The influence of age and the colour of the combs on quantity and the output of the acquired wax

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INTRODUCTION

Beeswax is a natural wax produced in the bee hive of honey bees. Worker bees have eight wax-producing mirror glands on the inner sides of the sternites on abdominal segments 4 to 7. The new wax scales are initially glass-clear and colourless, becoming opaque after mastication by the worker bee. The wax of honeycomb is nearly white, but becomes progressively more yellow or brown by incorporation of pollen oils and propolis.

MATERIAL AND METHODS

The aim of this study was to determine the quantity of the wax that is acquired after melting the combs of different age. The experiment was conducted in February 2009. The combs were classified in three classes by their colour and the time of their usage in the hive. The I class were the less used combs (light yellow in colour), used in hive one to two years and were not used for brood. The II class were medium old combs (light brown to brown in colour, with light cells on the rim), used two to three years, with the few bee generations derived from them. The oldest combs (dark brown to black in colour), used for many years, with many bee generations derived from them, were deemed class III (Mladenović et al., 2001).

RESULTS

Table 1. Values of the class I combs before and after the melting

Repetition	Wax weight	Number of combs	Pure wax	Pure wax/comb	Waste
1	1.72	7	1.3	0.185	0.42
2	2.18	9	2.01	0.223	0.17
3	1.20	5	1.00	0.200	0.20
Total	5.10	21	4.31	0.609	0.79

Table 2. Values of the class II combs before and after the melting

Repetition	Wax weight	Number of combs	Pure wax	Pure wax/comb	Waste
1	1.70	5	0.70	0.140	1.00
2	2.10	8	1.20	0.150	0.90
3	1.20	4	0.90	0.225	0.30
Total	5.00	17	2.80	0.515	2.20

Table 3. Values of the class III combs before and after the melting

Repetition	Wax weight	Number of combs	Pure wax	Pure wax/comb	Waste
1	2.60	7	0.50	0.071	2.1
2	2.70	6	0.60	0.100	2.1
3	2.80	7	0.30	0.042	2,5
Total	8.10	20	1.40	0.214	6,7

Table 4. Average values of the combs before and after the melting

Class	Wax weight	Number of combs	Pure wax	Pure wax/comb	Waste
I	1.70	21	1.437	0.203	0.263
II	1.67	17	0.933	0.172	0.93
III	5.40	20	0.933	0.143	4.467

CONCLUSION

Average wax quantity per comb was 203g for the I class, 172g for the II class, and 143g III class. The output of the pure wax per class was 73% for the I class, 47,74% for the II class, and 23,89% for the III class. Based on these results, it is determined that the combs of the I class are the most suitable for acquirement of the pure bee wax. Also, these combs have the highest output of wax. By using the combs of the I class, it is possible to decrease quantity of waste during wax melting. Besides, by melting fresher combs it is possible to decrease the spreading of bee diseases. By frequent replacement of the combs, the spores of pathogens that causes brood and bee diseases.