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Consumer for Non-Wood Forest Products Factors Affecting Their Preferences: Example of Manavgat (Antalya) District

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Research Article

Abstract − The forests provide wood and non-wood forest products besides environmental services. Non-Wood Forest Products (NWFP) have gained more importance than wood raw materials, especially for people in rural areas due to their economic return. The aim of this study is to determine the factors affecting consumer preferences for non-wood forest products. The data of the study, which was carried out in Manavgat (Antalya), were pre-processed by means of a questionnaire and made ready to be summarized, and the answers to the questions were conveyed using a frequency table, percentage value, and graph. Differences between the variables were determined with the chi-square test and evaluations were made on the outputs that were found to be significant. According to the results of this research; (a) Consumers largely use non-wood forest products to benefit from general health protective effects and for pleasure, (b) the majority of the products are consumed in the form of infusion and mixing with foods (c)Among the factors that affect consumption of these plants, habit and recommendations of relatives are first place (d) the most important factor in the purchasing preferences of the products is that they are natural. Among consumers, the rate of obtaining non-wood forest products from nature is very high. In this study, it has been revealed that consumers are conscious of consumption of non-wood products.

Keywords − *Non-wood forest products, Chi-square, Consumer preferences, Manavgat, Turkey*

Odun Dışı Orman Ürünlerine Yönelik Tüketici Tercihlerini Etkileyen Faktörler: Manavgat (Antalya) Bölgesi Örneği

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Araştırma Makalesi

Öz − Ormanlar çevresel hizmetlerin yanı sıra odun ve odun dışı orman ürünleri de sağlamaktadır. Odun Dışı Orman Ürünleri (NWFP), ekonomik getirileri nedeniyle özellikle kırsal kesimdeki insanlar için odun hammaddesinden daha fazla önem kazanmıştır. Bu çalışmanın amacı, odun dışı orman ürünlerine yönelik tüketici tercihlerini etkileyen faktörleri belirlemektir. Manavgat (Antalya)'da gerçekleştirilen çalışmanın verileri bir anket aracılığıyla ön işleme tabi tutularak özetlenmeye hazır hale getirilmiş, sorulara verilen cevaplar frekans tablosu, yüzde değeri ve grafik kullanılarak aktarılmıştır. Değişkenler arasındaki farklılıklar ki-kare testi ile belirlenmiş ve anlamlı bulunan çıktılar üzerinden değerlendirmeler yapılmıştır. Bu araştırmanın sonuçlarına göre; (a) Tüketiciler odun dışı orman ürünlerini büyük oranda genel sağlığı koruyucu etkilerinden faydalanmak ve keyif için kullanmaktadır, (b) Ürünlerin büyük çoğunluğu infüzyon şeklinde ve gıdalara karıştırılarak tüketilmektedir (c) Bu bitkilerin tüketimini etkileyen faktörler arasında alışkanlık ve yakınların tavsiyeleri ilk sırada yer almaktadır (d) Ürünlerin satın alma tercihlerinde en önemli etken doğal olmasıdır. Tüketiciler arasında odun dışı orman ürünlerini doğadan elde etme oranı çok yüksektir. Bu çalışmada tüketicilerin odun dışı ürünlerin tüketimi konusunda bilinçli oldukları ortaya çıkmıştır.

Anahtar Kelimeler − *Odun Dışı Orman Ürünleri, Ki-kare, Tüketici tercihleri, Manavgat, Turkey*

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1. Introduction

Located at the crossroads of Europe and Asia, Turkey is a Mediterranean country with a diverse geography and a high biological, natural, and cultural diversity. Rich in ecological and biological diversity, flora, and fauna, Turkey has many naturally occurring plant species of commercial importance as Non-Wood Forest Products (NWFP). Forest ecosystems account for a significant portion of 12,000 plant taxa, plant species found in Turkey, of which about 3,000 (3,116) are endemic (Doğan, 2020; Güner et al., 2012). In other words, the flora of Turkey has characteristics that are typically associated with continental flora. Endemic plants constitute 32% of the country's flora (Başer, 2002; Güner et al., 2012). The diversity of plant life in Turkey's forests provides a wealth of non-wood forest products found in different regions of the country. Forest resources are used to produce many goods and services. These products can be broadly categorized as wood raw materials and non-wood forest products (Doğan, 2020). Products derived from various plants, animals, and fungi other than wood are categorized as NWFPs (Kurt et al., 2016; Doğan, 2020).

The global and national demand for NWFPs is rapidly increasing due to their economic, ecological, biological, social, health, and cultural importance (Doğan, 2020). The harvesting of NWFPs is an important source of income for rural people and plays an important role in the daily life and well-being of both rural and urban populations (Chupezi et al., 2009; Özkan et al., 2011). The use of non-wood plant products for various ailments of the general population has been extensively studied in the literature (Acartürk, 2001; Baser, 2002). Recently, with the rise of the concept of "alternative medicine", the demand for NWFPs has increased, leading to the inclusion of more species in this sector. On the one hand, the rapidly growing population and the decline of agricultural land are of concern. On the other hand, NWFPs are becoming increasingly important due to their medicinal properties, food safety benefits, low chemical interactions, and their ability to counteract the negative effects of synthetic drugs, chemical cosmetics, and dyes on human health. NWFPs are used in various fields including food, pharmaceutical, cosmetic, health, medicinal, aromatic, decorative, and ornamental purposes. Thus, NWFPs are a basic input for various industries and productions. NWFPs also serve as an important source of income for people living in rural areas. These products are heavily relied upon by individuals living in and around forests for their sustenance and profit (Çakmaklı, 2019). However, insufficient data on the consumption of NWFPs in rural and urban areas makes it difficult to provide accurate value estimates. In addition, current research on improving the use of NWFPs and the use of the resulting research is still inadequate and needs to be improved (URL-1, 2004). Many recent studies have investigated the purposes of use, forms, supply methods, and related issues of non-wood plant products (Korkmaz and Fakir, 2009; Faydaoğlu and Sürücüoğlu, 2011; Korkmaz et al., 2011; Arslan, 2015; Arslan et al., 2016; Akyol et al., 2017; Alkan et al., 2018).

