

## Do Consumers Accept it? Wild Carob Bar as Chocolate Bar Substitute

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### Abstract

Carob (*Ceratonia siliqua* L.) is a native plant of Cyprus that comes in two varieties: cultivated carob and wild carob. Because of the high sugar content of the cultivated carob fruit, it is the primary ingredient in syrup, desserts, biscuits, and other processed beverages. However, Wild carob is rarely used in Cyprus, mainly used for animal feed or discarded. As a result, rather than being discarded, the potential nutritional value inherent in wild carob is more beneficial when harnessed for food production. Therefore, the goal of this study was to assess the acceptability of wild carob bars in order to improve Cyprus's agricultural income from the waste product. In this study, an online survey was conducted among 388 customers in the 6 biggest cities of Cyprus to determine the acceptability level of purchase intention of wild carob bar. The data were analysed using SPSS Software version 26. The data, which comprises knowledge, subjective norms, sensory characteristics and purchase intention, were subjected to descriptive statistical analysis. Generally, Cypriot consumers were knowledgeable and preferred the sensory characteristics of carob over chocolate. Hence, they are willing to purchase wild carob bar rather than chocolate bar if it is available in the market. Regression analysis further revealed that all acceptability dimensions adopted for this study significantly influence the purchase intention of wild carob bars.

**Keywords:** Word, Wild Carob, Cocoa Powder Substitute, SPSS, Acceptability Level.

### Introduction

Cyprus is an island in the Mediterranean Sea that is highly regarded for its geographical and historical profile and as one of the best tourist destinations in the world (Plecher, 2021). As a result, the country devotes most of its resources to the tourism industry, making it one of its primary income sources. However, other economic sectors, like agricultural practices, receive less attention due to the country's obsession with tourism and climate (Georgiou, 2018). As a result, Cyprus's agriculture generates about 2% of its GDP (Plecher, 2021).

Nevertheless, Cyprus is endowed with carob plants that thrive regardless of the weather. The native plant of Cyprus is called carob (*Ceratonia siliqua* L.), and it has two species: cultivated carob and wild carob. Simple sugars, proteins, fat, alkaloids, and dietary fibre are all present in varying degrees in carob fruits. Additionally, carob fruit has low levels of theobromine and caffeine, which are undesirable ingredients in some foods (Ortega et al., 2009; Salem & Fahad, 2012). Polyphenols, which are the carob fruit's active ingredients, are anticancer, anti-obesity,

anti-diabetic, anti-diarrheic, and anti-hyperlipidemic medications (Christou et al., 2019; Goulas et al., 2016).

Additionally, due to its naturally low-fat composition, carob is a low energy-dense food item that is suitable for addressing the obesity problem (Caliskan et al., 2022). Cyprus is home to both the domesticated and wild varieties of carob species (Biner et al., 2007). However, the cultivated carob fruit's high sugar content is the main ingredient in syrup, desserts, biscuits, and other processed beverages. However, wild carob is rarely used in Cyprus, primarily as animal feed or throw away. Hence, heralding its minimal utilisation resulted in its low valuation (El-Shatnawi & Ereifej, 2001). However, despite its underutilisation and undervaluation, studies on wild carob conducted by Benchikh et al (2014) demonstrated the exceptional health benefits of carob, distinguished by its healthy sugar, low-fat content, dietary fibres, and bioactive molecules (polyphenols and cyclitols). As a result, the potential nutritional value inherent in wild carob is more beneficial when harnessed for food production rather than discarded. Furthermore, due to its low-fat content and high dietary fibre, wild carob may be the cheapest and most suitable alternative to cocoa in chocolate production.

Finally, most food acceptability studies are usually conducted on organic foods (Shaaban & Nguyen, 2014), chocolate (Ali et al., 2018; Prete & Samoggia, 2020), honey (Farhana, 2019), halal foods, and fresh vegetables (Sinesio et al., 2018). As a result, there is a penury of literatures on the food acceptability of wild carob-based bars using the Theory of Planned Behaviour (TPB) to investigate the correlations between the independent and dependent variables of a given framework. As a result, this study may assist the Cyprus government in understanding the acceptance factors that affect purchase intention of wild carob bar as well as the acceptability level of wild carob bar in order to use wild carob bar to enhance Cyprus's agricultural income.

