

""Ezr mlt lpi Twtnkuj Onkg OlnCqpuwo gt Bgj cxlqwt Uulpi EqplqlpvApcrf ulu

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ABSTRACT

Consumption of olive oil is considered important for preserving a healthy and relatively disease-free population. The Mediterranean diet has significant protective effects against cancer and coronary heart disease. Consumption of olive oil must be increased, therefore, due to dietary and health concerns. The aim of this study was to explore Turkish olive oil consumer behavior using conjoint analysis and to determine the best product quality set which maximizes the total customer utility. For this end, conjoint analysis in the SPSS was done with 250 household survey data. The results of this research show that the most important three factors on olive oil demand are its olive oil type, package and price, respectively. On the other hand, the best product quality set is virgin olive oil type, tin box package, strong taste, yellow color, sold in the hypermarket at 5 €/lt and with promotion. Results indicate that consumers prefer olive oils with virgin type, low price, strong tasted, yellow color and promotion. As a result, virgin olive oil's protective function has a beneficial effect on human health and nutrition; therefore, their penetration ratio should be rapidly increased, and their consumption should be made incentive.

Key Words: Conjoint analysis, consumer behavior, olive oil.

INTRODUCTION

Mediterranean region is best defined by its food and diet. This region offers a great food heritage which deserves to be valued by consumer, distribution system and agro-food industry. In particular, olive oil being typical Mediterranean product has steadily produced in countries such as Spain, Italy, Greece, Turkey, Tunisia etc. The largest producers of olive oil in the world are Spain, Italy, Greece, Portugal and Turkey. 95% of the world olive oil production has been provided by Mediterranean countries. World olive oil production in 2006 was 2.6 million tones, of which Turkey contributed 5%. Olive oil is an important constituent of the diet in Turkey, fourth largest olive oil producer in the world [1,2].

Olive oil consumption has been limited to and associated with the producing regions of the world. However, consumption in non-traditional market has increased since the 1990s. The annual per capita olive oil consumption is 0.45 kg in USA, 0.02 kg in Japan, 1.2 kg in Turkey, 6 kg in Syria, 7.1 kg in Portugal, 11.1 kg in Tunisia, 12.4 kg in Italy, 13.6 kg in Spain and 23.7 kg in Greece in 2006 years [3,4]. When compared to the high amount of olive production, consumption of olive oil is relatively low in Turkey. For a balanced Mediterranean diet, olive oil consumption as a component of the annual per capita 25 kg vegetable oil should be at least 3 kg [5].

On the other hand, consumption of olive oil is considered important for preserving a healthy and relatively disease-free population. Epidemiologic data show that the Mediterranean diet has significant protective effects against cancer and coronary heart disease [6]. As a producer Mediterranean country of olive oil, therefore, we should increase our olive oil consumption immediately due to dietary and health concerns.

The beneficial health effects of olive oil are due to both its high content of monounsaturated fatty acids and its high content of antioxidative substances. The previous researches have showed that olive oil provided protection against heart disease by controlling LDL cholesterol levels while raising HDL cholesterol levels [7]. No other naturally produced oil has as large an amount of monounsaturated as olive oil-mainly oleic acid. Olive oil is very well tolerated by the stomach. In fact, olive oil's protective function has a beneficial effect on ulcers and gastritis. Olive oil activates the secretion of bile and pancreatic hormones much more naturally than prescribed drugs [6-8].

The previous studies have also shown that people who consumed virgin olive oil daily for one week showed less oxidation of LDL cholesterol and higher levels of antioxidant compounds, particularly phenols, in the blood. But while all types of olive oil are sources of monounsaturated fat, extra virgin olive oil, from the first pressing of the olives, contains higher levels of antioxidants, particularly vitamin E and phenols, because it is less processed. Olive oil is clearly one of the good oils, one of the healing fats. Most people do quite well with it since it does not upset the critical omega 6 to omega 3 ratio and most of the fatty acids in olive oil are actually an omega 9 oil which is monounsaturated [9].

To increase olive oil consumption, it should be done the new product design (product innovation) by manufacturers or retailers, created product involvement by marketing experts, and provided health and diet information by dieticians. In today's consumer-based marketing, manufacturers and marketers must meet consumer expectations in order to increase their market share. To do this, they must first keep track of changes in consumer attitudes and preferences via detailed individual customer-based data and up-to-date marketing research. Based on this feedback, they could develop new marketing tactics and strategies, and design new products [10].

