Consumers' Behavior towards Table Olives

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***Abstract*—Table olives are among the nutritious and functional foods with respect to high contents of monounsaturated fatty acids, phenolic compounds, vitamins, minerals, and fiber. World raw olive production is around 1.3-1.8 million tons per year, and about 10% of these olives are processed into table olives. Food quality focuses on customer needs and expectations and is an important means of competition on the market due to the high competition pressure and saturation of the market Consumers' preferences and willingness to pay more for specific foods' attributes, meaning high quality-foods, is a complex decision-making process. A powerful tool to understand the quality of foods and customer behaviors is consumer preference surveys, since cultural practices, sensory properties (color, taste, texture), package and socio-economic status strongly influence the popularity of any food product. Hence, by understanding consumer preferences direct prediction and increase of consumption is possible based on the degree of happiness, satisfaction, enjoyment, or utility that olives provide.**

***Index Terms*—olives, consumer preferences, consumer perception, food quality**

I. Introduction

Food production is a major concern of national policies for sustainable production and consumption since it has direct correlations between the environment, individual and public health, social cohesion, and the economy. Food policies comprise strategies of production and processing techniques, marketing, availability, sustainability, utilization and consumption of food [1]-[4].

Food policies, increase in world's population, change in dietary habits and lifestyle along with the risk of hunger make the production, distribution and consumption of food a critical issue for the 21st century. Through marketing food producer and the consumer could present their ideas, as some consumers are health conscious and some are concerned about sustainability of food production and its effects on the environment [5]-[7].

Consumers exhibit varied taste and preferences for food, thus, the producers should understand the decision-making process, influenced by several factors either internal or external, of the consumers in order to respond to the demands of the market and stay competitive.

It is of paramount motivation to know consumers' behavior, expectations and attitude towards any food product for marketing success of the product, service or trading form, which in particular depends on consumers' sensory satisfaction and ethnic eating habits. Consumer behaviour is the study of individuals, groups, or organizations and the processes they use to select, secure, use, and dispose of products, services, experiences, or ideas to satisfy needs and the impacts that these processes have on the consumer and society [8]. It analyzes the influences of personal and psychological attributes (age, occupation, education, motivation, perception and beliefs and attitudes), culture, reference groups, society, and marketing strategies [9].

In recent years, there is a rapid change in consumptive behaviors and life styles due to economic growth, improvement in the standard of living, fast urbanization and trade liberalization. The main drivers for consumer preference for table olives are price, brand image, availability, and fulfillment of the need. However, the raw material, stage of maturity, agro-climatic conditions, processing technology, microorganisms used in fermentation, and sensory characteristics of the final product are also effective [10]-[13].

The olive tree, Olea europaea L., is an evergreen species of shrub tree native to the Mediterranean Basin, Arabian Peninsula, and Southern Asia, which has been cultivated for olive oil, fine wood, olive leaf, and the olive fruit [14], [15]. Olive has been mentioned and praised as a holly fruit in Quran and Bible (both in Old and New Testaments).

The largest olive producing countries are located in the Mediterranean region and produce 95% of the world's olives. The leading producer is Spain, followed by Italy, Greece, Turkey and Tunisia, similar to consumption.

Olives are rarely used in their natural form due to bitterness and are either consumed in the form as oil or

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table olives. 90% of the olive crop worldwide is processed for oil, whilst only 10% of the harvest is used for table olive production.

Table olives are defined as "the sound fruit of specific varieties of the cultivated olive tree harvested at the proper stage of ripeness and whose quality is such that, when they are suitably processed as specified in the standard, they produce an edible product and ensure its good preservation as marketable goods" [16].

Table olives are one of the most important fermented commodities traded internationally with an annual production of 1.3-1.8 million tons depending on the season, around 11.2% of it is produced in Turkey. Approximately 29.4% of Turkey's total olive production is utilized in table olive production; the rest is processed as olive oil. The olive fruit can be classified on color, largely determined by the degree of maturity at harvest time, as green, turning color, and black [14], [17]. Green table olives accounted for 44% of this, compared with 33.5% black and 22.5% turning color olives [18].

The awareness about the relation between health and food consumption aside with beneficiary effects of optimal nutrition among conscious societies, the worldwide consumption attitude has increased for olives and olive products. The "Mediterranean Diet" is a modern nutritional recommendation originally inspired by the traditional foods/drinks of the countries surrounding the Mediterranean Sea, in which the principal aspect include proportionally high consumption of olive or olive oil, seafood, vegetables and fruits. It is considered to be one of the healthiest diets due to the reduced incidence of cardiovascular diseases and certain cancers. Olive oil contains a very high level of mono-unsaturated fats, most notably oleic acid, which epidemiological studies suggest may be linked to a reduction in the risk of coronary heart disease. There is also evidence that the antioxidants including tocopherols, carotenoids, phospholipids and phenolics in olive oil improve cholesterol regulation and "low-density lipoprotein" (LDL) reduction, along with other anti-inflammatory, anti-carcinogenic and anti-hypertensive effects [6], [19], [20]. Aside fatty acids and antioxidant components, the high nutritive value of olive has been ascribed to high protein content with essential amino acids (especially leucine, aspartic acid, glutamic acid), vitamins, minerals and fiber [21], [22].