## **Literature Review**

### **Theory of Planned Behavior (TPB)**

TPB is one of the most used expectancy-value models for predicting and describing human food choice behaviour. It developed out of the previous Theory of Reasoned Action. This theory allows for a compelling explanation of consumer food preference behaviour (Tarkiainen & Sundqvist, 2005). Based on the TPB, three beliefs guide human behaviour: behavioural, normative, and control beliefs. The individual's attitude towards a behaviour is shaped by a behavioural belief, which is an individual's belief about the outcomes of certain behaviour. A subjective norm is created by normative belief, which refers to an individual's view of how significant others will judge their actions. Finally, control belief is linked to conceived behavioural control and refers to an individual's perceptions of control over their actions (Dean et al., 2008). This perception of control is associated with factors that may facilitate or impede the performance of the behaviour, as well as whether the individual regards the behaviour as simple or hard to carry out (Fishbein & Ajzen, 1975).

The TBD demonstrates that attitudes, the subjective norm, and perceived behavioural control can anticipate behavioural impulsion, which forecasts whether an individual will perform a behaviour. In summary, the more favourable a person's attitude and perceived behavioural control about certain behaviour, as well as the more favourable the subjective norm, the stronger the person's impulsion to conduct the behaviour; the stronger the person's intention, the more likely they will perform the behaviour (Fishbein & Ajzen, 1975). The theory of planned behaviour has obtained significant results. It has been vastly and

successfully utilised in consumer research because it is relatively flexible and forecasts the purchaser's goal and behaviour well (Dermott et al., 2015).

### **Purchase Intention**

The probability that customers in certain purchasing scenarios would identify and choose a certain brand among a particular product is identified as purchase intention (Haro, 2016). Marketing experts have gained interest in the relationship between purchase intentions and purchase behaviour. According to Fishbein & Ajzen (1975), "the best single predictor of an individual's behaviour will be a measure of that individual's intention to perform that behaviour". Furthermore, Rezvani et al (2013) noted that interest in the purchase is seen as the forecast of future purchase decisions. An individual showing tendency to take action upon his attitude toward the purchase of a product is an indication of interest in the purchase (Kim & Chung, 2011). Companies can identify their sales by conducting a market survey on consumers' purchase intentions. Omar et al (2012) suggested that the intention of purchasing goods or services desired is a psychic action brought about by feelings (affective) and the mind (cognitive). More precisely, purchase intention can be interpreted as a happy attitude that a customer expresses to obtain an item by paying with cash or with sacrifice.

Since marketing executives are interested in customer purchase intentions to predict sales of existing and/or future products and services, information on purchase intentions can aid administrators in taking action on product demand, market segmentation, and advertising schemes (Ghalandari & Norouzi, 2012).

### **Relationship between Knowledge and Purchase Intention**

According to Chryssochoidis (2000); Gracia & De Magistris (2007), a higher degree of knowledge influences the intention to purchase. Gracia & De Magistris (2007) concluded that this is due to the idea that intelligence is the sole tool that buyers have and use to distinguish between the characteristics of raw and traditional goods and to shape positive attitudes towards these goods. Chryssochoidis (2000) also noted that customers with low recognised self-competence have a lower chance of buying organic food because they believe they cannot make a good decision. Furthermore, Thøgersen (2009) discussed that ambiguity has a strong negative effect on the intention to purchase healthy food and the actual purchase of healthy produce. What's more, knowledge about a certain food product helps to improve benefit perception, reduces the perceived risk, and directly impacts the decision to purchase (Yeung & Morris, 2006). This fact illustrates that knowledge has a decisive capacity in the intention to purchase, which was also concurred by (Mceachern & Warnaby, 2008).

H1: There is a significant relationship between knowledge and purchase intention.

### **Relationship between Subjective Norms and Purchase Intention**

The needs theory suggested by McClelland (1987) noted that people are prone to display a behaviour appreciated by reference groups when looking for relationships and group relationships. In the food literature, it has been shown that the subjective norm is an important determinant of consumption. For instance, a vital relationship was found between the subjective norm and the intention to purchase food (Ali et al., 2018). According to studies done by Chen (2007); Dean et al (2008); Nursalwani et al (2017), on organic food and a halal

labelled chocolate bar conducted on Taiwanese, British, and Malaysian consumers, there is a significant positive relationship between subjective norms and purchase intention.

