeydew "Flora". Pollen can only be identified as a source where the bees collected nectar. Honeydew elements have nothing to do with foreign elements; they belong to the natural sediment of honeydew.
HD Elements		None	HD elements measures foreign matters in the honey i.e. wax fungal spores yeast and starch. This honey contained very little or none of these things and is within acceptable range.
Botanical origin		Blossom	
Geographical origin		Brazil	
Sensory Qualities		Source-specific	
Kind of Honey		Blossom	
Amitraz and Phenol Bee treatments		Not detectable 0.06	
Iodine		0.1	The lower limit of practicable working range, may differ matrix correlated.

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Vitamins a. Vitamin C b. Vitamin B1 c. Vitamin B2 d. Vitamin B6 e. Vitamin E f. Vitamin A		<4 mg/100g <0.0125mg/100g <0.03mg/100g 0.05mg/100g <0.08 mg/100g <0.015mg/100g	
Ethanol	<50 mg/kg	255.1 mg/kg	Hamburg lab stated that it is not harmful (2.3.04). Ethanol and Glycerol are alcohols that are produced as a result of microbiological fermentation. This can occur only if moisture content of honey is too high. When the water content in honey is above 22%, the sugars in honey can begin to ferment. However, per United States Department of Agriculture (USDA) standards, US honey contains between 15-20% moisture (18.6% is the industry average in the USA) and at these low levels, fermentation cannot begin. There are no limits for Ethanol and Glycerol established internationally because the adherence to moisture level precludes the presence of fermentation products. The amount of Ethanol produced would be very small, particularly since honey is typically kept in small containers, at room temperature and in relatively low moisture levels. It would probably be unnoticeable to humans. (Comments from consultant for the National Honey Board in USA)
Glycerole	<300 mg/kg	460 mg/kg	