In this framework, the main objective of the present study is to assess the socio-economic and demographic determinants of consumers' perception and preferences towards table olives, which is a main component of traditional Mediterranean breakfast, in regard to data obtained from a conjoint choice experiment survey in Bursa, Turkey.

II. Material and Methods

Sample size is a key parameter for consumer preference surveys since it is directly related to data quality and survey precision. Based on population living in Bursa urban area and using the standard error formula ($n = Nt^2\ pq / d^2\ (N-1) + t^2\ pq$) to ensure adequate data, a sample of 302 people were selected with a 95% confidence level from Osmangazi, Nilufer and Yildirim districts.

The consumers provided information about their consumption patterns, preferences and willingness to pay for olives, their opinions about olive industry and marketing, and their individual household demographic information. The data collection process was completed between January 1st to March 30th, 2014, and the data were presented as means ± standard deviations with coefficient of variation by STATISTICA 13.0 software (Stat Soft Inc., Tulsa, OK, USA).

III. Results and Discussion

Bursa is in the southern Marmara region and is one of the major olive growing locations in Turkey, thus there is a strong tradition in both production and consumption of table olives in Bursa, similar to other Mediterranean countries. It has a great economic importance regarding several varieties that can be used for table olive production. In recent years, the government is applying policies to expand olive production and processing.

The present study aims to assess the tendency and determinants of consumers' perception and preferences towards table olives. A questionnaire was administered to the sample of 301 respondents selected voluntarily and recruited among people who consume olives. Each consumer was asked to fill the questionnaire concerning information considered relevant for consumer description and for the explanation of their preferences.

The normal evaluation of continuous variables obtained from socio-economically different areas in Bursa was evaluated by Shapiro-Wilks test, and displayed a normal distribution. Normally distributed data were presented as mean ± standard deviation and independent samples t-test was used for comparing two independent groups. When the data were not normally distributed non-parametric tests were performed and median, minimum and maximum values were given for continuous variables as descriptive statistics.

Characteristics such as gender, age, education, profession, occupation, income level, and marital status, are typical examples of demographics which are used to describe a population [7]. According to the conjoint choice experiment survey the evaluated consumers were 40.07% males and 59.93% females as in Turkey it is more common for women to do the food shopping; 63.58% were married; majority being college graduate (56.95%); and aging between 21-30 (37.42%) followed by 31-40 (24.83%) and 41-50 (20.20%). The 17.55% of consumers were more than 50 years or younger than 20 years of age. In terms of income 9.27% of participant has 1 000 TL and lower, 51.98% has 1 001-3 000 TL and 38.74% has 3001 TL or higher (Table I). The differences in consumers' personality traits, such as food-related personality traits, purchasing habits and lifestyles could affect consumers' preferences for table olives.

TABLE I. SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE SURVEY RESPONDENTS

Characteristics	Frequency	%	Mean ±Standard Deviation	Coefficient of Variation (CV = S/X.100)
Gender			**1.40 ±0.49**	**35**
Female	181	59.93		
Male	121	40.07		
Age Group (years)			**3.13 ±1.12**	**35.78**
20 and younger	3	0.99		
21 – 30	113	37.42		
31 – 40	75	24.83		
41 – 50	61	20.20		
51 and older	50	16.56		
Marital Status			**1.64 ±0.48**	**29.27**
Married	192	63.58		
Single	110	36.42		
Educational Status			**3.29 ±1.00**	**30.40**
Elementary School	28	9.27		
Secondary School	31	10.26		
High School	69	22.84		
College	172	56.95		
Other	1	0.33		
Occupation			**2.10 ±0.91**	**43.33**
Working	129	42.72		
Non-working	41	13.58		
Self-employed	78	25.83		
Student	27	8.96		
Pension	27	8.96		
Family Income (monthly)			**4.35 ±1.74**	**40**
1 000 TL and lower	28	9.27		
1 001 – 1 500 TL	37	12.25		
1 501 – 2 000 TL	27	8.94		
2 001 – 2 500 TL	36	11.92		
2 501 – 3 000 TL	57	18.87		
3 001 TL and higher	117	38.74		

The consumption of table olives was 88.74%, on a daily basis of 56.72% (data not shown). As shown in Fig. 1, olives are mostly preferred for breakfast (94.4%), since a standard Turkish breakfast, generally recognized as the most important meal of the day, includes bread, butter, jam and/or honey, olives, cheese, tomatoes, cucumbers, cold meats, eggs and tea.