H2: There is a significant relationship between subjective norms and purchase intention.

### **Relationship between Sensory Characteristics and Purchase Intention**

Sensory characteristics of food attributes contribute a substantial part to food preferences. Individual food choices are influenced by sensory reactions to flavour (taste and aroma), colour, and texture (Bhuiyan, 2015). Maina (2018) noted that food sensory characteristics such as taste, texture, aroma, and appearance have distinct and significant effects on food acceptability. As a result, a sensory attribute of food is considered the most important field where food producers can effectively differentiate their products. This fact is supported by a study on plant-based yoghurt alternatives done by Gakobo & Jere (2016), who found that the sensory characteristics of the products have a significantly high effect on purchase intention. H3: There is a significant relationship between sensory Characteristics and purchase intention.

### **Material & Methods**

This study utilised a quantitative study conducted with 388 respondents. The sampling size was calculated using Krejcie and Morgan sampling method. The survey was conducted online using Google Forms. Seeing that the study needs to collect data in 6 different cities of Cyprus exclusively, a city-filter question is included on the first page of the online survey. Therefore, only individuals from the 6 respective cities would be allowed to proceed with the questionnaire survey. The questions were distributed to respective cities via WhatsApp, E-mail, Instagram, or Facebook with the assistance of respondents' local friends who lived in respective cities. This data collection process spanned three months. A total of 399 respondents answered the questionnaire, including 146 respondents from Nicosia, 115 from Limasol, 54 from Larnaca, 35 from Famagusta, 28 from Pophos, and 21 from Kyrenia. Even though there were no missing data, 11 responses were deleted due to false and redundant information. The data collected were analysed using SPSS Software version 26. for descriptive, correlational and regression analyses.

### **Results & Discussion**

#### **Respondents' Demographic Profile**

A response rate of 100% was gathered for this study. This study was conducted with people living in 6 respective cities and above 18 years old. Table 1 shows the respondent's demographic profile of the study.

Table 1

*Demographic profile of the respondents*

<b>Demographic Profiles</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
<b>City</b>		
Nicosia	142	36.6
Limasol	112	28.9
Larnaca	50	12.9
Famagusta	35	9
Pophos	28	7.2
Kyrenia	21	5.4
<b>Race</b>		
Turkish Cypriot	173	44.6
Greek Cypriot	215	55.4
<b>Gender</b>		
Male	202	52.1
Female	186	47.9
<b>Age</b>		
18-25 years old	135	34.8
26-35 years old	151	38.9
36-49 years old	62	16
≥ 50	40	10.3
<b>Education Attainment</b>		
Higher Degree – Master/PhD	97	25
Tertiary Education- Diploma/Degree	198	51
Secondary/High School Education	63	16.2
Primary/Elementary Education	26	6.7
No Formal Education	4	1

**Descriptive Analysis****Knowledge**

Information deposited in an individual's long-term memory is known as knowledge (Ibrahim et al., 2017). Thus, consumer knowledge is described as the quantity and essence of the knowledge deposited in the long-term memory and the consumer's perceptions of what they know or how much they know (Ateke & James, 2018). Based on the descriptive analysis of the knowledge, the mean scores and standard deviation scale were in the range of 4.23 to 4.38 and .870 to 1.010, respectively. This shows that, in general, Cypriot respondents were familiar with the carob.

According to Table 2, Cypriot respondents were knowledgeable about carob and knew that carob is high in minerals and vitamins (K1, M= 4.39). Furthermore, carob is not harmful to their health (K2, M= 4.33), carob is good for their immune system (K3, M= 4.35), carob has more healthy properties than cocoa beans (K4, M= 4.32), and carob is better for their health than cocoa beans (K5, M= 4.31). Furthermore, respondents agreed that their knowledge of carob is based on prior experience, such as purchasing/consuming/hearing about it from others/reading about it (K7, M= 4.23) and that they are sufficiently knowledgeable about carob (K6, M= 4.10). This finding demonstrates that Cypriot respondents are well-versed in carob and its health benefits. This can be attributed to the fact that carob is a traditional product of Cyprus, and everyone in Cyprus has consumed carob at some point in their lives.

