



Investigation of Consumption Preferences of Snail Meat on Northern Cyprus

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ABSTRACT

Although snail meat is an important source of protein in terms of human nutrition, it has found a place in the eating and drinking culture of very few communities. Consumption of snail meat is socially accepted in many parts of the Cyprus. It is called as “Garavolli” by the Cypriot people and is also one of the most delicious appetizers. This research is important in determining the consumption behaviour of the people of the Northern Cyprus and determining their preferences depending on cooking methods. According to the results of this study, 32.7% of the participants do not consume snail meat, while 67.3% of them consume snail meat. It is consumed more at home (41.3%), compared to consuming at restaurants (38.1%). While 47% of participants consuming preferred to consume as boiled (with olive oil and vinegar), 3.8% of them preferred to consume as grilled. The most preferred method of cooking is boiling then dipping it to olive oil and vinegar. As we see from the answers, habits directly effect on preference to consume or not to consume the snail meat.

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Introduction

In the formation or enrichment of civilizations, what has been learned or gained from other cultures and civilizations is of great importance (Toygar, 1993; Direktör, 1995; Kaya Yildirim et al., 2020). Throughout history, different cultures have also influenced Cypriot cuisine. Interacting with various civilizations, the Cypriot food culture was enriched with variety of foods and especially appetizers and is quite rich in terms of taste and variety (Ankut, 2007; Ozgen, 2015).

The economic, social and cultural structures of societies can affect eating habits over time (Topuzoğlu et al., 2007). In a healthy and balanced diet, 40-50% of the daily protein requirement should be of animal origin. Meat has an important place in animal protein sources and contains all the necessary amino acids for human growth and fulfillment of their physiological functions (Yaylak et al., 2010).

Fossils present us with those snails that had lived about 500 million years ago and indicated that they are among the oldest known animal species in the world (Nnodim and Ekpo, 2019). Regarding the place snails in food culture, we can say that the best known edible terrestrials are *Helix* sp. In studies on the nutritional value of snail meat, it is reported that it contains high concentrations of protein (13.4-16.33%) and low amounts of fat (1.08-1.40%) and is rich in essential

fatty acids such as linoleic acids (Olgunoğlu and Olgunoğlu, 2009; Göçer and Olgunoğlu, 2018; Szkucik et al., 2018). Snail meat, which is an important source of protein in human nutrition, is an additional source of income for farmers in some countries, and according to many researchers, it is reported to be used in the treatment of pulmonary tuberculosis, ulcer, asthma, hypertensive (İnan, 2000; Nnodim and Ekpo, 2019).

Many European and American countries consume snail meat however consumption in Turkey is not mentioned at all (Olgunoğlu and Olgunoğlu, 2009; Göçer and Olgunoğlu, 2018). Consumption of snail meat is socially accepted in many parts of the Cyprus. It is called as “Garavolli” by the Cypriot people and is also one of the most delicious appetizers (Kaya Yildirim et al., 2020).

Researches show that *Helix aspersa* Müller; *Helix pomatia* L.; *Helix lucorum* L.; *Helix aperta* Birth., *Eobania vermiculata* Müller is among the important edible snail species. *Helix pomatia* L. Are shown as the most consumed snail species both on the Island of Cyprus and in many studies of other countries (Yıldırım et al., 2004; Toader-Williams and Golubkina, 2009; Olgunoğlu and Olgunoğlu, 2009; Çelik et al., 2017; Göçer and Olgunoğlu, 2018; Kaya Yildirim et al., 2020).

Table 1. Demographic variables of participants consuming snail meat

Variables	Definitions	N*	%
Gender	Male	143	67.5
	Female	69	32.5
Marital status	Married	108	50.9
	Single	104	49.1
Nationality	Cypriot	177	83.5
	Turkish	35	16.5
Age	18-24	70	33
	25-31	36	17
	32-38	31	14.6
	39-45	37	17.5
	46 +	38	17.9
Educational status	Primary education	12	5.7
	High school	47	22.2
	Associate degree	21	9.9
	Undergraduate	108	50.9
	Post graduate	15	7.1
Profession	Doctorate	9	4.2
	Civil servant	64	30.2
	Freelance	54	25.5
	Housewife	18	8.5
	Student	65	30.7
	Not working	11	5.2

Note 1: *N=212. only the number of participants who consume snail meat

This research is important in determining the consumption behavior of the people of the Northern Cyprus and determining their preferences depending on cooking methods. With the data obtained within this study. It was aimed to determine the preferences of the individuals living on the Northern part of Cyprus regarding the consumption details.

