

## STUDY REGARDING THE CONSUMPTION OF HONEY AND RELATED BEE PRODUCTS

PETROVICI DENISA LORENA\*<sup>1</sup>, HULEA ADELINA CRISTINA<sup>1</sup>,  
ȘTEFAN DENISA FLORENȚA<sup>1</sup>, GORDAN MARIUS-IONUȚ<sup>1</sup>, PEȚ ELENA<sup>1</sup>

<sup>1</sup>University of Life Sciences "King Mihai I" from Timisoara,  
Faculty of Management and Rural Tourism, Romania

\*Corresponding author's e-mail: petrovicidenisa99@gmail.com

*Abstract: Honey is one of the main products of beekeeping, together with beeswax, propolis, pollen, royal jelly and bee venom. Honey is used as a natural sweetener, due to its high fructose and glucose content. Several alleged health benefits also led to the development of apitherapy and the usage of bee products in cosmetics. In this research paper we explored the consumer preferences for honey, by comparing it with sugar and artificial sweeteners, we assessed the preferred honey types consumed, the willingness of consumers to purchase honey from local producers, the types of bee products used and the perceived satisfaction experienced by customers using them.*

**Key words:** honey, benefits, health, substitute, products

### INTRODUCTION

For over thousands of years honey has kept its reputation as a traditional food item with some claimed medicinal properties. In its unprocessed form, honey is a viscous liquid produced by bees and is obtained from flower nectar [1,15]. Honey is a type of natural floral product.

The life of bees depends heavily on collecting flower pollen and nectar and processing them into honey and other types of products consumed and used in the hive. The amount of honey produced and the concentration of sugar that is found in the nectar varies from one species of plant to another [3,14].

Many bee products like propolis, bee pollen, royal jelly and bee venom are marketed as having health benefits, although there are mixed evidences regarding the support this affirmation receives in the literature [2,11,15]. Honey produced from wild forest flowers had the greatest health benefits [7]. Other health benefits included the antioxidant, antimicrobial, antiviral, antiinflammatory, and antitumoral properties of honey bee products. Those properties depend on many different components, such as sources of floral pollen, geographical location and pollution of the environment, the level of expertise of the beekeeper, other environmental conditions and the race of bees [2,12,13].

It is considered that honey was one of the first sweet substance that man consumed as food, together with fruits [4]. Considering this property of honey products and their claimed health benefits, several types of consumers were identified by previous studies, with a type in particular willing to pay superior prices for organic honey [6,9,10].

The mineral content of honey is also a potential benefit, as studies shown that honey contains potassium and strontium, the latter being associated with healthier bones [8].

Agriculture benefits greatly from the pollinating done by honey bees, as they are a major factor in the plant reproductive cycle [5].

Honey bees are targeted by many parasites and pests, such as varroa mites. Because of these pests, bees suffer. Through specific behavior, including caring behavior, honey bees can protect from the colonies of varroa mites and continue to provide valuable products. Other prospects include the sustainable approaches to controlling honey bee diseases [16].

## MATERIALS AND METHODS

This study regarding the consumer preferences for bee products takes a quantitative approach, by utilising the survey research method. As such, this research paper proposes a limited scope marketing research, by analysing the demand side of the honey and bee products market.

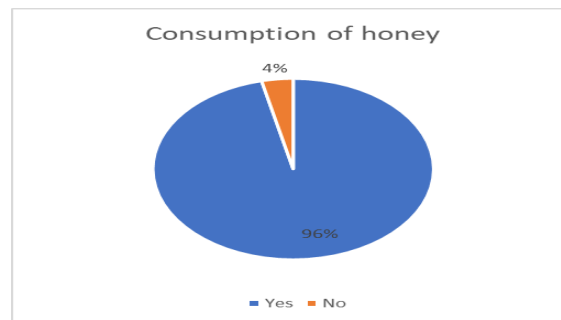
The sample size was 82 respondents.