This study aims to identify the consumption behaviors and factors influencing the consumption of plant-based NWFPs among consumers and was carried out to determine ethnobotanical characteristics of the plants in Manavgat (Antalya) region. In this context, this study aims to obtain information that can be used to improve both marketing strategies and production processes by comparing the characteristics of end consumers and their intended use.

2. Material and Method

A field study was carried out in vegetation period 2022-2023 in Manavgat (Antalya). Within the scope of the study, a 27-question survey was conducted with 384 consumers and evaluated. Interviewing local informants enabled the collection of ethnobotanical data on native therapeutic plants. Herbarium samples were taken from the plant specimens used by consumers and were identified at Muğla Sıtkı Koçman University, Köycegiz Vocational High School using references, i.e. Flora of Turkey and the East Aegean Islands (Davis, 1965-1985; Davis et al., 1988; Güner et al., 2000). The data of the study, which was carried out in Manavgat (Antalya), were pre-processed by means of a questionnaire and made ready to be summarized, and the answers to the questions were conveyed using a frequency table, percentage value, and graph.

The study aims to determine the purchasing preferences of consumers in Manavgat (Antalya) who use NWFPs and the factors that influence their choices. The data was collected through a questionnaire. The questionnaire was designed based on the study of Dündar (2019). The main issues to be questioned with the items in the questionnaire forms are the factors that influence the purchase/non-purchase decisions, and the evaluations to determine the priorities (level of importance) of the criteria that are effective in the purchase preferences of the products. The criteria considered in the purchase of products are price, health and nutritional value, natural and safe products, and packaging. During the administration of the questionnaire, respondents were instructed to answer the questions individually to ensure that their answers were not influenced by each other. The purpose of the study was explained to increase the accuracy of the information, broaden its scope, and encourage participation.

While determining the sample size, based on the various sample volumes determined for different population sizes at different confidence levels in the study conducted by Saunders et al. (2009); For the number of universes 100,000 (one hundred thousand) and above, it is determined as at least 384. Based on this; Considering that the population of Manavgat district of Antalya Province is 252 thousand 941 according to 2023 TÜİK data; It was aimed to reach 400 participants within the scope of the research at a 95% confidence level. After the analysis and pre-processing, the data was analyzed with a sample size of 384. Data from the survey questions were summarized using frequency tables, graphs, and descriptive statistics. The chi-square test was used in the analysis to determine differences in consumer responses at the 95% confidence level.

3. Results and Discussion

3.1. Plants from which NWFPs are obtained, their benefits, and considerations about their procurement

Consumers reported obtaining NWFP from various sources, with nature being the most common. This is followed by street markets and herbalists. According to Figure 1, 74% of consumers sourced NWFP from nature while 26% obtained them from herbalists, supermarkets, the internet, etc.

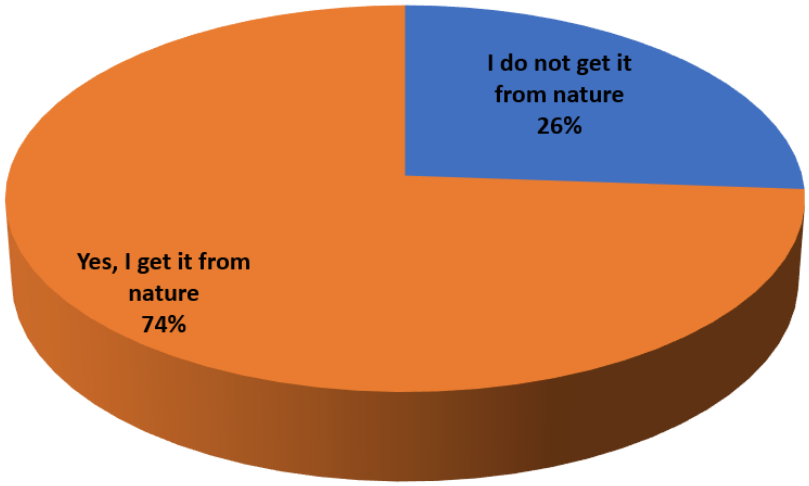

Figure 1. Graph of consumers' procurement of herbal products

The study surveyed consumers regarding how they consume NWFP, and the findings indicated that 66% of consumers prefer to consume the products in their natural form, 23% prefer them prepared, and 11% prefer both forms as shown in Figure 2.

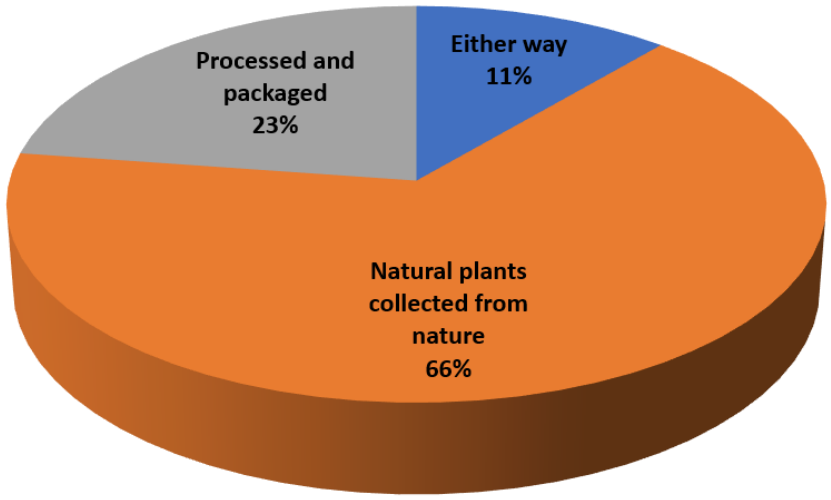

Figure 2. Consumers ways of consuming the preferred herbal products

As a result of this study, 41 (NWFPs) plant taxa belonging to and 25 families were found in Manavgat (Antalya). These plants and ethnobotanical data are listed in appendix in table 1. When the taxa detected in the region are examined, the family of Labiatae (Lamiaceae) was the most used family by the local people,9 taxa detected (Table 1).