Material and Methods

The material of this study is the data obtained from consumers through questionnaires. The questionnaire was applied to 315 people using the face-to-face interview technique. Questionnaire including 9 questions was prepared in order to determine the consumption behaviors of Garavolli meat. In the first question, demographic data such as gender, age, education level and occupation were collected. In the other questions; snail meat consumption status, frequency of consumption, reasons to prefer or not to prefer, where it is consumed mostly, where it is obtained from, the preferred cooking methods and whether there were any health problems were asked. No coercion was applied to those who participated in the research. Participation in the study was completely voluntary. For evaluation of the results, percentage values were calculated using the SPSS 21. Analysis program. Since the answers to the questions in the questionnaire form can be marked with more than one option, the total of the answers exceeds 100%.

Results and Discussion

Lorcu and Bolat (2012) mentioned that the factors affecting food consumption habits are age, gender, education level and profession. With this regard, in this study, gender, age, education and occupation were found to be significantly effective in the consumption of snail meat (Table 1).

When the answers to the demographic characteristics of the participants who consume snail meat were examined, it has been observed that male participants consume more snail meat than female. This result may be influenced by the fact that the participants were mostly male and the shopping is generally done by men. In this study conducted throughout Northern Cyprus, it was observed that 67.5% of male and 32.5% of female participants consume snail meat, and in the study conducted by Olaleye (2013) this rate was 55% / 45%, respectively. It has been determined that people between the ages of 18-24 and who are students consume snail meat more. The reason why it is preferred more in this age group may be due to high amount of protein and low-fat ratio of snail meat. That is the fact young, sportive people take care. According to this research, it was seen that Turkish citizens consume less snail meat. Consuming snail meat is not a popular part of Turkish cuisine so Turkish people are not familiar with this culture. On the other hand, when the educational status of the participants consuming snail meat is examined in this study, it is observed that undergraduate education has the highest rate of 50.9%.

It can be seen that 32.7% of the participants never consume snail meat. Depending on the answers, 36.3%, 41.5% and 22.2% of the participants consume snail meat rarely, sometimes and often, respectively. Most of the participants (49.5%) who never consumes snail meat, mentioned that consuming snail meat is not in their habit. Other reasons for not consuming the snail meat were difficult to find (1.9%), unhealthy (25.2%), tasteless (22.3%) and price (0%) and 0.6% of the participants were vegetarians (Table 2).

On the other hand, as we see in question 4, habit is also a reason to consume the snail meat with the ratio of 52.8% and this was ranked second among the most chosen answers. This data shows us, eating habits influence much on consumption status. When we evaluate the reasons for consuming, oppositely to reasons mentioned above, flavor (56.6%) and being a healthy food (25%) were the most chosen answers for preference. In a study conducted in the Değirmenlik region of Northern Cyprus, it was reported that while the majority of the population consumed chicken and red meat, a small portion of them consumed seafood, pork, snail meat and game meat (Özgen, 2015). This situation may be due to the fact that the study was conducted only in the Değirmenlik Region. It is observed that the participants who consume the product fondly pay little attention to the price of snail meat. The reason for this is that snail meat can't be found fresh all the time and everywhere.

A study was conducted on the food culture of Değirmenlik Village on Northern Cyprus and snail meat consuming habits were also investigated. According to that study, 86.9% of the participants doesn't consume snail meat, while 8.9% consume once a month and 1% of them consume every day (Özgen, 2015). In our study, the rate of consuming is higher. This may be due to larger area that the survey was conducted. With a similar study conducted in Pennsylvania, it was reported that 69.4% of the participants consume snail meat sometimes, 10.6% of the participants consumed snail meat once a week or two or three times a week, 9.4% consumed twice a month (Olaleye, 2013).