On the other hand, consumers are faced with much greater information and choice in today's competitive and global market. They have limited processing capacity and hence use only part of the information available when choosing a brand or product. In their evaluations of brand attributes, consumers limit themselves to 3-5 items of information in order to reduce the complexity of selection [11]. For example, in any brand choice, price and quality play an important role since they are often central to consumers' judgment and decisions [12]. For most brands, consumers believe that price and quality are correlated and their preferences are affected by external variables such as income, family size, social status, profession, etc. [13]. Under the influence of all these factors, a consumer defines the purchasing problem, gathers necessary information, evaluates alternatives and makes a purchasing decision [14,15].

The effects of product attributes on consumer attitudes towards product evaluation have been widely studied [10,11,16-18]. One of the greatest difficulties in these types of researches is to quantify the effect of each product attribute on the consumer purchase intention. Conjoint analysis is a useful tool to investigate the effect of these attributes. It is a market research tool for developing effective product design. Using conjoint analysis, the researchers can find out product attributes from customers, the most desirable level of product attributes in consumers' mind and the market share of preference for different brands [19].

The aim of this study was to explore Turkish olive oil consumer behavior using conjoint analysis and then, to determine the best product quality set which maximizes the total customer utility in Erzurum Province.

With the increasing demand for olive oil, and the growing competition between manufacturers and retailers, it is interesting to determine variations in consumer responsiveness to different olive oil attributes.

MATERIAL AND METHODS

Material and determination of sample size

The preliminary data of the present research were obtained from a survey conducted in the Erzurum, Turkey. In order to determine the sample size, while minimizing sample bias and representing the population correctly; the city centre was divided into four districts: the east-side Kazimkarabekir district with 17976 households, the west-side Dadaskent district with 6562 households, the north-side Palandoken district with 30022 households, and the south-side Yakutiye district with 26099 households [20].

To determine the sample size for each district, following formula was used [15]:

$$n = \frac{Z^2 * p * (1 - p)}{c^2} = 250$$

Where,

n = Sample size

Z = Z value, (used 1.96 for 95% confidence level)

p = percentage picking a choice, (0.8 used for sample size needed)

c = confidence interval, (used 0.05 = ±5)

Then, based on the population of each district, weighted sample size and distribution of the surveys for each district were determined proportionally. Out of 250, the number of questionnaires allocated to Dadaskent, Kazimkarabekir, Yakutiye and Palandoken districts are 20, 56, 81 and 93, respectively.

Generation of orthogonal design and questionnaire

Conjoint analysis is a multivariate technique based on the assumption that purchasing behavior reflects a choice, within a product category, among products which possess a set of differentiating attributes. This technique has been used widely in many marketing researches including food products such as olive oil, yogurt etc. [11,21-24].

In this study, to determine the factors influencing consumer purchasing decisions for olive oils, pre-market researches have been done on March, 2007 to find out the most popular olive oils, their prices and contents in the stores. After obtaining these data, based on factors and factor levels listed in Table 1, the plan file which consists of product profiles (i.e., combinations of factor levels) to be rated by the respondents were generated using the orthogonal design procedure in SPSS statistical program [19].

Table 1. Factors and their levels for olive oil used in conjoint analysis

Factors	Factor Levels			
Olive oil type	Extra Virgin (EV)	Refined Oil (RO)	Virgin Oil (VO)	Extra Light (EL)
Prices (€/lt)*	6.50	6.15	5.50	5.00
Package	Tin box (TC)	Glass bottle (GB)	Plastic bottle (PB)	
Selling Point	Hypermarket (HM)		Market (MM)	
Taste	Strong (ST)		Bland (BL)	
Color	Green (GR)		Yellow (YE)	
Promotion	YES			NO

*The prices of the products were converted from Turkish Lira (TL) to Euro (€) using the exchange rate on February 15, 2009. The conversion rate used was 2.15 €/TL.

With 7 factors and total 19 factor levels, we get 768 potential product profiles which is quite unmanageable number to deal with¹. In order to avoid this problem, we need to generate a representative subset known as an orthogonal design, typically the starting point of a conjoint analysis. After generating orthogonal design, the number of product profiles has been reduced to 18 cases (Table 2).