Table 1. Plants from which ODBÜ is Obtained and Their Traditional uses

Family	Scientific name	Vernacular names	Used parts	Traditional uses
Hyperiaceae	*Hypericum perforatum* L.	Kantaron	Oil, Above-ground part	Skin inflammation, skin wound, Against swelling and rheumatic pain, medicinal tea, for pleasure
Labiatae (Lamiaceae)	*Origanum onites* L.	Bilyalı kekik	Above-ground part, oil	General Health Against cough, diuretic, Against stomach ailments, as spices, skin Care, Against cough, as food additive, painkiller, herbal tea for pleasure
Labiatae (Lamiaceae)	*Salvia tomentosa* Miller	Adaçayı	Above-ground part	General Health, flu Against cough, fever, teeth pain, sleeping problems, herbal tea
Labiatae (Lamiaceae)	*Sideritis libanotica* Labill. subsp. *linearis* (Bentham) Bornm.	Dağ çayı, Toros çayı	Above-ground part	General Health, against cough, sleeping problems, dental health, herbal tea for pleasure
Tiliaceae	*Tilia platyphyllos* subsp. *platyphyllos* Scop.	Ihlamur	Flower	Against cough, flu, sedative, lungs disease, for pleasure
Labiatae (Lamiaceae)	*Mentha longifolia* (L.)	Nane	Above-ground part	General Health, as of spices, sickness, flu, as food additive, as spices
Lauraceae	*Laurus nobilis* L.	Defne	Leaf, Oil	as food additive, soap, General Health, herbal tea, as spices
Malvaceae	*Malva sylvestris* L.	Ebegümeci	Above-ground part	as food
Rosaceae	*Rosa canina* L.	Kuşburnu	Fruit	General Health, as food, as tea, against cough, flu, having high levels of vitamins, for pleasure
Apiaceae	*Foeniculum vulgare* Mill.	Rezene	Above-ground part	To increase breast milk, antiflatulent, tranquilizer
Asteraceae	*Matricaria chamomilla* var. *recutita* (L.) Fiori. *Matricaria chamomilla* L.	Papatya	Flower	General health, stomach bloating, insomnia, against cough, flu, tranquilizer
Orchidaceae	*Orchis anatolica* L. *Orchis mascula* (L.) L.	Salep	Tuber	as tea, Tranquilizer, stomach bloating, for pleasure

Table 1 continue

Labiatae (Lamiaceae)	*Rosmarinus offcinalis* L.	Biberiye	Above-ground part	immune-enhancing, dysmnesia hair care, as diet tea, flu, for pleasure
Labiatae (Lamiaceae)	*Melissa officinalis* L.	Oğulotu	Above-ground part	C vitamin, diarrhea treatment, flu, cardiovascular diarrhea
Asteraceae	*Achillea nobilis* L. *Achillea grandifolia* Friv.	Civanperçemi	Above-ground part	Urinary infection, cold, General Health, menstrual period irregularities
Loranthaceae	*Viscum album* L.	Ökse otu	Above-ground part	as food additive, General Health
Rosaceae	*Cydonia oblanga* Mill.	Ayva	Leaf	General Health, flu, for pleasure
Platanaceae	*Platanus orientalis* L.	Çınar	Leaf	General Health
Ranunculaceae	*Nigella arvensis* L.	Çörek otu	Seeds	as food additive, as spices, liquefy plasma, as spices
Linaceae	*Linum usitatissimum* L.	Keten tohumu	Seeds	General Health, skin care, as food additive, oil
Labiatae (Lamiaceae)	*Lavandula stoechas* L.	Karabaş otu	Above-ground part	Sedative, General Health, vasodilator, herbal tea for pleasure
Equisetaceae	*Equisetum giganteum* L.	At kuyruğu Kırk kilit	Above-ground part	Poisonous, diuretic, spontaneous kidney stone and sand passage, gum inflammations and tonsillitis (gargle), eczema, rheumatical pain
Urtiaceae	*Urtica dioica* L.	Isırgan otu	Above-ground part	General Health, diabetes, hypertension, digestive system disorders, cooked as food, as food additive
Labiatae (Lamiaceae)	*Ocimum basilicum* L.	Fesleğen	Above-ground part	Headache, soothing, as spices
Cistaceae	*Cistus creticus* L. *Cistus salviifolius* L.	Laden	Above-ground part	Flu, General Health, Diabetes expectorant
Anacardiaceae	*Rhus coriaria* L.	Derici Sumağı	Fruit	as food additive, as spices
Myrtaceae	*Myrtus communis* L.	Mersin	Fruit, Leaf	Fruits are eaten (as food), leaves are drunk like herbal tea for Cold and flu, wreath, diarrhoea, for pleasure
Asteraceae	*Artemisia absinthium* L. *(*snm. *Artemisia officinale Brot.*	Pelin Otu	Above-ground part	General Health