We constructed a questionnaire with items that assess several variables, including:

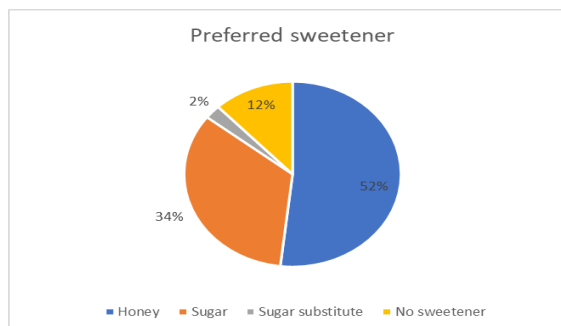
- consumption of honey;
- preference for honey over other types of sweetener when consuming beverages or when preparing sweet dishes (alternatives being sugar, artificial sweeteners or other);
- time of consumption;
- related bee products used;
- informed purchase of honey products;
- types of honey preferred;
- place of purchase for honey;

## RESEARCH RESULTS

The vast majority of the respondents reported that they consume honey. Only 4% reported that they do not consume honey at all, as highlighted in Figure 1. Several causes can be highlighted, both medical reasons or simple consumer preferences



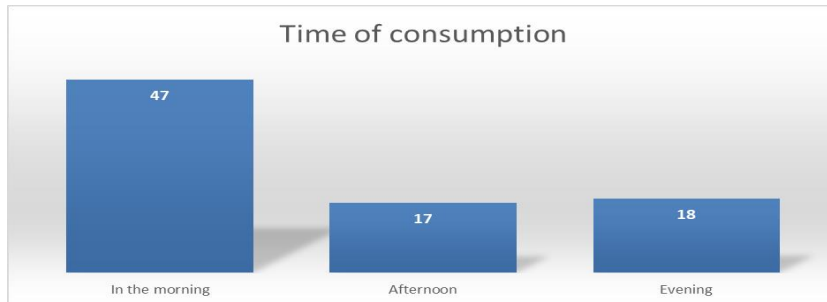
**Figure 1. Honey consumption**



**Figure 2. Preferred sweetener**

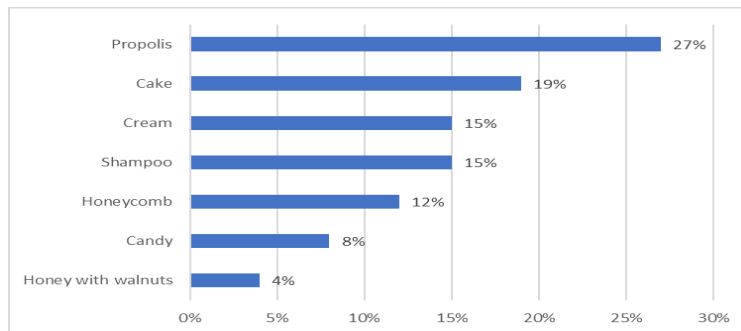
Honey is the sweetener of choice for over half the respondents. A close second is sugar, preferred by 34% of the respondents. Some of the respondents reported that they actually do not utilize any sweeteners, while only 2% utilized sugar substitutes with no glycemic index. At the same time, this last result can be correlated with the low average age of the respondents, roughly 24 years old, as such the prevalence of diabetes or other confounding factors in the consumption of sugar should be quite low (Figure 2).

The preferred time of consumption for honey for most of the respondents is in the morning, as seen in Figure 3. This suggests that honey is a breakfast product, eaten as an energy boost for morning activities. Some of the respondents regularly eat honey in the afternoon or in the evening. As such, honey is an ingredient in lunch or dinner products or a sweet treat.



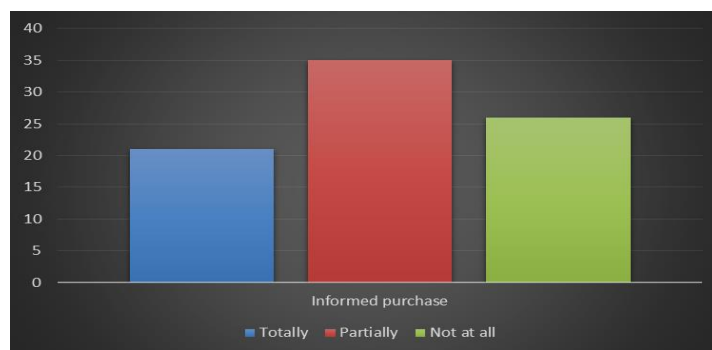
**Figure 3. Time of consumption**

Besides honey, the consumer's consumption of bee products is the following: propolis dominates with a 27% percentage, followed by cakes and other baked sweets 19%, creams and shampoo that have an equal value of 15%, honeycomb 12%, candy 8%, honey with walnuts 4%. This suggests that consumers appreciate both the food and the pharmaceutical dimension of honey and bee products (Figure 4).



