

CONSUMPTION AND OFFER OF HONEY ON THE SLOVAK MARKET

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Abstract

Honey and other bee product are widely used for its nutritional and healing properties in order to improve people's health and wellbeing. The objective of this paper was focused on consumption and offer of honey on the Slovak market.

Primary research is based on both market monitoring and consumer survey conducted in 2021. Market monitoring was executed at seven retail stores in Nitra. Aspects such as price, country of origin, brand, producers, size of the packaging, type of honey, and consistency of honey were monitored. The online questionnaire survey was conducted among respondents from Nitra region. In total, 332 of individuals completed the survey. Questions were related to consumption and purchasing patterns. Non-parametric and descriptive statistics was applied. Moreover, hypothesis testing was conducted in order to study dependencies among consumption of bee products and selected demographic variables.

Results of market monitoring showed that retail stores offer quite a huge variety of honeys such as multiflower, blend of flower and honeydew honey, special monofloral types such as linden honey, acacia honey, fruit blossom honey, and honeydew honey. Multiflower honey is mostly sold in 900 grams packaging for 4.77 euros. Questionnaire survey showed that honey is more consumed in comparison to the other bee products (propolis, apilarnil, bee pollen or royal jelly) in Slovakia. The majority of consumers stated that honey is consumed all over the year and acacia honey was indicated as the most preferred type. The most respondents purchase honey directly from beekeepers or at supermarkets. The optimal price per 1 kilogram was indicated between the range from 7 to 10 €.

In terms of purchasing factors, it can be stated that quality and previous experience were evaluated as the most important factors while packaging design and

material together with promotion acquired the least score.

Key words: Honey market, Honey consumer, Honey consumption, Prices.

1. Introduction

Various factors and trends, such as health and lifestyle influence consumption and purchasing decisions. Nowadays there is a substantial growth of interest in purchasing healthy foods that can help people maintain or improve their health [1]. As reported by author [2], consumers are becoming more conscious about their health. Moreover, attributes like ingredients list are becoming more influential in the purchasing decision making process.

Bee products are significant for healthy eating not only because of their nutritional value but also because of their medical characteristics [3]. Due to their great nutritional value and positive effects on human health are edible bee products considered to be superfoods [4]. Study by Coppock [5], claims that bee products are available in a broad variety of forms. Honey, beeswax, propolis, royal jelly, and bee venom are among the most widely utilized bee products. According to Guziy *et al.*, [6], honey is the most essential and well-known bee product. In addition, Testa *et al.*, [1], consider honey as the most important product made by bees in terms of production and revenue in the beekeeping industry. In recent years there has been a significant increase in its consumption worldwide, thus, consumer interest in honey is growing fast [7]. In the context of the above mentioned, the similar trend in honey consumption is present in the Slovak Republic [8]. Indeed, honey consumption per capita in Slovakia has increased by 38% since 2009. The current per capita consumption is 1.1 kilograms. Furthermore, between 2009 and 2019, the quantity of honey imported to Slovakia increased by almost 141%. In the case of honey exports, there

was a drop in the amount of honey exported by 80%. Based on the collected data on the import and export of honey, it could be stated that the import of honey has for a long time exceeded exports [8]. The rise in demand for honey is mainly caused by the trend of healthy eating [9, 10]. Furthermore, several studies have found a correlation between honey consumption and its high nutritional value for human health [11 - 13] as well as medicinal effects [14]. In addition, Kearney *et al.*, [15] and Murphy [16] indicated that consumers with a higher level of education and socioeconomic status are more conscious about healthy eating. The decision-making process related to honey is affected by the price of honey, level of education and consumer's income. Studies by Popescu and Guresoiaie I. [17] and Šedík *et al.*, [18], showed that various factors and criteria influencing purchasing decisions of honey vary from country to country caused by differences in country's culture. Besides, the study in Western Australia by Batt and Liu [19], discovered three important elements that influence honey purchases as follows: price, brand reputation and origin. Similar results were identified in the Czech Republic where the most important factor influencing the purchase of honey was price followed by origin and quality [20]. Study by Ványi *et al.*, [21], revealed that the price, quality, packaging, and type of honey have an influence on consumer's preferences in Hungary. On the other hand, the findings of the study conducted in Poland showed that the aspects affecting the purchase of honey are mainly packaging, the cleanliness and hygiene of the packaging [22].