Table 1 continue

Labiatae (Lamiaceae)	*Lavandula stoechas*, L.	Karabas otu,	Above-ground part	General Health, for scent, as decoration, insect repellent, urinary tract inflammation, strengthening nerve, treat sinusitis, blood circulation and sedative, herbal tea for pleasure
Polygonaceae	*Rumex acetosella* L.	Ekşi Kulak	Above-ground part	as food
Anacardiaceae	*Pistacia terebinthus* L. *subsp. palaestina (Boiss.) Engler*	Menengiç	Fruit, Resin	as food, gum
Rosaceae	*Crataegus monogyna* Jacq.	Yemişen, alıç	Leaf and Flower	General Health, cardiovascular, Hypertension, tranquilizer, as herbal tea
Papaveraceae	*Papaver rhoeas* L.	Gelincik	Flower	Analgesic, as food additive, Medicinal Tea, skin health
Urtiaceae	*Urtica dioica* L.	Isırgan otu	Above-ground part	General Health, as food, diyabet, hipertansiyon
Malvaceae	*Alcea heldreichii* Boiss	Hatmi Çiçeği	Flower	Cold and flu, asthma, bronchitis
Verbenaceae	*Vitex agnus-castus* L.	Hayıt tohumu	Seeds	Fibroid cysts, menstrual period irregularities

Figure 3 shows that 74% of the consumers reported that they benefited from the herbs they used in NWFPs, while 26% reported that they did not benefit.

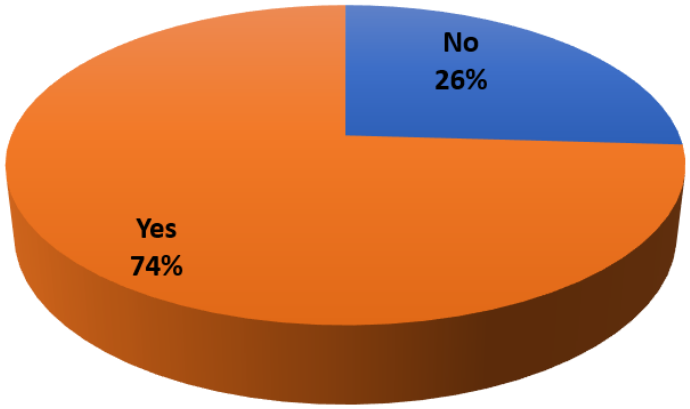

Figure 3. Consumers' Perceived Benefits from Their Preferred Products

In addition, the study examined the factors that influence consumers' NWFP purchase decisions and found that consumers prefer products that have a positive impact on health, have no additives, and are natural. More than 50% of the respondents (51%) indicated that they buy products for general health, while 22% buy them for pleasure, and 21% buy them to treat a specific condition (Figure 4).

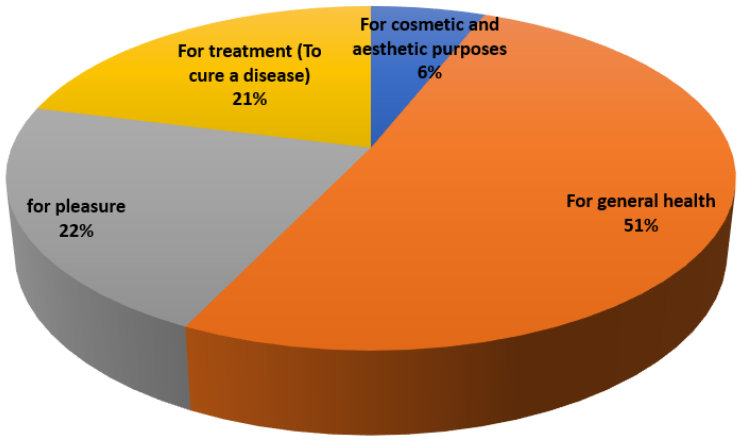

Figure 4. Analysis of factors influencing consumer purchases of NWFPs

The motivations of consumers behind purchasing and consuming NWFPs are significant topics. This is because there are various factors at play. Figure 5 presents a stacked bar chart detailing the factors affecting the NWFP purchases. The stacked bar chart format was chosen to provide cumulative value information on consumer purchase preferences for this study. As shown in Figure 5, most of the study participants noted that they purchased due to their considerable health benefits. In addition, not containing additives, being a natural product, helping with stress management, inducing positive emotions, and having high levels of vitamins and minerals were the most effective reasons, respectively. In a study by Arslan (2015), the primary reasons for preferring NWFP were their naturalness, lack of additives, flavor, and health benefits. Similarly, a study by Korkmaz and Dündar (2019) identified important factors including health benefits, absence of additives, natural origin, high vitamin and mineral content, and positive effects on well-being.

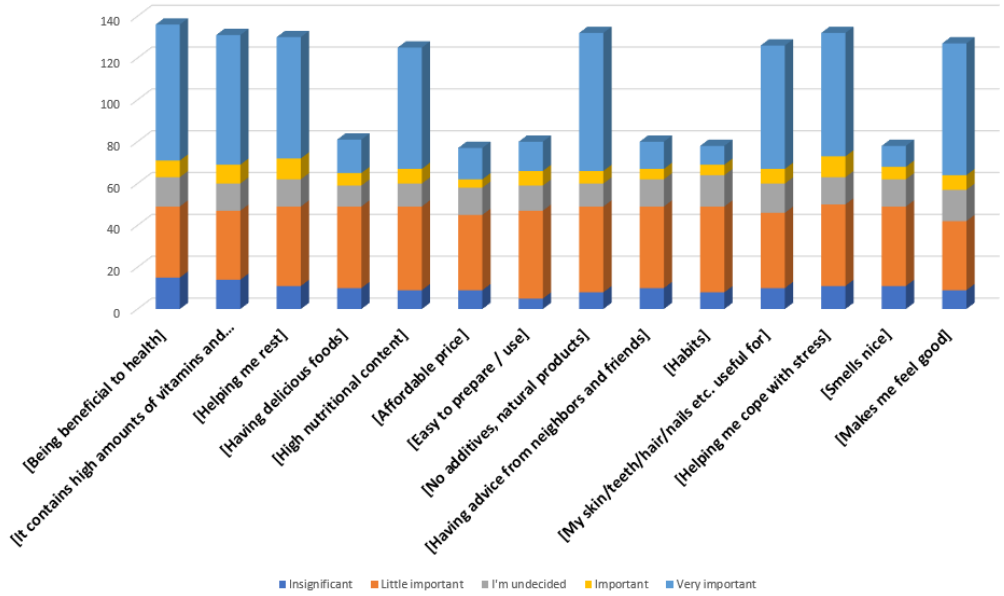

Figure 5. Graph of consumers' purpose of use of their preferred herbal products

When consumers were asked about the way they use NWFPs, 53% stated that they use them as an infusion, and 23% stated they use them by mixing them with food, as shown in Figure 6.