Table 2

Result of the Mean Score and Standard Deviation for Knowledge

Code	Items	Mean Value	S.D
K1	I believe carob is not harmful to my health.	4.38	.894
K2	I am aware that carob is good for my immune system.	4.35	.851
K3	I convinced that carob is rich in minerals and vitamins	4.39	.870
K4	I believe that carob has more healthy properties than cocoa beans.	4.32	.889
K5	I believe carob is good for my health compared to cocoa beans.	4.31	.930
K6	I am sufficiently Knowledgeable about Carob.	4.10	1.010
K7	My knowledge on carob is based on previous experience such as purchasing/consuming/hearing from others/reading about it.	4.23	.973

Scale: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree (n=388)

### Subjective Norms

As Fishbein & Ajzen (1975) mentioned, subjective norms mirror the "influence of the social environment on behaviour" and can be explained as "the individual's perception that the majority of referent individuals or groups would expect him or her to perform a certain behaviour". According to Table 3, the mean value and standard deviation of the subjective norm's items were in the range of 3.57 to 4.09 and 1.066 to 1.390, respectively.

In a deeper look, Cypriot respondents were neutral to 5 on the subjective norm's items, but they agreed that their close friends and family would support their consumption of healthy chocolate (SN7, M=4.09). However, respondents were neutral about the influence of the family and important ones when it comes to choosing healthy chocolate (SN6, M=3.98), their friends will go for a healthy bar rather than the conventional chocolate bar (SN3, M= 3.87), believe they should buy a healthy chocolate bar (SN5, M= 3.85), their friends encourage them as well as desire that I choose healthy chocolate products (SN4, M= 3.75), influencing from their friends believes that they should buy carob-based healthy bar rather than a conventional chocolate bar (SN2, M= 3.70). This research reveals that Cypriot respondents are not really influenced by their relatives or friends when choosing food products.

Table 3

*Result of the Mean Score and Standard Deviation for Subjective Norms*

Code	Items	Mean Value	S.D
SN2	My family believes I should buy carob-based healthy bar rather than a conventional chocolate bar.	3.70	1.093
SN3	My friends and loved ones will go for a healthy bar rather than the conventional chocolate bar.	3.87	1.147
SN4	My friends and loved ones encourage me as well as desire that I choose healthy chocolate products.	3.75	1.202
SN5	Persons within my sphere of influence who are accurately opinionated about chocolate, believe I should buy a healthy chocolate bar	3.85	1.146
SN6	I am influenced by my friends, society, environment, social network when it comes to choosing healthy chocolate for myself.	3.98	1.066
SN7	People around me support my decision to consume healthy chocolate.	4.09	1.053

*Scale: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree (n=388)***Sensory Characteristics**

Food acceptability depends largely on the sensory characteristics of food, such as its appearance, aroma, taste, and texture (Fizman & Spence, 2015). According to Table 4, Cypriot respondents ranked the influence of the sensory characteristics in the range of 3.76-4.09. In deep looking, respondents were neutral on three sensory characteristics items: SC3 M=3.90, SC7 M=3.77 and SC5 M=3.76. Respondents, on the other hand, agreed on four sensory characteristics: SC1 M=4.09, SC8 M=4.06, SC6 M=4.02, and SC4 M=4.01. This illustrates that Cypriot respondents were neutral to the chocolate's smooth and velvety texture, flavour, and colour, while they agreed with the chocolate's hardness, sweet and bitter taste, and appearance. This could imply that when producing cocoa-based products or any alternative products that can be substituted for cocoa (i.e., carob) in Cyprus, the focus should be on the parameters that respondents agreed on rather than other neutral parameters.