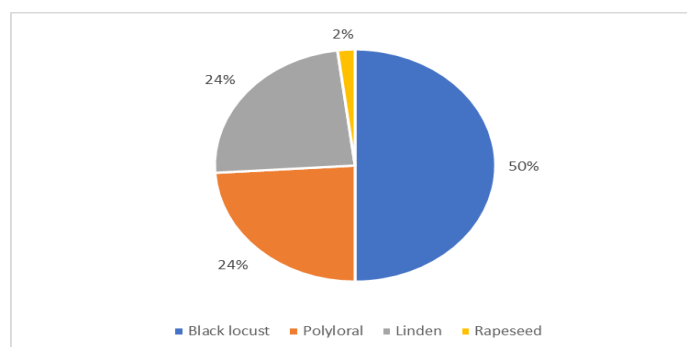
**Figure 4. Usage of bee products**

The vast majority of the respondents either partially read the label of honey and related bee products or simply do not do so at all. Only a relatively small percentage, roughly 25% of the respondents, reported that they read the label thoroughly. This can be a cause of concern, considering the popularity of replacement products marketed as authentic honey (Figure 5).



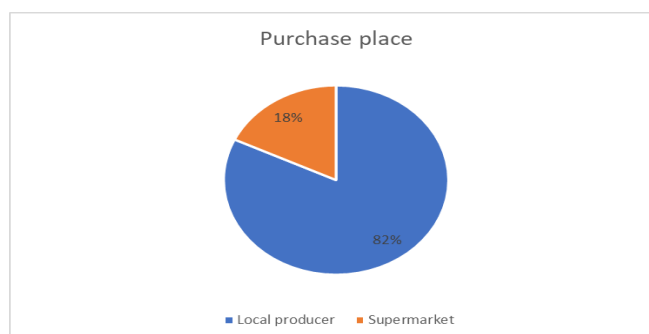
**Figure 5. Informed purchase**

50% of the consumers asked reported that they consume black locust honey, while polyfloral and linden honey account for 24% of the preferences each. Only 2% of the respondents consume rapeseed honey. This is an important piece of information, as it can allow beekeepers to focus their production towards goods that are consumed frequently (Figure 6).



**Figure 6. Preferred type of honey**

82% of the respondents reported that they purchase honey from local producers, while only 18% reported that they purchased honey from super- or hypermarkets. This is an interesting piece of information, as it should mean that beekeeping should have a consistent demand (Figure 7).



**Figure 7. Purchase place for honey**

### CONCLUSIONS

In conclusion, honey is a food consumed since ancient times, with high nutritional value and that is still appreciated today. Black locust honey seems to be the honey of choice for the respondents, while rapeseed honey is the least appreciated. While we can't necessarily draw general conclusions from this, this information can be of some value to beekeeping businesses.

Of note is the acceptance of honey bee related products, both as food products (propolis, honeycomb, cakes, candy, honey with walnuts) and as pharmaceutical or cosmetic products (shampoo or different types of creams). This should be an incentive for beekeeping businesses to either attempt to develop their business through the integration of those products into their offer, both as consumer oriented or as business oriented products.

Of particular concern is the tendency of consumers to skimp over the product label of the honey that they purchase. This can be detrimental to their health, as replacement products for honey do not have the health benefits associated with honey, only the sugar content.

The widespread usage of honey in the morning is consistent with the consumption of honey as a breakfast item, used both as a beverage sweetener or as a distinct food product, consumed with pastries or in conjunction with staple food, such as bread.

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