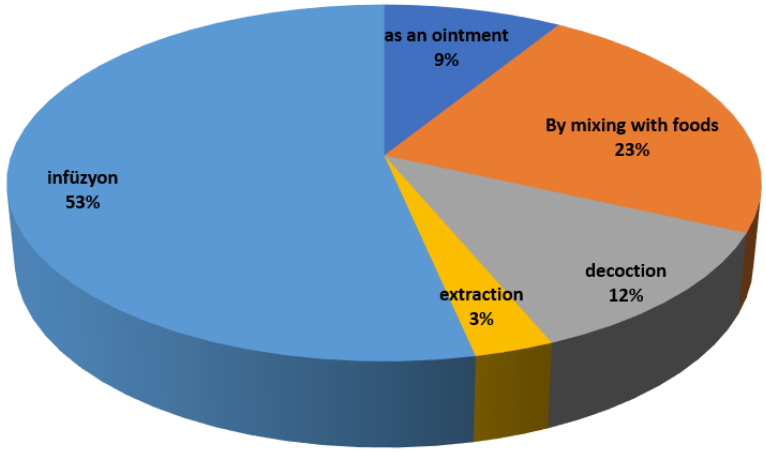

Figure 6. Percentage Distribution of Consumers' Consumption Patterns of NWFP

In addition, the majority of the products are typically consumed by individuals in boiled or brewed form. This form of consumption is specifically through infusion or decoction. Furthermore, they are frequently used in conjunction with other food items as an ingredient in meals. A study by Arslan (2015) reports that consumers prefer to use NWFPs primarily in the form of brewing and mixing with foods, with a rate of 37.50%, while 29.17% prefer boiling or decoction, which aligns with our study findings.

When the study participants were asked whether they frequently use specific plants or herbs as NWFPs, 79% reported using specific plants regularly, while 8% reported varying their choices, and the remaining 13% indicated that they do not have a consistent preference for any particular plants as NWFP as shown in Figure 7.

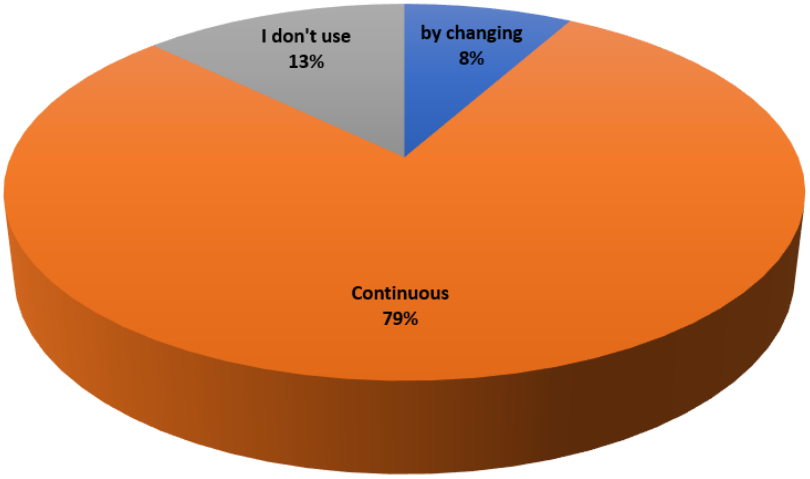

Figure 7. Frequency of Consumption of NWFP by Consumers

3.2. Findings on the procurement of NWFPs

Consumers obtain NWFPs from various sources. According to Figure 8, the Spice Seller is the most favored location for procurement, followed by supermarkets. Online stores via the Internet are not a preferred source for consumers. In a study conducted in Izmir province, herbalists were identified as the most prominent source, while supermarkets ranked second (Korkmaz and Dündar, 2019). A study conducted in Burdur province found that the herbalist was the most favored place for purchase, followed by supermarkets and street markets (Arslan, 2015). In this study, the street market was the most favored place for purchase. This disparity may be attributed to the significance of the Manavgat region's vegetation in providing plants for consumers, whereas İzmir and Burdur's metropolitan status and their higher number of large markets may explain this disparity.