Table 2. Combinations for olive oil used in conjoint analysis

Card No	Oil type	Price (€/lt)	Package	Selling Point	Taste	Color	Promotion
1	EV	5.00	TC	MM	ST	GR	NO
2	RO	6.50	TC	MM	BL	YE	YES
3	VO	5.00	TC	HM	ST	YE	YES
4	EL	5.50	TC	HM	ST	YE	NO
5	EV	5.50	GB	MM	BL	GR	NO
6	EL	5.00	GB	HM	BL	YE	NO
7	EL	6.50	TC	MM	BL	GR	NO
8	VO	6.50	GB	HM	ST	GR	YES
9	RO	6.15	GB	MM	ST	YE	NO
10	RO	5.00	PB	HM	BL	GR	NO
11	EV	6.15	TC	HM	BL	YE	NO
12	EV	6.50	GB	MM	BL	YE	YES
13	VO	5.50	PB	MM	BL	YE	NO
14	VO	6.15	TC	HM	BL	GR	YES
15	RO	5.50	TC	HM	ST	GR	YES
16	EV	6.50	PB	HM	ST	YE	YES
17	EL	6.15	PB	MM	ST	GR	YES
18	RO	5.50	TC	MM	ST	GR	YES

Survey forms were designed based on these 18 product profiles. SPSS Conjoint uses the full-profile approach, where respondents rank, order, or scores a set of profiles, according to preference [19]. In this study, respondents were asked to rank the 18 profiles from the most to the least preferred.

STATISTICAL METHOD

The data file was created with the preference ranking of those profiles collected from the respondents. Before analyzing the data with the conjoint procedure, *factors* subcommand must be described. We can specify the model describing the expected relationship between factors and rankings via *factors* subcommand [19]. The discrete model indicates that factor levels are categorical and no assumption is made about the relationship between the factor and the ranks. On the other hand, the linear model indicates an expected linear relationship between the factor and ranks. The expected direction of the linear relationship can be specified with the key words *more and less*. The linear-less indicates that lower levels of a factor are expected to be preferred, while the linear-more indicates that higher levels of a factor are expected to be preferred. Specifying more or less will not affect estimates of utilities [19,25].

According to the characteristics of the factors, we used discrete, linear-less and linear-more models in this study. Olive oil type, selling point and taste, color, package were modeled as discrete because there is no prior knowledge as to the influence of olive oil attributes on purchase intent. Price and promotion, however, were modeled as linear-less and linear-more, respectively. Price was assumed to follow a linear-less model since it, typically, shows an inverse relationship with purchase intent. Promotion, on the other hand, was assumed to follow linear-more relationships in that consumers are expected to exhibit more positive attitudes toward product promotions [24].

The conjoint analysis of the data generates a utility score, called a part-worth, for each factor level. These utility scores, analogous to regression coefficients, provide a quantitative measure of the preference for each factor level, with larger values corresponding to greater preference. Part-worths are expressed in a common unit, allowing them to be added together to give the total utility, or overall preference, for any combination of factor levels [15]. For example, the total utility (TU) of a olive oil with type virgin, selling point HM, price 5 €/lt, package TC, taste ST, color YE and promotion YES (i.e., card number 3) is:

$$TU = \text{constant} + U(\text{Virgin}) + U(\text{HM}) + U(5 \text{ €/lt}) + U(\text{TC}) + U(\text{ST}) + U(\text{YE}) + U(\text{YES})$$

$$TU = 8.413 + 2.033 - 0.131 + 0.307 - 0.289 + 0.049 - 0.187 + 0.433 = 11.002.$$

RESULTS

Table 3 shows correlations, the utility scores (part-worth) and relative importance for each factor level. Pearson's R and Kendall's tau statistics imply that there is a significant correlation between the observed and estimated preferences [11]. That means the model fits the observed data well.

Table 3. Conjoint analysis results for olive oil

Factors	Factor Levels	Utility Estimate (Part-worth)	Importance Value (%)	Standard Error
Olive Oil type	EV	0.314		0.275
	RO	-0.185	36.862	0.275
	EL	-2.162		0.275
	VO	2.033		0.275
Price (€/lt)	5.00	0.307		0.142
	6.15	-0.134	11.283	0.284
	5.50	-0.230		0.425
Package	6.50	-0.077		0.567
	GB	0.150		0.211
	PB	0.139	17.351	0.248
Selling Point	TC	-0.289		0.248
	MM	0.131	8.178	0.159
Taste	HM	-0.131		0.159
	BL	0.049	8.232	0.159
Color	ST	-0.049		0.159
	GR	0.187	7.402	0.159
Promotion	YE	-0.187		0.159
	NO	-0.866	7.633	0.317
	YES	0.433		0.634
Constant		8.413		0.616
Correlations among observed and estimated preferences				
		Value	Significance level	
Pearson's R		0.985	0.000	
Kendall's tau		0.903	0.000	