Table 4

*Result of the Mean Score and Standard Deviation for Sensory Characteristics*

Code	Items	Mean Value	S.D
SC1	The hardness of chocolate alleviates my stress level.	4.09	1.100
SC3	The smooth and velvety nature of chocolate gives me a superb mouthfeel.	3.90	1.099
SC4	The sweet taste of chocolate makes me ecstatic.	4.01	1.102
SC5	The flavour of chocolate enhances my appetite.	3.76	1.034
SC6	The bitter taste of chocolate makes me feel it is healthy.	4.02	1.177
SC7	The colour of chocolate increases my affinity.	3.77	1.042
SC8	The appearance of chocolate radiates a cordial invitation.	4.06	1.128

*Scale: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree (n=388)*

*Purchase Intention*

In this study, purchase intention was the dependent variable of the model. Table 9 shows the mean scores and standard deviation of the 4 purchase intention items. The mean value of the purchase intention was in the range of 4.13 to 4.36, while the standard deviation was from .824 to .920. Looking in-depth, it can be observed from Table 5 that the first 3 items, PI1 (willing to purchase), PI2 (intend to purchase), and PI3 (plan to purchase) had mean values of corresponding to M=4.36, M=4.32, M=4.32, respectively, which were higher than PI4; try to consume (M=4.13). It can be seen that the phrase 'will try to consume' in PI4 translates the idea of the partial tendency to purchase, resulting in a mean value relatively lower than PI1 (willing to purchase), PI2 (intend to purchase), and PI3 (plan to purchase). Hence, this resultant outcome implies that the Cypriot respondents are more attracted to purchasing than just trying.

Table 5

Result of the Mean Score and Standard Deviation for Purchase Intention

Code	Items	Mean Value	S.D
PI1	I am willing to consume chocolate made from carob if they are available for purchase.	4.36	.920
PI2	I intend to consume chocolate made from carob if they are available for purchase.	4.32	.879
PI3	I plan to consume chocolate made from carob if they are available for purchase.	4.34	.865
PI4	I will try to consume chocolate made from carob if they are available for purchase.	4.13	.824

Scale: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree (n=388)

**The relationship between independent variables and dependent variable**

A Pearson correlation coefficient was computed to assess the relationship between independent variables (K, SN, SC) and dependent variable (PI). The degree of correlation is defined as a strong correlation if the value is between  $\pm 0.50$  and  $\pm 1$ ; a medium correlation if the value is between  $\pm 0.30$  and  $\pm 0.49$ ; and a small correlation if the value is below  $\pm 0.29$ . The correlational results obtained are shown in Table 6.

Table 6

Result of Pearson Correlation

No.	Variables		Purchase Intention
2.	knowledge	Pearson Correlation	.515**
		Sig. (2-tailed)	.000
4.	Price	Pearson Correlation	.470**
		Sig. (2-tailed)	.000
5.	Promotion	Pearson Correlation	.486**
		Sig. (2-tailed)	.000



Regarding knowledge, there was a strong correlation between K and PI ( $r = 0.515$ ,  $n = 388$ ,  $p = 0.00$ ). This shows that knowledge contributes 51.5% to the purchase intention. Furthermore, regarding subjective norms, a moderate correlation was observed between SN and PI ( $r = 0.470$ ,  $n = 388$ ,  $p = 0.00$ ). Hence, subjective norms contribute 47.0% to the purchase intention. Finally, regarding sensory characteristics, a moderate correlation was recorded between SC and PI ( $r = 0.485$ ,  $n = 388$ ,  $p = 0.00$ ). Therefore, sensory characteristics contribute 48.6% to the purchase intention.

### Regression Analysis

The relationship between a set of independent factors and a dependent variable is described by regression analysis. Table 7 shows the regression results indicating that knowledge, subjective norms, and sensory characteristics positively affect purchase intention. The coefficient of determination ( $R^2$ ) value is the amount of variance in a dependent variable explained by the independent factors. This value should be significant to adequately explain the variance of the endogenous latent variable (Hair et al., 2019). As a result, a higher  $R^2$  value improves the structural model's predictive ability. According to (Chin, 1998),  $R^2$  values of 0.19 to 0.33 are weak, 0.33 to 0.67 are moderate, and 0.67 and above are significant. Since the  $R^2$  values for purchase intention were 0.390, it can be stated that the independent variables moderately explained purchase intention.