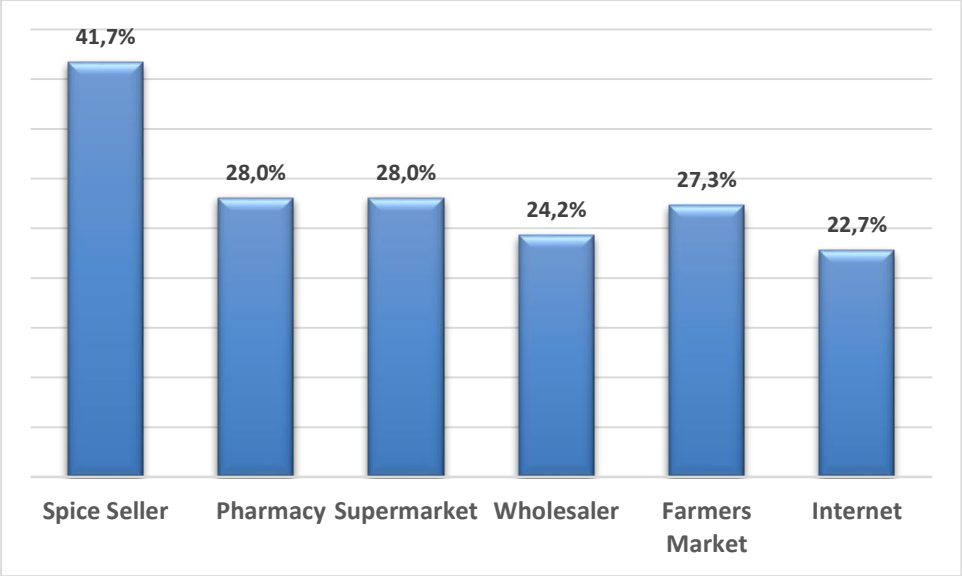

Figure 8: Places of purchase of NWFP

3.2.1. Evaluations on the results of chi-square analysis

Consumers were asked whether they had an opinion on whether the products used as NWFPs should be consumed at certain dosages and whether they had an opinion on whether the products were poisonous or not, and it was investigated whether there was a significant relationship between them. As a result of the Chi-square analysis (X^2 = 26.653, p = 0.000<0.05), a significant relationship was found between the two variables. Among those who know how to use plants, the rate of those who know that plants are poisonous is 91%, while among those who have partial knowledge about using plants, the rate of those who know that plants are poisonous drops to 48%. Again, 71% do not have information about the dosage of consuming plants and know that they are poisonous. The difference is partially seen in those who have knowledge about using plants.

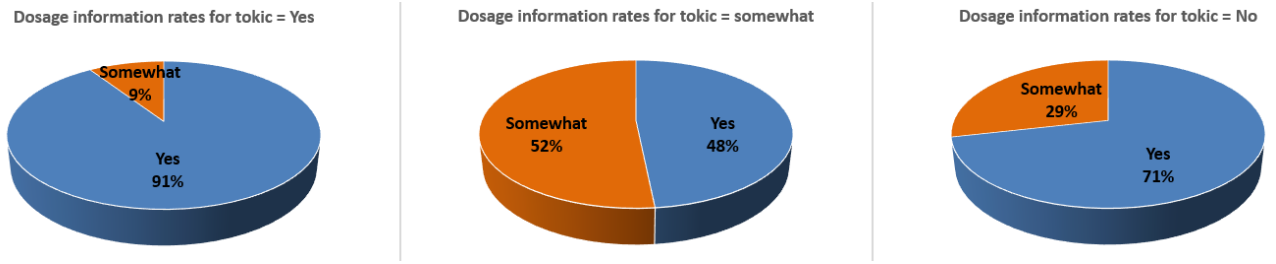

Figure 9. The result of the Chi-square analysis on the opinions on whether the products used as NWFP have a certain dosage and whether they experienced side effects.

On the other hand, no significant relationship was found between the knowledge status of the consumers about the dosage of the products used and whether they experienced any side effects (X2 = 1.151, p = 0.563>0.05). The similarity of the graphs shown in Figure 10 confirms this finding.

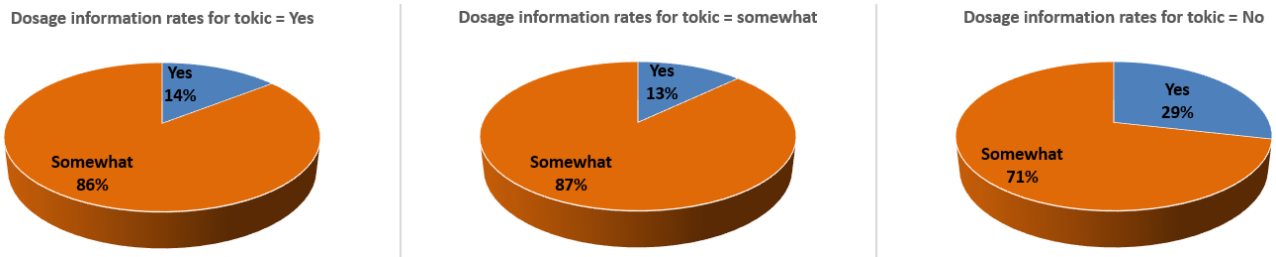

Figure 10. The result of Chi-square analysis on their opinion on whether there is a specific dosage of the products used as NWFP and whether the products are poisonous or not

It was investigated whether they had information about whether the plants were poisonous or not and whether they experienced any side effects and no significant relationship was found between the variables ($X2 = 1.467$, $p = 0.226>0.05$). The two graphs below are similar to each other. This similarity confirms that there is no significant relationship between the two variables.

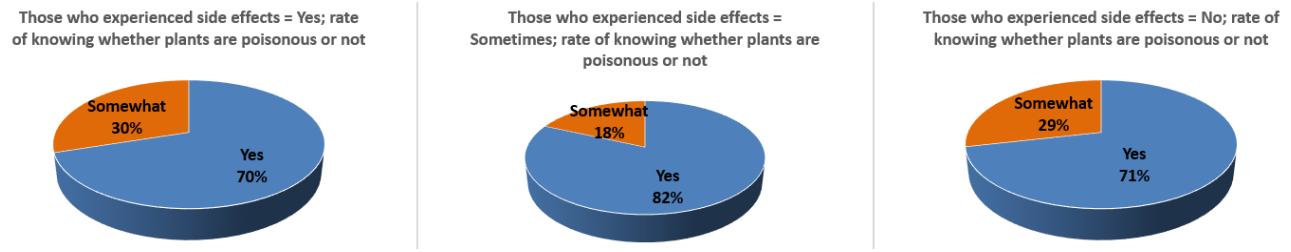

Figure 11. The result of the Chi-square analysis on the knowledge of whether plants are poisonous or not and whether they have experienced any side effects

3.2.2. Findings on consumers' sources of information on the use, sale, or marketing of NWFPs

When asked about their sources of information regarding NWFPs, consumers primarily relied on physicians' advice by 39%, followed by television and radio programs by 28%, and friends and neighbors by 20% (Figure 12).

