TECHNOLOGICAL PREREQUISITE FOR USE OF HONEY IN APITHERAPY *

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Most of the biologically active components of therapeutical interest of honey and of other bee products are susceptible to alteration due to high humidity and heat.

When the natural water content of ripe honey — depending on its higroscopicity — increases because of insufficient protection from air humidity, yeasts would develop which would entail fermentation. Attempts are being made to prevent this process, which injures the quality of honey, by heat (pasteurization). But heating of honey may cause the enzyme activity to decrease, or even inactivation of the enzymes.

Of the enzymes of honey, glucose oxidase is of special importance. It catalyzes the oxidation of glucose, from which gluconic acid and hydrogen peroxide result, being thus an inhibiting factor in honey.

A technological dilema consequently arises, which makes inactivation of yeasts by the usual heat treatment be quite doubtful.

During investigations of other processes, data were also recorded which suggested that cooling would be more efficient; this means that honey should be stored at low temperatures after extraction until supplied for consumption.

Honey samples of various origins were stored for 6 months at 4 different low temperatures; their water content and enzyme activity (measured in diastase activity, Goethe scale) were recorded throughout this period.

The results are given in the two tables below.

Table 1

WATER CONTENT, g/100 g HONEY

Honey sample and initial water content		Cooling down to			
		−15°C	−5°C	+5°C	+15°C
1	15.3	15.7	17.2	17.3	17.4
2	15.5	15.7	17.2	17.4	17.6
3	15.5	15.7	16.8	17.0	17.4
4	15.5	15.7	16.3	16.5	17.0
5	14.7	15.0	16.1	16.3	17.0
6	14.4	15.7	16.8	17.0	17.3

The lower the storage temperature, the smaller was the increase in the water content. The increase in the moisture content may be due on the one hand to penetration of slight amounts of water vapours

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— which may not be entirely prevented even with the most tightly fitting lids, and on the other hand to reactions which take place in the honey itself : development of maltose, oligo-saccharides and of dextrin from glucose takes place with release of water.

Table 2

ENZYME ACTIVITY (DIASTASE NUMBER, GOETHE SCALE)

Honey sample and initial value		Cooling down to			
		—15°C	—5°C	+5°C	+15°C
1	24	24	23	22	19
2	18	18	17	17	15
3	18	18	18	17	17
4	24	24	23	21	20
5	25	25	25	25	20
6	24	24	22	21	19

From the table it results that the enzyme activity remains unchanged at —15°C, its decrease being more important as storage temperatures are higher.

We suggest the honey intended to be used for therapeutical purposes be stored at low temperatures — below —15°C by all means. Such a honey would preserve its quality as if freshly extracted from combs, with all its constituents valuable for therapy remaining intact as well.