PROBLEM WITH ASSESSMENT OF HONEY QUALITY WITH REGARD TO REQUIREMENTS OF EU HONEY DIRECTIVE

I. DIASTSE ACTIVITY (PHADEBAS METHOD)
II. ELECTRICAL CONDUCTIVITY

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COUNCIL DIRECTIVE 2001/110/EC OF 20 DECEMBER 2001 RELATING TO HONEY

The EU Honey Directive 2001/110/EC states that the honey must meet the following criteria for DN:

- **No less than 8 Schade** units for most of honey
- **No less than 3 Schade** for honeys with low natural enzyme content citrus honeys and an **HMF** content of not **more than 15 mg/kg.**

PHADEBAS METHOD

The Phadebas method uses a syntetic biochemical substrate known as the Phadebas tablets, wich are a water-insoluble, cross-linked starch polimer. This is hydrolyzed by the enzyme, yielding blue water-soluble fragments, determined photometrically at 620 nm. The absorbance of the solution is directly proportional to the diastatic activity of the sample.

PHADEBAS METHOD

The diastase activity is expressed as the diastase number (DN) in Shade units and is defined as follows:

one diastase unit corresponds to the enzyme activity of 1 g of honey, wich can hydrolyse 0,01 g of starch in one hour at 40^{o}C.

PHADEBAS METHOD (HARMONISED METHODS OF THE INTERNATIONAL HONEY, 2002)

- for diastase values **(between 8 and 40 DN),** the value of the DN is determined according to the formuła:

$$DN = 28,2 \times \Delta A_{620} + 2,64$$

- for diastase values **(between 0 and 8 DN),** the value of the DN is determined according to the formuła:

$$DN = 35,2 \times \Delta A_{620} - 0,46$$

- where:
  - ΔA_{620} – is the difference of the extinction of the tested honey solution and the mean extinction for a series of tablets (so-called ‚blank')
  - 28,2 and 2,64 or 35,2 and 0,46 – means constans taking into account the dependence between diastatic activity of honey

PHABEDAS METHOD

If the number of diastase (DN) is exactly 8, it isn't clear which formula should be use:

- **between 8 and 40**

$$(DN = 28,2 \times \Delta A_{620} + 2,64)$$

- **between 0 and 8**

$$(DN = 35,2 \times \Delta A_{620} - 0,46)$$

That should be regulated.

COUNCIL DIRECTIVE 2001/110/EC of 20 December 2001 relating to honey

The EU Honey Directive 2001/110/EC states that the honey must meet the following criteria for electrical conductivity:

- Honey not listed below, and blends of these honeys **is not more than 0.8 mS/cm**
- Honeydew and chestnut honey and blends of these except with those listed below **is not less than 0.8 mS/cm**
- **Exceptions:** strawberry tree (Arbutus unedo), bell heather (Erica), eucalyptus, lime (Tilia spp.), ling heather (Calluna vulgaris), manuka or jelly bush (leptospermum), tea tree (Melaleuca spp.)

If the result of the electrical conductivity is 0.8 mS/cm, it is impossible classify the honey as nectar or honeydew honey.

Thank you for your attention

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