The main objective of this study was to identify honey offer on Slovak market as well as to study consumption patterns, purchasing behaviour and consumer preferences towards bee products including honey. Moreover, 3 hypotheses were formulated as follows:

- Assumption No. 1: We assumed that there exists statistically significant dependence between bee products consumption and respondent's gender.
- Assumption No. 2: We assumed that there exists statistically significant dependence between bee products consumption and respondent's place of residence.
- Assumption No. 3: We assumed that respondents evaluate the importance of selected factors considered at the purchase of bee products in a different way.

2. Materials and Methods

2.1 Market monitoring

Market monitoring was conducted during September 2021 in Nitra at several retail stores including Tesco, Kaufland, Billa, Lidl, Coop Jednota and Kraj. The main purpose was to map current honey offer and selected aspects such as: price, country of origin, brand,

producers, size of the packaging, type of honey and consistency of honey (Figure 1).



Figure 1. Honey offer in a selected retail stores

2.2 Consumer research

We collected the data from February 2021 to September 2021 using an online questionnaire survey. In total, 332 individuals participated. Overall women and men were equally represented, with a slightly larger percentage of women (54%). As Table 1 demonstrated, the sample included respondents of various age segments. The majority of respondents were employed, had the secondary level of education and lived in the urban area.

Table 1. Socio-demographic profile of research sample

Variable	Categories	Frequency
Gender	Female	54%
	Male	46%
Age	18 - 25	20%
	26 - 35	16%
	36 - 45	17%
	46 - 55	18%
	56 - 65	15%
	Over 65	14%
Education	Secondary	58%
	University	42%
Economic status	Employed	60%
	Maternity leave	2%
	Pensioner	15%
	Student	15%
	Unemployed	2%
	Entrepreneur (freelancer)	6%
Monthly income	Up to 400 €	18%
	401 - 800 €	26%
	801 - 1,200 €	51%
	More than 1,200 €	5%
Residence	Urban	53%
	Rural	47%

2.3 Statistic analysis

Descriptive, non-parametric and multivariate statistics were applied. All data were processed and analyzed in statistical software (XLSTAT, version 2021.1). Chi-square test of Independence, Friedman test, and multiple pairwise comparisons using Nemenyi's procedure were applied.

3. Results and Discussion

3.1 Results from market monitoring

Results showed that the most frequent honey type on Slovak market is multiflower honey followed by honey which is a blend of flower and honeydew honey. Besides these common types, retail stores offer special monofloral types such as linden honey, acacia honey, fruit blossom honey and honeydew. Honey is mostly sold in 900 grams packaging (40%), however there can also be found a honey in 250 and 500 grams packaging. Honey is typically sold in glass jars but in some cases, it can be in a small plastic package with a shape of bear. Regarding the country of origin, it can be stated that around 56% had Slovak origin, 24% was indicated as "Blend of EU and non-EU honeys", and 14% were "Blend of EU honeys". The major producers who sell honey in retail stores were as follows: Medas, Natur Products, and Apimed. Other producers were Exart, Lagnese, Medokomerc, Bihophar, and Farma Slané. Market monitoring identified 6 different privat label brands of honey. Price analysis revealed that 1 kilogram of multiflower honey is sold for 5.52 € on average. Nevertheless, there exists some differences based on honey type (Table 2).

Table 2. Average honey prices per 900 grams

Type	Price
Multiflower (all)	4.77 €
Multiflower (blend of EU and non-EU)	4.58 €
Multiflower (Slovak origin)	4.94 €
Blend of nectar and honeydew honey	6.66 €
Linden honey	7.89 €
Acacia honey	8.14 €

For example, the average price for multiflower honey with country of origin indicated as "Blend of EU and non-EU honeys" is 4.58 € per 900 grams while Slovak multiflower honey is sold for nearly 5 € per 900 grams. The higher prices were identified among monofloral types (linden honey - 7.89 € per 900 grams and acacia honey - 8.14 € per 900 grams). The average price for honey which is a blend of nectar and honeydew honey is 6.66 € per 900 grams. In terms of honey consistency, it can be concluded that nearly 70% of sold honeys were in liquid state. Creamy consistency was recorded in two products.

