



Diastasis activity of conventionally and organically produced honey

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Introduction

Diastasis is a thermo-labile enzyme that breaks down starch and is used as an indicator of the quality and freshness of honey. Diastasis activity is related with changes in honey caused by heating or improper storage at high temperatures.



Material and methods

The diastatic activity of honey was determined by the spectrophotometric method according to Phadebas (with Phadebas tablets), in which the insoluble blue-colored cross-linked starch type is used as a substrate. This hydrolyzes the enzyme, yielding blue water-soluble fragments that are determined spectrophotometrically at 620 nm. The absorbance of the solution is directly proportional to the diastatic activity of the sample. Diastasis activity is expressed as the diastasis number (DN), which corresponds to the enzymatic activity of diastase in 1 g of honey, which can hydrolyze 0.01 g of starch in one hour at 40°C. Conventional and organic honey was used in the study: linden, acacia, chestnut and meadow.

Results



According to the Rulebook on the quality of honey, honey products and other bee products ("Official Gazette Republic of Serbia" No.101/15) and the *Codex Alimentarius* standard, the activity of diastase in honey should be more than 8 DN. All analysed samples showed diastase activity higher than this value. Diastasis activity in the tested samples ranged from 8.40 to 29.50 DN. Organic linden honey had the highest diastase activity, while organic acacia honey had the lowest diastase activity. Samples of conventional honey had a higher diastase activity than samples of organic honey of the corresponding botanical species, except for organic linden honey which had a higher diastase activity than conventional honey of the same origin. Samples of organic and conventional honey of the corresponding botanical species differed statistically in the degree of activity of the enzyme diastase.

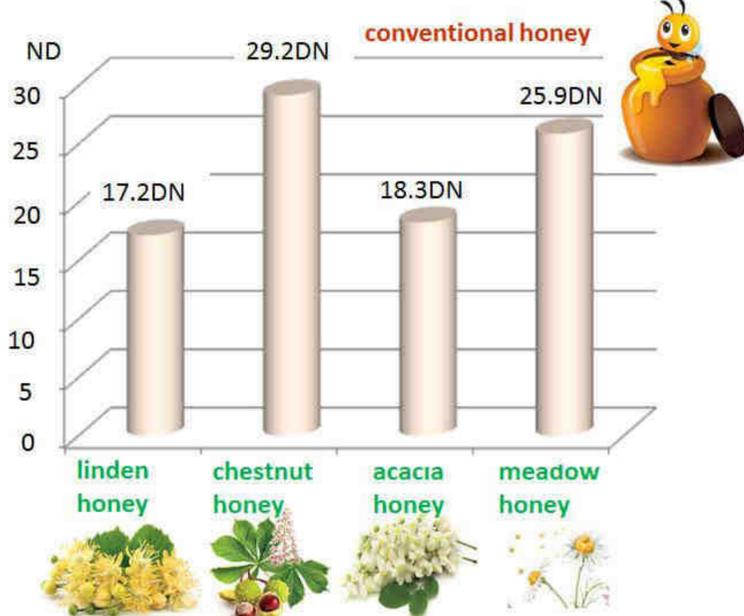


Figure 3. Comparative presentation of diastatic activity of tested honeys produced in a conventional way.

The aim

The aim of this study was to determine whether there are differences in the values of the degree of diastase activity between honey produced in a conventional way and by applying organic production.

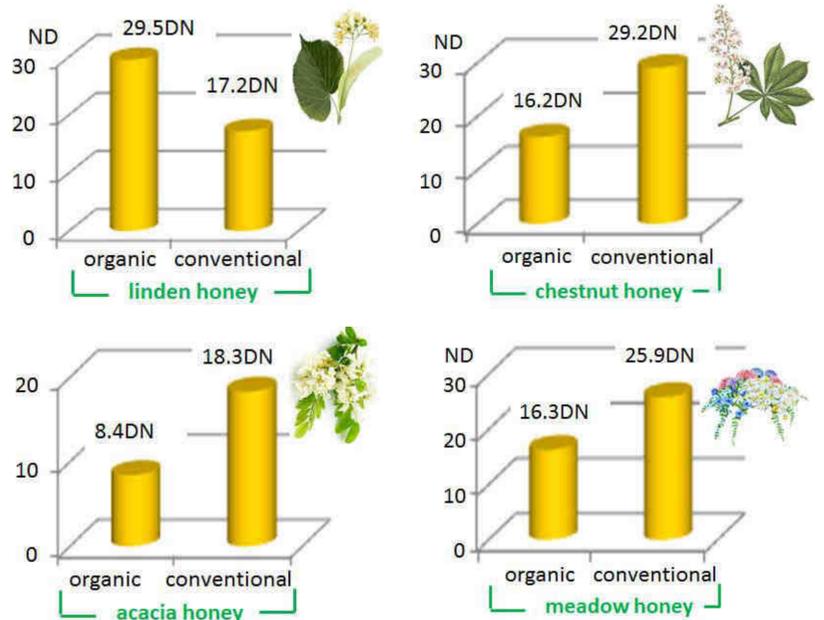


Figure 1. The ratio of diastatic activity in the tested honeys produced in an "organic" and conventional way.

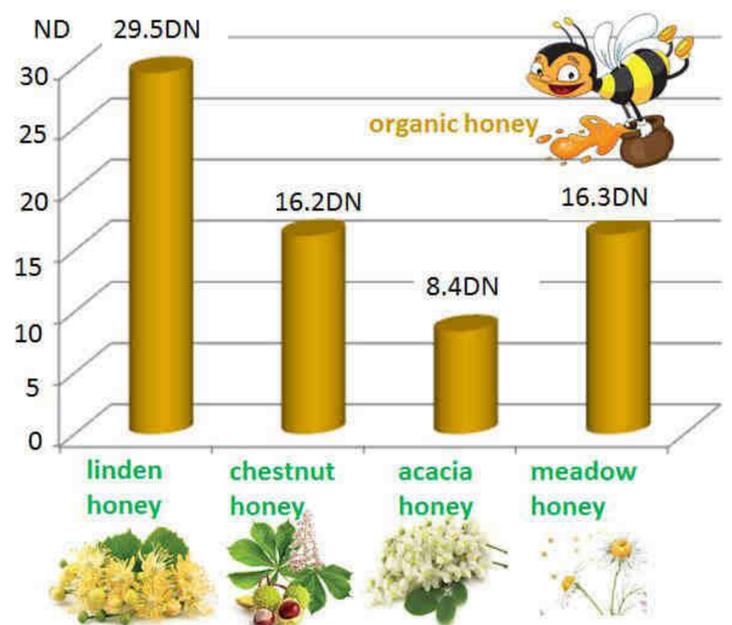


Figure 2. Comparative presentation of diastatic activity of tested honeys produced in an "organic" way.

Conclusions

The obtained results indicate that although most conventionally obtained samples have higher values of diastasis enzyme activity than samples produced in an organic way, such production methods are not crucial for the value of diastasis activity.