Table 7

*The result of Multiple Regression between constructs of Customer Satisfaction and Repurchase Intention*

Model	Beta	t value	Sig.	Result
K => PI	.342	7.717	.000	Supported
SN => PI	.200	4.075	.000	Supported
SC => PI	.246	5.043	.000	Supported
$R^2$	.390			
F value	81.850			
P value	.000			

Note: K= Knowledge; SN= Subjective Norms; SC= Sensory Characteristics; PI= Purchase Intention.

Since the sample size for this study has been met, the beta value of standardised coefficients from the table above is used. Knowledge, subjective norms, and sensory characteristics were reported as having coefficient values of  $\beta = 0.342$ ,  $\beta = 0.200$ , and  $\beta = 0.246$ , respectively. Thus, independent variables positively influence the purchase intention of wild carob bar. Furthermore, the "t value" for knowledge, subjective norms, and sensory characteristics was  $t = 7.717$ ,  $t = 4.075$ , and  $t = 5.043$ , respectively. The fact that the t values of the independent variables (K, SN, and SC) are greater than 2 indicates that K, SN, and SC are significant predictors of purchase intention. Finally, since the p values for the K ( $p = .000$ ), SN ( $p = .000$ ), and SC ( $p = .000$ ) are less than 0.05, all proposed hypotheses are supported.

## Conclusion

This study proved that Cypriot consumers are willing to substitute chocolate bars with wild carob bars. This was generally due to the high awareness of carob in Cyprus. However, according to the data from previous studies, only cultivated carob is harvested in Cyprus for production or use in food products. In contrast, only a small amount of wild carob is harvested for animal feeding, and the rest remains on the tree. As a result, this study may contribute to the Ministry of Economy encouraging food sectors to adopt wild carob as an alternative to cocoa in the food industry. As a result, this can create an opportunity to boost the economy of agriculture in Cyprus from the agricultural waste product (wild carob).

Furthermore, the descriptive analysis revealed that Cypriot respondents were neutral regarding the chocolate's smooth and velvety texture, flavour, and colour. At the same time, they agreed regarding its hardness, sweet and bitter flavour, and appearance. Therefore, when the food industry produces a product from wild carob powder, it should focus on enhancing its hardness, sweetness and bitterness, and appearance.

## References

- Ali, M. H., Ismail, A., Alam, S. S., Makhbul, Z. M., & Omar, N. A. (2018). Exploring the theory of planned behaviour (TPB) in relation to a halal food scandal: The Malaysia Cadbury chocolate case. *International Food Research Journal*, 25(December), S79–S86.
- Ateke, B., & James, D. (2018). Consumer Knowledge and Purchase Intention of Healthcare Product Consumers in Rivers State Relationship marketing studies View project PREDICTORS OF AIRLINE PATRONAGE IN NIGERIA View project. *International Journal of Business & Law Research*, 1(January), 1–7. [www.seahipaj.org](http://www.seahipaj.org)
- Benchikh, Y., Louaileche, H., George, B., & Merlin, A. (2014). Changes in bioactive phytochemical content and in vitro antioxidant activity of carob (*Ceratonia siliqua* L.) as influenced by fruit ripening. *Industrial Crops and Products*, 60, 298–303. <https://doi.org/10.1016/j.indcrop.2014.05.048>
- Biner, B., Gubbuk, H., Karhan, M., Aksu, M., & Pekmezci, M. (2007). Sugar profiles of the pods of cultivated and wild types of carob bean (*Ceratonia siliqua* L.) in Turkey. *Food Chemistry*, 100(4), 1453–1455. <https://doi.org/10.1016/j.foodchem.2005.11.037>
- Caliskan, A., Abdullah, N., & Ishak, N. (2022). *Physicochemical Properties of Cypriot Wild Carob (Ceratonia siliqua L.) Powder as Cocoa Powder Substitute Physicochemical Properties of Cypriot Wild Carob (Ceratonia siliqua L.) Powder as Cocoa Powder Substitute*. July.
- Chen, M. F. (2007). Consumer attitudes and purchase intentions in relation to organic foods in Taiwan: Moderating effects of food-related personality traits. *Food Quality and Preference*, 18(7), 1008–1021. <https://doi.org/10.1016/j.foodqual.2007.04.004>
- Chin, W. (1998). Issues and Opinion on Structural Equation Modeling. *MIS Quarterly*, 7–16.
- Christou, C., Poulli, E., Yiannopoulos, S., & Agapiou, A. (2019). GC–MS analysis of D-pinitol in carob: Syrup and fruit (flesh and seed). *Journal of Chromatography B: Analytical Technologies in the Biomedical and Life Sciences*, 1116(March), 60–64. <https://doi.org/10.1016/j.jchromb.2019.04.008>
- Chrysochoidis, G. (2000). Repercussions of consumer confusion for late introduced differentiated products. *European Journal of Marketing*, 34(5/6), 705–722. <https://doi.org/10.1108/03090560010321992>
- Dean, M., Raats, M. M., & Shepherd, R. (2008). Moral concerns and consumer choice of fresh and processed organic foods. *Journal of Applied Social Psychology*, 38(8), 2088–2107. <https://doi.org/10.1111/j.1559-1816.2008.00382.x>