Table 2. Survey questions and answers

No.	Survey questions	Survey answer	N	%
Q2.	What is your consumption status of snail meat?	Never	103	32.7%
		Rarely	77	36.3%
		Sometimes	88	41.5%
		Often	47	22.2%
Q3.	What is your consumption frequency of snail meat?	Every day	4	1.9%
		Every two months	31	14.6%
		Once in a month	30	14.2%
		1-2 per week	22	10.4%
		Only when freshly picked	76	35.8%
	Special days / Meetings	49	23.1%	
Q4.	What are your reasons for preference if you consume the snail meat?	Easy to find	19	9%
		Habit	112	52.8%
		Healthy	53	25%
		Nutritional value	28	13.2%
		Delicious	120	56.6%
	Price	1	0.5%	
Q5.	What are your reasons for not to prefer if you do not consume snail meat?	Difficult to find	2	1.9%
		Habit	51	49.5%
		Unhealthy	26	25.2%
		Vegetarians	2	1.9%
		Tasteless	23	22.3%
	Price	0	0%	
Q6.	Where do you mostly consume the snail meat?	Home	130	61.3%
		Restaurant	120	56.6%
Q7.	Where do you get the snail if you consume it at home?	Nature	158	74.5%
		Supermarket	17	8%
		Bazaar	14	6.6%
Q8.	Which cooking method you prefer mostly?	Boiled (with olive oil and vinegar)	148	69.8%
		Boiled (inside rice and such foods)	26	12.3%
		Pickles	78	36.8%
		Stewed	48	22.6%
		Grilled (barbecue)	70	33%
		Fried (kentucky)	49	23.1%
	Baked	12	5.7%	
Q9.	Have you experienced any health problems related to snail meat consumption?	Allergies	0	0%
		Weakness	0	0%
		Diarrhea	0	0%
		Nausea / Vomiting	1	0.5%
		Stomach cramps	2	0.9%

In our study, participants mentioned to consume snail meat every day, every two months, once in a month, 1-2 per week as 1.9%, 14.6%, 14.2%, and 10.4%, respectively. The participants with the ratio of 35.8% of consume only when freshly picked. The participants with the ratio of 23.1% indicated that they consume only in special days or meetings.

In question 6, it was stated that 61.3% of participants consume snail meat at home and 56.6% of them in restaurants. When the proportional distribution of those who consume snail meat at home and restaurant is compared, it was seen that there is not much difference. It is observed that 11.8% of the participants participating in the study of Olaleye (2013) and 56.6% of the participants of our research prefer to consume snail meat in the restaurant. Live snails can be collected by the restaurant owners in rainy weather and are kept in the refrigerator for a long time. This situation causes snail meat to be a

privileged appetizer culture in Cypriot cuisine and to be served at all times. It was stated that 74.5% of those who consume snail meat at home obtained snails from nature, 8% from supermarkets and 6.6% from the bazaar. Especially in the days after rain, it is easy to reach the live snails on the roadside and open lands, which makes consumption easier at homes.

When the cooking method preferences were evaluated (Q9), 69.8% of participants preferred boiled (with olive oil and vinegar), 36.8% of participants preferred pickles, 33% of participants preferred grilled (barbecue), 23.1% of participants preferred fried (kentucky), 22.6% of participants preferred stewed, 12.3% boiled (inside rice and such foods) and 5.7% of participants prefer to consume baked snail meat. As we can see in the results, the most preferred cooking method is boiling. This may be due to being the simplest way of cooking. On the other hand, consumers know that applying high temperature removes

harmful microorganisms. As a result of the survey conducted by Iwanegbe and Igene (2012), Edo State of Nigeria, snail meat was respectively as boiled with the ratios of 8%, 6.7% and 16.7% as stewed with the ratios of 23.3%, 13.3% and 13.3% and as fried with the ratio of 10%, 36.7% and 36.7% respectively in Oredo, Esan West and Etsaka West regions.

We also asked participants if they have suffered a health problem after snail meat consumption. They have only mentioned that 0.9% of participants had stomach cramps and 0.5% of participants had nausea or vomiting. It was determined that the participants in the study did not experience any health problems such as allergies, weakness and diarrhea due to snail meat-eating.

Conclusion

The consumption habits of foodstuffs may differ from country to country and from region to region. It is observed that the Turkish Cypriot cuisine is very rich in terms of various types of food and especially appetizer culture due to its interaction with various civilizations while maintaining the Anatolian Turkish food culture. This research has shown that snail meat is very popular in Cypriot cuisine. Possibility to collect the live snails freshly from nature makes it popular for consuming. This product, which is thought to be very delicious by the public, is observed to be consumed by applying different cooking techniques. The most preferred method of cooking is boiling then dipping it to olive oil and vinegar. As we see from the answers habit directly effect on preference to consume or not to consume the snail meat.

Control measures and necessary legal regulations are needed while collecting and consuming snail meat is being done by public out of control. Consumption of this product, has become increasingly popular as food. It should be aimed to prevent food-borne diseases by considering the quality of raw materials and cooking techniques with hygienic care. Care should be taken to cook with adequate heat treatment before consumption.

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