

Hydromel technology

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Abstract: From honey fermentation honey wine or mead can be obtained. Our purpose was to study the intermediary product, called hydromel. This product is an intermediary product which fermentation doesn't take such a long time as in mead production. Alcohol content of hydromel is lower than 10% vol v/v, that's why it can't be catalogue as honey wine.

Key words: honey, hydromel, glucides, alcohol content.

INTRODUCTION

The melliferous resources must be rationally used in order to efficiency the bee forage of stationary and pastoral apiaries. A correct distribution of these require an assessment of the honey yield, to ensure an optimum load of bee colonies/unit area of foraging and for a correct knowledge of the melliferous resources. Exploitation of natural resources available locally in rural areas involve the mobilisation and the promotion of traditional activities such as beekeeping, by the decisions on the development and implementation of strategies for sustainable development of rural communities (Jitariu et al., 2014). Fermentation of honey represent a good way to efficiency use honey. Honey must represents a fascinating environment totally unexplored, its fermentation being different by grape must fermentation. We can characterize honey must as being a difficult medium for fermentation due to its sugar content which is approximately three times higher than the grape must. The biochemical composition varies from one to another type of honey being directly influenced by changes in environmental factors – is difficult to obtain from a batch to another a finished product that meets the same biochemical and sensory characteristics. Because of this variables a lengthy and rigorous study is required to examine the depth and aspects that affect the production of mead, researching the raw material and the affecting factors ending with the production process and how it can be optimized (Șarba et al., 2014). In order to cut short the fermentation process and avoid all faults that can affect the final

product, it has been developed an intermediary product – hydromel – that represents a slightly alcoholic, carbonated, sweet drink.

MATERIAL AND METHODS

The principle of alcoholic fermentation is to convert sugars into carbon dioxide and ethyl alcohol. Preparation of this alcoholic beverage is dependent of the raw material. In almost all honey types, fructose and glucose predominate. These two sugars account for nearly 85-95% of the honey carbohydrates (Finola et al., 2007). In order to determinate the quality of the sample of honey we used to obtain hydromel, we had to determinate individual sugar spectrum by using HPLC-RID method (Bogdanov et al., 1997) on a Shimadzu instrument with refractive index detector, amino silica gel modified column Alltima Amino. For a safe fermentation process, honey was sterilize using UV lamps. For confirming the success of sterilization process, honey was inoculated on DRBC agar cultures. Honey must was inoculated with selected wine yeast strain *Saccharomyces cerevisiae*. For one sample after 7 days the fermentation process was stop, for the second sample fermentation was stope after 10 days and alcohol content was determinate during the fermentation process by using the SR 184-2:2010 standard method for ethyl alcohol and alcoholic drinks (determination of alcoholic concentration) with Kjeldal steam distillation unit.

RESULTS AND DISCUSSION

The concept of food safety based on the general hygiene principles of food products and on the HACCP method adopted by Codex Alimentarius aims at reducing or controlling biological, physical and/or chemical contaminations (National Food Safety Best Practice Guidelines, 2007). In order to respect this concept, and to obtain a safe process we require the sterilization process that has success as it can be observed in figure 1. The sterilized sample was compared with an raw untreated honey to underline the results of our research stage.

The results of polyfloral honey used for this experiment are showed in figure 2. It can be seen that after honey dilution the characteristics of sugar profile are direct proportionally with the dilution rate.