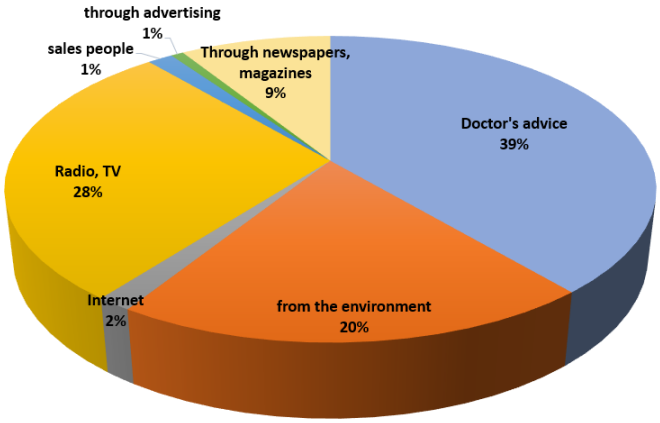

Figure 12. The sources of information for consumers who purchased NWFPs

When asked if they received information from the place where they purchased NWFP plants, 59% of consumers responded "sometimes" for some plants, 17% responded "yes", 13% responded "no, I already know it myself", and 7% responded "no, I do not", as presented in Figure 13.

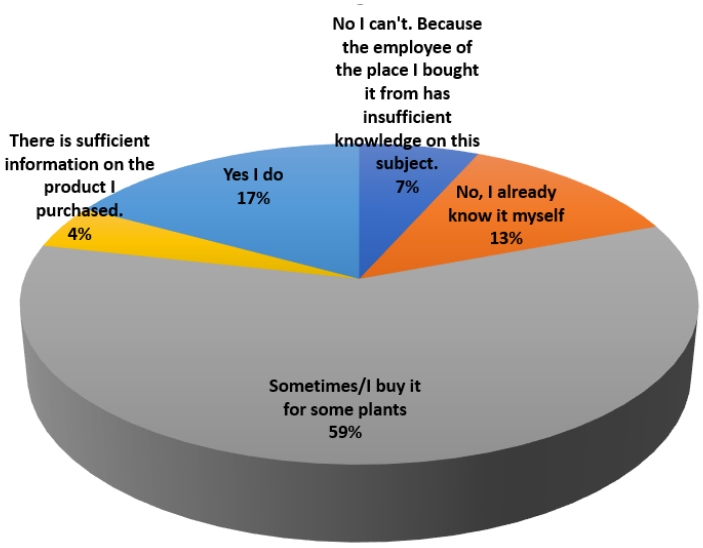

Figure 13. Whether or not consumers received information about the use of NWFPs from the place of purchase

In this study, when surveyed about their sources of information on NWFPs, 39% of consumers reported that their primary source was physician recommendations, which may be related to consumers' high level of knowledge about the products they purchase and their purchase preferences (Arslan et al., 2016). A study carried out in Izmir province reveals that 61.46% of information sources relating to NWFP originate from the close circle, followed by 60.41% from television programs, and 58.33% from the Internet. In a study conducted by Korkmaz and Dündar (2019) in the Burdur province, the majority of consumers asserted that the Internet (namely social media) and recommendations from the close environment (friends, neighbors) were effective, followed by television programs. Similarly, in the studies conducted by Arslan (2015) and Korkmaz et al. (2011), the most effective factors as the close circle, visual and written materials, and the Internet were identified as the most significant factors in sharing habits and experiences. The consumers in this study, however, reported physician's recommendations, television and radio programs, and the environment at a high rate as their reasons for preference. Unlike previous studies, this findings reveal that consumers in the Manavgat region exhibit conscientiousness in their preferences, as evidenced by the highest recommendation rate given by physicians.

When respondents were surveyed on the frequency of purchasing NWFPs, 11% reported not making any purchases, 58% rarely purchased NWFPs, 20% responded "occasionally", 6% responded "often", and 5% responded "always". As a result, this finding supports Figure 1 which shows that the majority of consumers have minimal purchasing tendencies and rely on obtaining products from nature directly Figure 14.

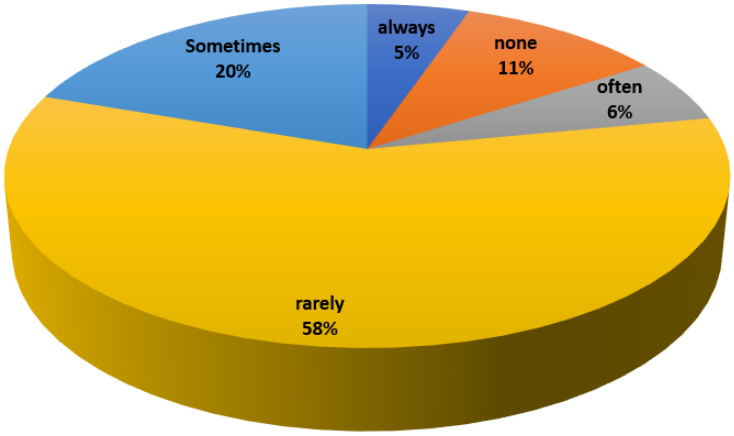

Figure 14. Frequency of purchasing NWFPs at the following points of purchase

As shown in Figure 15, when asked, "Do you read the information on the product label before purchasing NWFP-packaged products?", 62% responded "yes", and 38% responded "no".