Higher utility values (part-worth) indicate greater preference. So, the most and the least preferred olive oil type in Erzurum is virgin olive oil (VO) and extra light olive oil (EL), respectively (Table 3). The obtained coefficients indicate that the consumers prefer buying a tin packaged where it is indicated virgin olive oil rather than refined one. This result is as expected. The reasons that consumers, firstly, prefer virgin oil over extra light could be related to not undergo some considerable processing such as filtering and refining and only not suffer a very mild olive flavor. Secondly, consumers could prefer to use the best, least processed, comprising the oil from the first or second pressing of the olives. Finally, virgin or extra virgin olive oil could reply to consumer requirements, beliefs and traditional Mediterranean diet model and they could prefer them due to dietary and health concerns.

Supermarket HM as selling point has higher utility than smaller markets although the difference between them is quite minor. It could be assumed that consumers prefer to purchase olive oils from bigger stores, perhaps because bigger markets have more product varieties, better quality and price, better customer services etc. On the other hand, in research region, the bigger stores as hypermarket, supermarket and popular market provide a similar shopping environment for target consumers. As for the price attribute, as expected, the result show that there is an inverse relationship between price and utility. Consumers prefer virgin olive oil with the price of € 5 more than the olive oil with the price of € 6.50 per lt since lower prices lead to higher utility. For the last three price levels (6.50, 6.15 and 5.50 €/lt) respondents' utility decreases, but for positive € 5 price level the utility increases (Table 3).

Regarding the sensory attributes, virgin olive oil with strong taste and yellow color gives the highest utility for consumers. The results indicate that respondents prefer a strong test olive oil rather than a bland one. Respondents, as expected, show also a higher preference for a green colored olive oil compared with a yellow one. This could be due to growing health and dietary concerns. Increasing knowledge and consciousness about the detrimental and adverse effects of some processing such as filtering and refining could induce consumers to demand more of the high quality oil that comes from the first pressing of the olive without using heat or chemicals, and has no off flavors is awarded extra virgin/virgin status.

The less the olive oil is handled, the closer to its natural state, the better the oil. If the olive oil meets all the criteria, it can be designated as extra virgin. Presence of promotion corresponds to a higher utility, as expected. That means consumers prefer more olive oil with consumer sales promotion. Promotions aim to increase consumer demand for a product. Hence, in general, the products with promotions are more attractive to consumers in terms of their price, quality, physical appearance etc.

Table 3 also shows the relative importance of each factor. The results indicate that olive oil type has the most influence on overall preference with 36.86% relative importance, following package with 17.35% and price with 11.28%. Oil color and promotion, however, play the

least important role in determining overall preference. Selling point and taste are not as significant as oil type, price and content since perhaps the ranges of the former three factors were not as large as the ranges of the latter four factors. While selling point, promotion, color and taste have only two factor levels; oil type, price and package have four, four and three factor levels, respectively.

Table 4 shows the total utilities obtained from the part-worths in Table 3, and the ranking of the 18 product profiles in orthogonal design. Results indicate that product attitudes "VO, 5 €/lt, TC, HM, ST, YE and YES" gave the maximum total utility (11.002). On the other hand, the product profile "EL, 6.50 €/lt, TC, MM, BL, GR and NO" provided the minimum total utility (4.914).

Table 4. Total utilities of the olive oil profiles in orthogonal design

Card No	Oil type	Price (€/lt)	Package	Selling point	Taste	Color	Promotion	Total Utility	Ranking
1	EV	5.00	TC	MM	ST	GR	NO	7.610	12
2	RO	6.50	TC	MM	BL	YE	YES	8.302	7
3	VO	5.00	TC	HM	ST	YE	YES	11.002	1
4	EL	5.50	TC	HM	ST	YE	NO	5.233	17
5	EV	5.50	GB	MM	BL	GR	NO	7.414	14
6	EL	5.00	GB	HM	BL	YE	NO	6.111	16
7	EL	6.50	TC	MM	BL	GR	NO	4.914	18
8	VO	6.50	GB	HM	ST	GR	YES	10.945	2
9	RO	6.15	GB	MM	ST	YE	NO	7.463	13
10	RO	5.00	PB	HM	BL	GR	NO	7.703	10
11	EV	6.15	TC	HM	BL	YE	NO	7.687	11
12	EV	6.50	GB	MM	BL	YE	YES	9.240	6
13	VO	5.50	PB	MM	BL	YE	NO	9.496	4
14	VO	6.15	TC	HM	BL	GR	YES	10.331	3
15	RO	5.50	TC	HM	ST	GR	YES	8.135	8
16	EV	6.50	PB	HM	ST	YE	YES	9.327	5
17	EL	6.15	PB	MM	ST	GR	YES	6.400	15
18	RO	5.50	TC	MM	ST	GR	YES	7.873	9