Fig 1. DRBC agar culture of sterilized and unsterilized honey

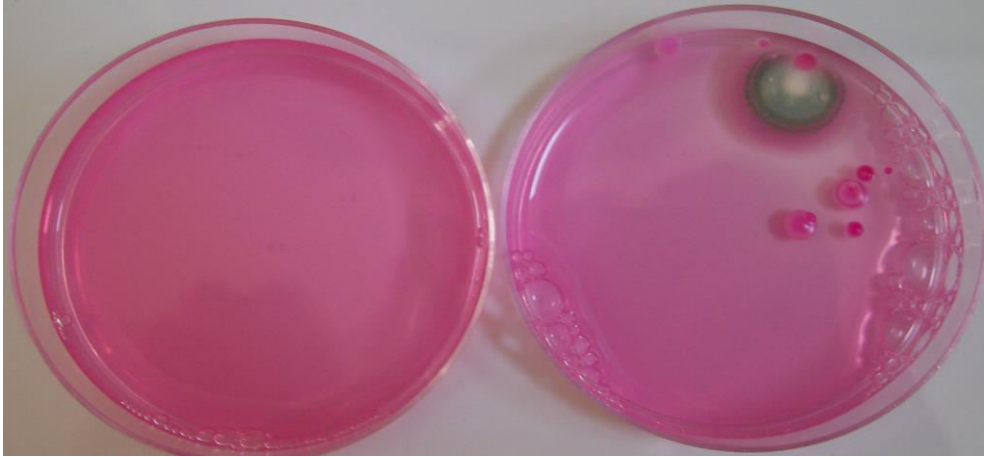
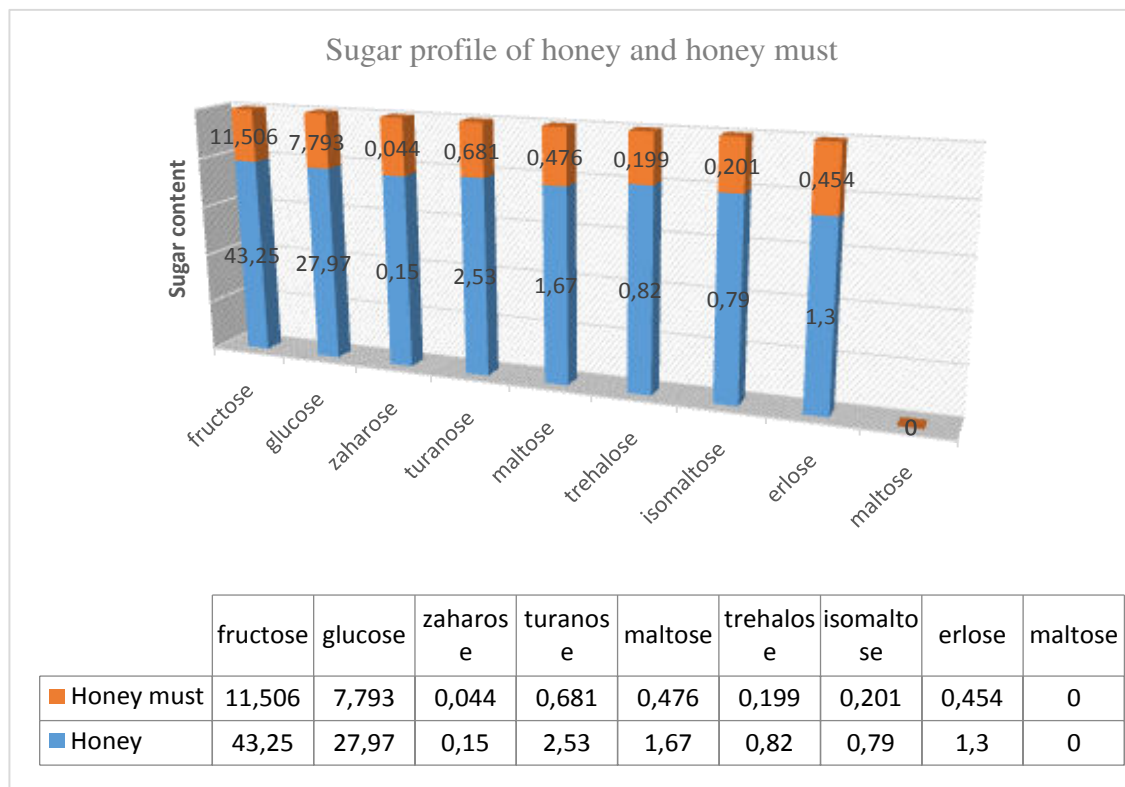


Fig. 2. Sugar profile of polyfloral honey used to produce hydromelo and polyfloral honey must



Alcohol content after determination was:

- for the sample stopped from fermentation after 7 days was 5,83% vol
- for the sample stopped from fermentation after 10 days was 7,11% vol

CONCLUSIONS

In consequence, after the results presented above, it was showed that hydromel is an chameleonic product, and a result for some problems that can appear referring to honey. Compared to mead, hydromel fermentation doesn't take so much time, because the fermentation process can be stopped anytime, according to the desired final characteristics. Longer the fermentation, higher the alcohol content. Hydromel it's not a long term product, it's perishable and it has to be kept at 12-15°C.

New honey-based products such as mead or hydromel must be developed to maintain apiculture as a viable industry. For costumers, the

sensorial characteristics of honey represent a major parameter in determining the quality of honey, and the parameters with the biggest impact are the color and the crystallization state (Moise et al., 2007). The last characteristic affects in a bad way customer perception. In order to optimize this types of honeys, fermented honey products start to cover more and more the apiculture market.

Acknowledgments

This paper was published under the frame of European Social Fund, Human Resources Development Operational Programme 2007-2013, project no. POSDRU/159/1.5/S/132765.

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