- Dermott, M. S., Oliver, M., Svenson, A., Simnadis, T., Beck, E. J., Coltman, T., Iverson, D., Caputi, P., & Sharma, R. (2015). The theory of planned behaviour and discrete food choices: A systematic review and meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity*, 12(1). <https://doi.org/10.1186/s12966-015-0324-z>
- El-Shatnawi, M. K. J., & Ereifej, K. I. (2001). Chemical composition and livestock ingestion of carob (*Ceratonia siliqua* L.) seeds. *Journal of Range Management*, 54(6), 669–673. <https://doi.org/10.2307/4003669>
- Farhana, S. (2019). *Malaysian consumer acceptance and preference towards three types of local honey based on sensory characteristics*. Universiti Putra Malaysia.
- Fishbein, M., & Ajzen, I. (1975). Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research. In *Contemporary Sociology* (Vol. 6, Issue 2). <https://doi.org/10.2307/2065853>
- Fiszman, B., & Spence, C. (2015). Sensory expectations based on product-extrinsic food cues: An interdisciplinary review of the empirical evidence and theoretical accounts. *Food Quality and Preference*, 40(PA), 165–179. <https://doi.org/10.1016/j.foodqual.2014.09.013>
- Gakobo, T. W., & Jere, M. G. (2016). An application of the theory of planned behaviour to predict intention to consume African indigenous foods in Kenya. *British Food Journal*, 118(5), 1268–1280. <https://doi.org/10.1108/BFJ-10-2015-0344>
- Georgiou, A. (2018). The Cyprus Tourism Sector and Its Investment Environment The Cypr us Tour ism Sector and Its Investment Environment. *Science Prospects, October*.
- Ghalandari, K., & Norouzi, A. (2012). The Effect of Country of Origin on Purchase Intention : The Role of Product Knowledge. *Journal of Applied Sciences, Engineering and Technology*, 4(9), 1166–1171.
- Goulas, V., Stylos, E., Chatziathanasiadou, M. V., Mavromoustakos, T., & Tzakos, A. G. (2016). Functional components of carob fruit: Linking the chemical and biological space. *International Journal of Molecular Sciences*, 17(11). <https://doi.org/10.3390/ijms17111875>
- Gracia, A., & De Magistris, T. (2007). Organic food product purchase behaviour: A pilot study for urban consumers in the South of Italy. *Spanish Journal of Agricultural Research*, 5(4), 439–451. <https://doi.org/10.5424/sjar/2007054-5356>
- Hair, Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. In *Springer* (Handbook o, Vol. 63, Issue 1). <https://doi.org/10.1108/EBR-11-2018-0203>
- Haro, A. (2016). Understanding TPB model, availability, and information on consumer purchase intention for halal food. *International Journal of Business and Commerce*, 5(8), 47–56. [www.ijbcnet.com](http://www.ijbcnet.com)[www.ijbcnet.com](http://www.ijbcnet.com)
- Ibrahim, M. A., Fisol, W. N. M., & Haji-Othman, Y. (2017). Customer Intention on Islamic Home Financing Products: An Application of Theory of Planned Behavior (TPB). *Mediterranean Journal of Social Sciences*, 8(2), 77–86. <https://doi.org/10.5901/mjss.2017.v8n2p77>
- Kim, H. Y., & Chung, J. E. (2011). Consumer purchase intention for organic personal care products. *Journal of Consumer Marketing*, 28(1), 40–47. <https://doi.org/10.1108/07363761111101930>
- Maina, J. W. (2018). Analysis of the factors that determine food acceptability. *The Pharma Innovation*, 7(5), 253. [www.thepharmajournal.com](http://www.thepharmajournal.com)
- Mceachern, M. G., & Warnaby, G. (2008). Exploring the relationship between consumer knowledge and purchase behaviour of value-based labels. *International Journal of*