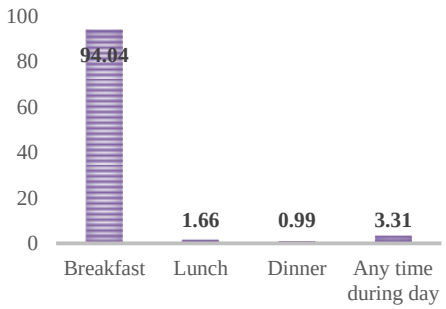

Figure 1. Consumers' preference for consumption time for olives (%)

The people participating in the survey mentioned that the most important parameter in olive purchasing was "quality" (50.33%) followed by "hygiene" (17.22%), "familiarity" (16.56%) and "trademark" (9.93%) (Fig. 2). The attributes for "other" were characterized as price, color, type, and origin. Quality is a very subjective concern, differing from person to person which changes in accordance to consumer expectations. The dynamics of a quality system for table olives is particularly related with olive characteristics, processing conditions, and consumer requirements. Consumers have defined the parameters that characterize quality as "products which are healthy, safe, nutritious, and convenient and produced in environmentally-friendly production processes".

The sensory and textural properties of table olives, which are among the key parameters of the consumer preference, depend on technological processes, fermentation procedures and raw material. The table olives are generally described according to their color (green, turning color, black), the procedure used to remove the bitterness (treated with lye or untreated), and the method used to preserve the olives (brine or dry salt). The use of color is an effective way for description, however, difficulties may arise. Color is a subjective measure and interpretation may vary between individuals depending on cultivar, production region, ripeness and trade preparation.

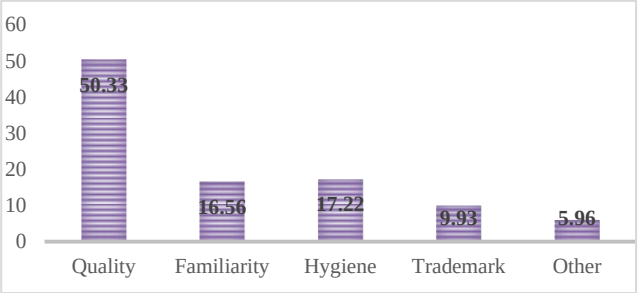

Figure 2. The attributes of olive purchase (%)

The consumers were conscious about raw and processed olive prices and mentioned that due to the taste, bitterness and texture they are used to, as well as the selling price, they either ferment olives themselves according to traditional methods or buy from local producers as bulk. Fig. 3 showed that the consumers liked mostly the olives sold in super/hypermarkets (49.34%) whereas only 17.22% prepare their olives at home according to traditional methods.

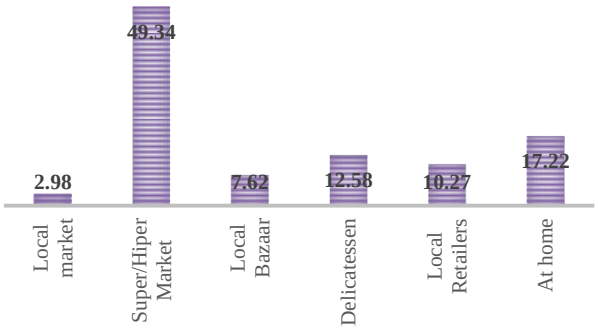

Figure 3. Preference for place of purchase

Health consciousness, perceived quality, trusts in labeling and marketing and concern over food safety positively influence consumer behavior. In this context packaging plays multidimensional functions: i) protecting and containing the products we buy until the time of consumption, ii) offering information about the product and producer aside with knowledge on nutrition and storage status of the product, iii) being a technique to communicate with consumers and safeguard to the quality of product, iv) acting as a pricing criterion, v) defining/setting of brand identity and shelf impact [23]. Regarding the rapid increase in sales of packaged foods producers realized the important role of packaging attributes in marketing communications and its influence on consumer purchase decision. Packaging, a driving success of a brand, is an ultimate sales promotion tool itself for the organizations and stimulates the impulse for buying behavior by the color, wrapper, functionality, design, shape, and other characteristics [23]-[25].

In Fig. 4, the preference for packaging is displayed. According to the results, consumers perceived packaging, as a tool to enhance the quality, especially with respect to nutritional value, and protection from spoilage. The buying intention was detected as 72.22% for packed products either vacuum packed or canned olives. In addition, the results clearly indicated the tendency to buy packaged olives was higher among female, highly-educated consumers and consumers with children. The tendency for buying unpacked olives was 27.78%. The main drawback might be a result of consumer's belief as "packaged food products are not natural and are not good for health".