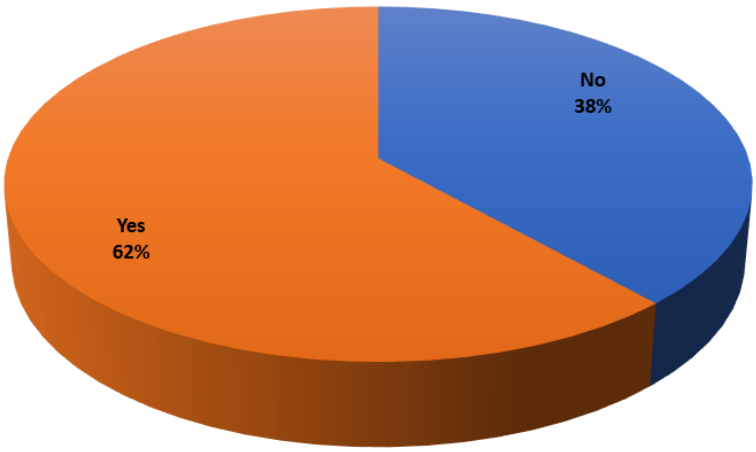

Figure 15. NWFP label information

When consumers were asked, "What are your opinions about the prices of the NWFPs you buy?", 57% responded "Normal", 23% responded "Expensive", 7% responded "Inexpensive", and 13% responded "No opinion". In the study conducted by Arslan et al. (2016) in Izmir province, 56.25% of consumers stated that the prices of NWFPs they buy are

reasonable, while 19.79% stated that they have no opinion. In this study, the majority of the consumers who participated in the survey stated that the prices were appropriate (Figure 16).

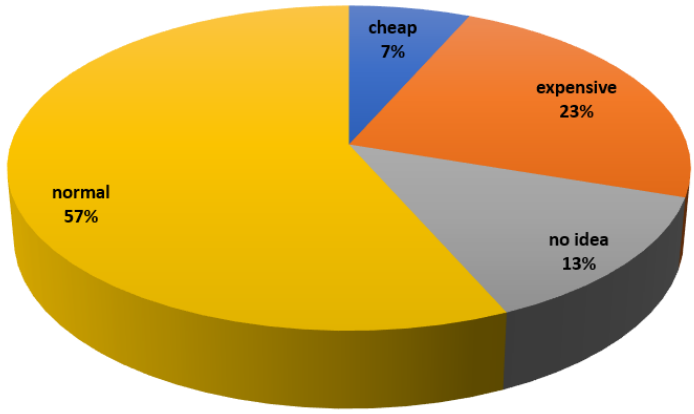

Figure 16. Opinions on NWFP prices

When consumers were asked whether they sell or market NWFPs, 88% responded "no", and 12% responded "yes", as shown in Figure 17.

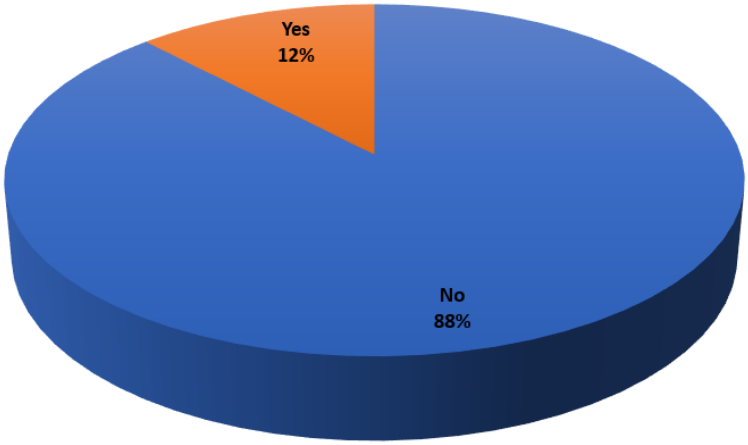

Figure 17. Graph on whether consumers sell or market NWFPs

4.Conclusion

In this study conducted in the Manavgat (Antalya) region, the majority of NWFP consumers obtain their products directly from nature, followed by street markets. A significant proportion of consumers engage in self-collection from nature. The results showed that 41 (NWFPs) plant taxa belonging to and 25 families were found in Manavgat (Antalya). Information about Vernacular names and ethnobotanical uses was this study provided contributions to the literature. These kinds of studies will make sure that future generations are informed about the plants that people use. Consumers report that the prices of products on the market are normal. The study also asks whether consumers have information about certain dosages of products and their opinions about the toxicity of the products to investigate if there is a significant correlation between these factors. The results of the Chi-square analysis show that 80% of the respondents have information about poisonous plants. As shown in the graph, 81.5% of the participants reported knowing the dosage of plants, 13.9% reported having information about the dosage of some plants, and 4.6% reported having no information about the use of plants. The results indicate that the surveyed consumers in the Manavgat region have awareness preferences in their NWFP consumption

The main factor motivating consumers' preference for this mode of procurement is the desire to use natural products. The primary factors influencing consumers' purchase behavior for NWFPs are their perceived health benefits and natural origin. In addition, the main deterrent to purchase is the preference for a "natural and reliable" product. It was found that the most important reasons for consumers to use NWFPs are that they contain no additives, they are natural products,

they help to cope with stress, they are beneficial to health, they make them feel good, and they have high levels of vitamins and minerals. Taken together with the above explanations, it is clear that the most preferred products are those that come directly from nature and are unprocessed. This kind of preference is crucial to the products' marketing. Besides the protection and cultivation of these biological and genetic resources are crucial for the food and health industries. To ensure a balance between the protection and use of non-wood forest products, it is necessary to raise awareness among consumers and those involved in their sales and marketing.

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Author Contributions

Sevgin Özderin, planned, the plants were diagnosed and designed the analysis

Alihan Avcı collected, The plants were diagnosed and analyzed data.

Murat Sakal analyzed data.

Conflict of Interest

The authors have no conflicts of interest to declare that are relevant to the content of this article.

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