Table 5. Product profiles maximizing and minimizing consumers' total utilities

Card #: 3	Card #: 7
Olive oil type : Virgin Oil (VO)	Olive oil type : Extra Light (EL)
Selling Point : Hypermarket (HM)	Selling Point : Market (MM)
Price (€/lt) : 5.00	Price (€/lt) : 6.50
Package : Can (TC)	Package : Can (TC)
Taste : Strong (ST)	Taste : Bland (BL)
Color : Yellow (YL)	Color : Green (GR)
Promotion : YES	Promotion : NO
a) Maximum Utility	b) Minimum Utility

Consequently, virgin or extra virgin olive oil with strong taste and green color was preferred by target consumer in research region the four olive oil profiles, which maximize their total utilities. These olive oil types are that the greatest exponent of monounsaturated fat is, and that is a prime component of the Mediterranean diet with some positive effects on health. On the other hand, they are a natural juice that can be consumed freshly first and second pressed from the fruit, which preserves the taste, aroma, vitamins and properties of the olive fruit. The oil that comes from the first pressing of the olive, is extracted without using heat or chemicals, and has no off flavors is awarded extra virgin or virgin status. The less the olive oil is handled, the closer to its natural state, the better the oil. If the olive oil meets all the criteria, it can be designated as virgin or extra virgin [9]. Therefore, when buying these olive oils, target consumers could obtain a high quality olive oil, and could use them at all meals, which is an important constituent of the diet.

CONCLUSION

The aim of this research was to explore Turkish consumer behavior, and to determine the olive oil profile maximizing target consumers' total and partial utilities, since that olive oil consumption has been increasing for the last decade slowly due to dietary and health concerns. The data were obtained from a survey conducted with 250 heads of household in Erzurum and then, these data were used for conjoint analysis.

Conjoint analysis was used to investigate the relative importance of seven factors and the utility scores of 18 factor levels of olive oil, and to determine olive oil profiles maximizing their total utilities in the marketplace. The main results indicated that while olive oil types, package and price have the highest relative importance in Turkish consumers' buying behavior, as expected, the presence of promotion and oil color have the lowest ones, and the selling point and oil taste have a moderating effect.

The results also showed that Turkish consumers prefer virgin or extra virgin olive oil as compared to them with refined and extra light one. It is believed that this result is due to having enough knowledge levels of Turkish consumers about the existing difference among these four olive oil types. On the other hand, there is an inverse relationship between price which presents consumers' buying power and utility obtained from olive oil types. That is, as the price increase, utility obtained decrease. Price, therefore, plays a central role in consumer purchasing decision. Given the product attributes, assigning the right price is crucial for marketers.

Concerning the sensory attributes like olive oil taste and color, it was found that consumers prefer a green olive oil with strong taste. This highly affects the consumer preferences, as well. Nutrition knowledge and health conditions of consumers are expected to have strong influence on olive oil due to the perceived detrimental long-term health effects of dietary fats. Provided involvement effectiveness on target consumers; package, promotion and selling points of olive oil could considerably increased their demands. These findings can be beneficial for marketers, manufacturers and retailers to (re)design a product, to develop new marketing tactics and strategies.

Although this study has some scientific merit to the academic and the food manufacturing community, this one is not exempt from limitations, like all other studies. The results of this study have limited generalizability since the data were collected in a single city. The survey can be conducted nationwide and the use of larger data can give us more objective results about population preferences. Moreover, in future studies, our model could be expanded via incorporating more factors and factor levels into the model, and population can be segmented based on their demographic and socio-economic characteristics.