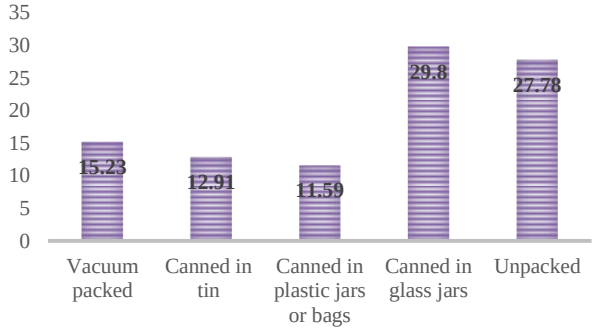

Figure 4. Buying intention for packaged olives (%)

Brand image and advertisement have a strong positive impact on consumers' buying attitude. People are more conscious about their social status, and thus, prefer branded products, which have significantly influencial advertisement campaigns [26]. Evaluating the brand preferences of consumers for olives, demand for local brands was rated as 52.34% (Fig. 5) meaning consumers trust the quality of local market chains than national market chains. In addition, 21.52% displayed a tendency to buy olives from producer/retailers in accordance to their mouthfeel and sensory expectaions.

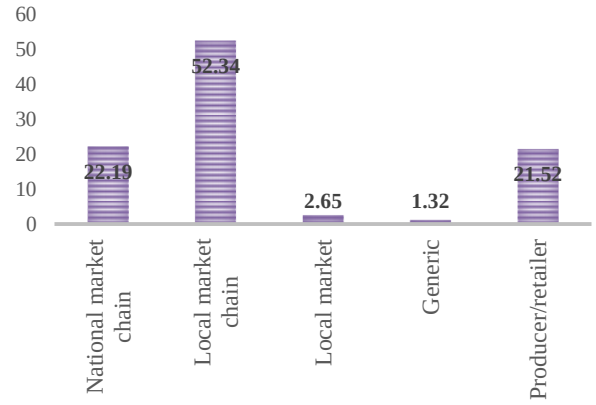

Figure 5. The impact of brand name on consumers' perception

Consumers generally buy off-brands for price benefits; however, they have several reasons to buy brand names. People buy olives of a recognized brand since they must have a consistency in product quality like taste, color, texture, safeness and nutritional value. The consumers rely on their prior experiences or public word-of-mouth when selecting the brands. Besides, over time, consumers may develop loyalty, an emotional attachment, to brands that provide a consistent, high-quality experience and standard mouthfeel for them. However, brand loyalty may cause inconveniences or spending more. 29.43% of

consumers showed a tendency of buying "same brand" of olives, whilst 40.73% stated that they had no dependency on brand as for them the most important atributes for purchase was taste and shape (Fig. 6).

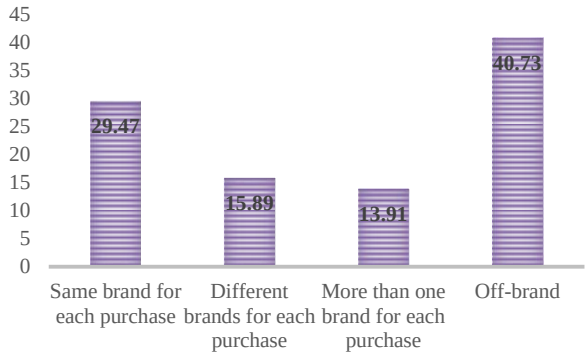

Figure 6. The tendency to buy branded olives and brand loyalty

IV. Conclusion

Consumers' perception and intention is used to analyze food consumption in regard to the nourishment needs and sensorial quality as well as food production and marketing strategies. The food industry worldwide is dominated by small producers using traditional methods. Therefore, the IOOC, EU, FDA and the Codex Alimentarius impose standards on various aspects of table olive production, including technical description, size grading, essential composition, quality factors, labelling, defects and tolerances, authorized food additives, contaminants, and product hygiene in order to respond the customers' expectations.

The present study detected the consumption habits and perception of consumers regarding olive and the main drivers for these preferences. In terms of the empirical results, our study suggests that there are several factors affecting their behavior for table olives and the consumers can be categorized in different classes according to their expectations.

Olive constitutes a fundamental component of the traditional Turkish cuisine and diet. As a consequence, the vast majority of consumers are knowledgeable about this product, and all of them are aware of market prices and product characteristics.

We can say that the most important attribute that affects consumers' preferences towards olive is "level of education", followed by the price, monthly income and brand loyalty. Education and high income level with health consciousness directs the consumers' to buy olives instead of processing at home.

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