- Consumer Studies*, 32(1), 414–426. <https://doi.org/10.1111/j.1470-6431.2008.00712.x>
- Nursalwani, M., & Zulariff, L. A. (2017). The Effect of Attitude, Subjective Norm and Perceived Behaviour Control Towards Intention of Muslim Youth at Public Universities in Kelantan to Consume Halal Labelled Chocolate Bar Product. *Canadian Social Science*, 13(2), 43–48. <https://doi.org/10.3968/9278>
- Ortega, N., Macia, A., Romero, M. P., Trullols, E., Morello, J. R., Angles, N., & Motilva, M. J. (2009). Rapid determination of phenolic compounds and alkaloids of carob flour by improved liquid chromatography tandem mass spectrometry. *Journal of Agricultural and Food Chemistry*, 57(16), 7239–7244. <https://doi.org/10.1021/jf901635s>
- Plecher, H. (2021). *Distribution of gross domestic product (GDP) across economic sectors Cyprus 2019*. Statista. <https://www.statista.com/statistics/382070/cyprus-gdp-distribution-across-economic-sectors/#statisticContainer>
- Prete, M., & Samoggia, A. (2020). Chocolate consumption and purchasing behaviour review: Research issues and insights for future research. *Sustainability (Switzerland)*, 12(14). <https://doi.org/10.3390/su12145586>
- Bhuiyan, R. F. (2015). Consumer's Sensory Perception of Food Attributes: A Survey on Flavor. *Journal of Food and Nutrition Sciences*, 3(1), 157. <https://doi.org/10.11648/j.jfns.s.2015030102.40>
- Rezvani, S., Rahman, M. S., & Dehkordi, G. J. (2013). Consumers' perceptual differences in buying cosmetic products: Malaysian perspective. *Middle East Journal of Scientific Research*, 16(11), 1488–1496. <https://doi.org/10.5829/idosi.mejsr.2013.16.11.12034>
- Salem, E. M., & Fahad, A. O. A. (2012). Substituting of cacao by carob pod powder in milk chocolate manufacturing. *Australian Journal of Basic and Applied Sciences*, 6(3), 572–578.
- Shaaban, S., & Nguyen, T. B. (2014). Consumer Attitude and Purchase Intention towards Organic Food A quantitative study of China Linnaeus University. In *Journal of Consumer Behaviour* (Vol. 6, Issue 2).
- Sinesio, F., Saba, A., Peparaiò, M., Civitelli, S. E., Paoletti, F., & Moneta, E. (2018). Capturing consumer perception of vegetable freshness in a simulated real-life taste situation. *Food Research International*, 105(November 2017), 764–771. <https://doi.org/10.1016/j.foodres.2017.11.073>
- Tarkiainen, A., & Sundqvist, S. (2005). Subjective norms, attitudes and intentions of Finnish consumers in buying organic food. *British Food Journal*, 107(11), 808–822. <https://doi.org/10.1108/00070700510629760>
- Thøgersen, J. (2009). Consumer decision-making with regard to organic food products. In T. de N. Vaz, N. Peter, & J.-L. Rastoin (Eds.), *Traditional Food Production and Rural Sustainable Development : A European Challenge* (pp. 173–192). Ashgate.
- Yeung, R. M. W., & Morris, J. (2006). An empirical study of the impact of consumer perceived risk on purchase likelihood : a modelling approach. *International Journal of Consumer Studies*, 30(3), 294–305. <https://doi.org/10.1111/j.1470-6431.2006.00493.x>