REFERENCES

- [1] Ozcelik A. and Sahin M. Y., 2003. Cooperation of oil and olive producer and assessment subsidies of government. Turkey 1st Olive and Oil Meeting, 02-03 December 2003, Izmir.
- [2] USDA, 2006. United States Department of Agriculture, www.usda.gov, retrieved on 25 May 2007.
- [3] Oktay E., 2003. Economic analysis of olive and olive oil industry in Turkey. Turkey 1st Olive and Oil Meeting, 02-03 December 2003, Izmir.
- [4] USDA, 2008. United States standard for grades of olive oil www.ams.usda.gov, retrieved on 16 November 2008.
- [5] Goksu C., 2007. Report of vegetable oils. Cited 30 December 2007, available on the internet: www.igeme.org.tr/tur/rapor/sektor/bitkisel_yaglar.
- [6] Filik L. and Ozyilkan O., 2003. Olive oil consumption and cancer risk. *European Journal of Clinical Nutrition*, 57: 191.
- [7] Willett, W.C., 1990. Diet and coronary heart disease. *Monographs in Epidemiology and Biostatistics* 15: 341-379.
- [8] Keys A., Menotti A. and Karvonen M.J., 1986. The diet and 15-year death rate in the seven countries study. *Am. J. Epidemiol.*, 124: 903-915.
- [9] WHO, 1990. Diet, nutrition, and the prevention of chronic diseases. Report of a WHO Study Group, WHO Technical Report Series: 797, Geneva.
- [10] Topcu Y., Isik H.B. and Uzundumlu A.S., 2009. Turkish consumer attitudes toward food products: The case of Erzurum. *Ital. J. Food. Sci.* 21(1): 450-462.
- [11] Topcu Y. and Isik H.B., 2008. Determining the best product quality set for packed yogurt in Turkey. *Ital. J. Food. Sci.* 20(3): 401-410.
- [12] Kalyanaram G. and Winchester R.S., 1997. Empirical generalizations from reference price research. *Marketing Science*, 14: 161-169.
- [13] Allenby G.M. and Rossi P.E., 1999. Marketing models of consumer heterogeneity. *Journal of Econometrics*, 89 (1-2): 57-78.
- [14] Mesias F.J., Francisco J., Escribano M., Rodriguez de Ledesma A. and Pulido F., 2003. Market segmentation of cheese consumers: An approach using consumer's attitudes, purchase behavior and socio-demographic variables. *International Journal of Dairy Technology*, 56 (3): 149-155.
- [15] Topcu Y., 2006. Brand competition and consumer behaviors in dairy products: The case study in Erzurum city, (PhD Dissertation). Atatürk University, Natural and Applied Sciences Institute, Erzurum-Turkey.

- [16] Wansink B., Park S.B., Soneka S. and Morganosky M., 2001. How sensory labeling influences preference and taste. *International Food and Agribusiness Management*, 3 (1): 85-94.
- [17] Deliza R., MacFie H.J. and Hedderley D., 2003. Use of computer-generated images and conjoint analysis to investigate sensory expectations. *Journal of Sensory Studies*, 18 (6): 465-486.
- [18] Topcu Y. and Uzundumlu A.S., 2009. Analysis of factors affecting customer retailer loyalty in Turkish food market: The case study of Erzurum. *Ital. J. Food. Sci.* 21(2): 480-492.
- [19] SPSS Conjoint 15.0, 2006. SPSS Conjoint 15.0 user's guide.
- [20] Anonymous, 2007. Annual report, the data of documentation centre of Erzurum metropolitan municipality, Erzurum-Turkey.
- [21] KrySTALLIS A. and NISS M., 2005. Consumer preferences for quality foods from a South European perspective: A conjoint analysis implementation on Greek olive oil. *International Food and Agribusiness Management Review*, 8 (2): 62-91.
- [22] Manapace L., Colsen G., Grebutis C. and Facondola M., 2008. Consumer preferences for extra virgin olive oil with country-of-origin and geographical indication labels in Canada. *American Agricultural Economics Association Annual Meeting*, Orlando, FL, July 27-29 2008.
- [23] Mtimet N., Kashiwagi A.K., Zaibet L. and Masakazu N., 2008. Exploring Japanese olive oil consumer behavior. 12th EAAE Congress, people, food, environments: global trends and European strategies, Gent (Belgium), 26-29 August 2008.
- [24] Haddad Y., Haddad J., Olabi A., Shuayto N., Haddad T. and Toufeili I., 2007. Mapping determinants of purchase intent of concentrated yogurt (Labneh) by conjoint analysis. *Food Quality and Preference*, 18 (5): 795-802.
- [25] Hair J.F., Anderson R. E., Tahtam R.L. and Black W.C., 1998. *Multivariate data analysis*. Prentice-Hall, New Jersey.