3.2 Results from consumer's research

When identifying the consumption of different bee products, the results showed that the most known and consumed bee product is honey. Overall, approximately 44% of respondents claimed consumption of honey several times a month, more than 27% of participants consume honey several times a week. Everyday consumption was indicated by 12% of respondents.

Besides honey, the survey identified that other bee products are consumed by respondents as well. According to the results, occasional consumption was indicated in terms of mead (39%), propolis (18%), royal jelly (5%) and bee pollen (6%). However, most respondents claimed zero consumption of mentioned products. Other bee products such as apilarnil or perga were not known among respondents. In addition, hypothesis testing showed that respondent's place of residence does not have impact on the consumption of bee products ($p = 0.805$), while statistically significant differences were identified in the case of gender ($p = 0.023$). Women consume bee products more frequent. Concerning honey consumption during the year, the survey showed that honey is consumed mostly throughout the whole year. More than a two third of the participants (76%) indicated honey consumption during the whole year and only 24% stated that they consume honey mostly in winter. In addition, Čirić *et al.*, [23], discovered that in Serbia 67% of respondents tend to consume honey during the whole year and the rest of them claimed consumption only in winter. Moreover, it could be concluded that the winter consumption of honey could be associated with more occurring colds and honey could be used as a medicinal supplement. The similar were obtained in a study from Ignjatijević *et al.*, [24], which compared honey consumption in Italy, Romania, and Serbia. Results showed that most respondents consume honey all over the year (63% in Italy, 70% in Serbia and 85% in Romania). However, 57% of participants in Portugal indicated honey consumption mainly in autumn and winter [25]. Furthermore, the study in Bosnia and Herzegovina showed that the largest number of respondents consume honey several times during the week. Several times a month was declared by 25% of participants [26]. As mentioned above, it could be stated that the consumer's level of knowledge about other bee products besides honey is low. In addition, study conducted in Poland revealed the fact that honey is not perceived as a staple food. Only 21% of respondents claimed consumption of honey daily while almost 39% of respondents stated for occasional consumption [27].

In addition, the survey focused on the colour preferences. Based on obtained data approximately 71% of respondents claimed that they have no preferences when it comes to honey colour. Only 6% of participants preferred honey in dark colour and 23% of participants preferred light-coloured honey. Similar results were obtained in Polish study by Žak [28], where more than half of the participants (51%) stated no colour preferences. Only 12% of participants claimed honey preferences in a darker colour and 37% for a lighter colour. Different results were obtained in the studies of Ribeiro *et al.*, [25], and Šedík *et al.*, [29],

where participants preferred honey of light colour. In the context of finding out the preferences associated with the type of honey, it can be concluded that the most preferred type of honey towards research sample is acacia honey. The answers to this question highlight the fact that the popular honey is also multiflower honey, linden honey as well as forest honey. According to other studies, the most preferred type of honey was also multiflower and acacia honey [7, 24]. In Poland, polyfloral and linden honey were selected as the most preferred type among the respondents [11]. The most preferred honey in Bosnia and Herzegovina is meadow honey followed by acacia and chestnut honey [26]. Finally, the following Romanian studies [30, 31] applied the same question and stated that the most preferred type of honey is acacia. Polyfloral and linden honey were also considered as popular ones.

According to the following question in the survey, it could be stated that almost half of the participants purchase bee products regularly. Approximately 25% of respondents buy bee products occasionally. Bee products purchased by other family members were marked by 15% of respondents. The results showed that only 8% of participants receive bee products as a gift. Approximately 3% of respondents do not buy bee products because they have a beekeeper in their family. Regarding the frequency of purchase, it could be stated that the largest number of the participants purchase honey several times a year. Only 11% of respondents buy honey occasionally and 12% purchase honey every month. Different results were in a study applied in Kenya, where the majority of respondents claimed buying honey once a year (53%) and almost 24% of respondents purchase honey twice a year [32]. Another study showed that more than 33% of respondents purchase honey twice a year. Only 4% purchase honey several times a year [33].

The next question was dealing with evaluating the place of purchase. The majority of respondents (47%) purchase honey directly from beekeepers and 37% of respondents purchase honey in supermarkets. The similar results were obtained by Khaoula *et al.*, [34], who discovered that approximately 45% of respondents purchase honey through the beekeeper and 22% of respondents purchase honey in specialized stores. The minority of respondents claimed to purchase honey in supermarkets. Another study conducted in Croatia showed that the most common honey purchase is directly from beekeeper (75%). Moreover, only 10% of respondents claimed to purchase honey on the markets and only 7% stated supermarkets [33]. Moreover, Neto *et al.*, [35], claimed that more than 66% of honey buyers preferred to purchase directly from the producer and only 5% preferred purchasing honey in supermarkets. According to another study by Klickovic

et al., [26], more than 79% of consumers purchase honey exactly from the beekeeper. Furthermore, consumers stated a higher level of confidence when it comes to the quality of honey purchased directly from beekeepers than in the supermarket. In fact, purchasing directly from beekeepers is getting more important because of the higher quality of honey and consumers' perception that honey from beekeepers is healthier than in supermarkets [36]. Nevertheless, several studies have been made and showed that a large number of consumers obtain honey in the supermarket [37, 38]. Regarding our results, it could be concluded that the most common way of purchase is directly from the beekeepers what relates to building up the relationship and the trust between consumer and beekeeper.

Furthermore, research was focused on evaluation of selected factors considered during purchase of honey using 5-points Likert scale ranging from 1 to 5, where 1 was the least important factor and 5 was the most important factor. The last hypothesis assumed statistically significant differences in evaluation among selected factors. By applying the Friedman test and Nemenyi method it could be stated that statistically significant differences occurred between selected factors (Table 3). Group E stands for the most important factors which are quality and previous experience.

Table 3. Factors influencing purchasing decision

Sample	Mean of ranks	Groups
Packaging design	4.518	A
Promotion	4.636	A
Packaging material	5.015	A
Appearance	5.542	A B
Product composition	6.341	B C
Place of purchase	6.529	B C
Discount	6.535	B C
Packaging size	7.425	C D
Price	7.658	D
Country of origin	7.996	D
Brand	8.258	D
Previous experience	10.251	E
Quality	10.297	E

As the least important attributes were rated the design of packaging, promotion followed by the material of packaging and lastly the appearance. Similarly, quality was also the most important attribute in following studies Yeow *et al.*, [10], and Šedik *et al.*, [39]. On the other hand, Neto *et al.*, [35], and Gyau *et al.*, [40] studies revealed that the colour of honey is considered as the main attribute when deciding to purchase. In terms of

factors influencing honey purchase, the origin of the honey was evaluated as the most important parameter in several studies in the Czech Republic [22], Malaysia [41], Albania [42] as well as in Slovakia [6]. On the contrary, the study conducted in Slovenia emphasizes that price of honey is the most important parameter at honey purchase [43].

Regarding the optimal price of honey, the most respondents (53%) consider the optimal price per 1 kilogram of honey from 7 to 10 €. Almost 30% of respondents think that the optimal price is 5 - 7 €. For comparison, in the study done by [39] respondents find that the optimal prices per 1 kg of honey were 7 € (22%) and 8 € (20%). As mentioned above, it could be stated that honey and bee products are perceived as healthy food with healing benefits. The result showed that the increased consumption was proven by 20% of respondents while the expenses on bee products increased only in 14%. The majority of respondents declared that the Covid-19 pandemic did not affect the consumption.

4. Conclusions

- Consumption of bee products including honey may increase the overall health status in the society as they provide many nutritional and health benefits. This study showed that Slovak consumers mostly consume honey, while the other bee products (propolis, apilarnil, bee pollen or royal jelly) are not so popular. Retail stores offer quite a huge variety of honeys such as multiflower, blend of flower and honeydew honey, special monofloral types such as linden honey, acacia honey, fruit blossom honey and honeydew honey. The average price of multiflower honey in 900 grams packaging is around 4.77 €.

- Honey consumers can purchase pure Slovak honey or different blends of honeys from different countries. Consumer research revealed that honey is mostly consumed regularly during the whole year. The most preferred type is acacia honey. The optimal price per 1 kilogram represents the price range from 7 to 10 € purchased directly from beekeepers or at supermarket. Quality and previous experience were evaluated as the most important factors during honey purchase while packaging design and material together with promotion acquired the least score.

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