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Makale Türü Araştırma Makalesi

CONSUMPTION OF MEDICINAL AND AROMATIC PLANTS COLLECTED FROM NATURE IN BAYBURT

Bayburt İlinde Doğadan Toplanan Tıbbi ve Aromatik Bitkilerin Tüketimi

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ÖZ

Türkiye tıbbi ve aromatik bitkiler bakımından oldukça zengin bir ürün çeşitliliğine sahiptir. Bu bitkilerin tedavi edici özelliği nedeniyle, insanlık tarihinden beri kullanılmakta olduğu bilinmektedir. Tıbbi ve aromatik bitkiler tedavi edici özelliğinin yanı sıra kozmetik sanayiinde ya da gıda maddesi olarak da kullanılmaktadır. Dolayısıyla da her geçen gün ekonomik önemi daha da artar hale gelmektedir. Bayburt ilinde de bir çok tıbbi ve aromatik bitki hem çiftçiler tarafından üretilmekte hem de dağlık bölgelerinde, yaylalarında kendiliğinden yetişebilmektedir ve Bayburt'taki vatandaşlar tarafından tüketilmektedir. Özellikle doğada kendiliğinden oluşan bitkilerin yaygın bir biçimde toplanıp tüketildiği gözlemlenmektedir. Eldeki bu çalışma ile de doğada kendiliğinden yetişen bu tıbbi ve aromatik bitkilerin tüketiciler tarafından ne şekilde ve ne amaçla tüketildiği anlaşılmaya çalışılmıştır. Çalışma bulgularında bitkilerin en çok gıda amaçlı daha sonra da tıbbi amaçlı tüketildiği görülmektedir. En çok toplanan bitki de labada (evelik) bitkisidir. Tüketiciler bu bitkilerin doğal, organik, güvenilir, sağlıklı ve iyileştirici olduğu kanısındadır. Bundan dolayı da bu bitkiler hızlı bir biçimde işletmenin ve pazarlamanın konusu haline gelmektedir.

ABSTRACT

Turkey has quite a rich variety of products in terms of medicinal and aromatic plants. Because of the therapeutic properties of these plants, it has been known to be used since human history. Medicinal and aromatic plants are used for cosmetic industry or as a foodstuff in addition to their therapeutic properties. Therefore, its economic importance is increasing every day. A very medicinal and aromatic plant in the province of Bayburt is cultivated by farmers, besides in the mountainous regions and in the highlands, it is spontaneously formed and consumed by the citizens of Bayburt. In particular, it is observed that plants that spontaneously form in nature are widely collected and consumed. With this paper, it is tried to understand how and for what purpose these natural and medicinal plants are consumed by consumers. In the study findings, it is seen that plants are consumed mostly for food purposes and then for medical purposes. The most collected plant is the labada plant. Consumers believe that these plants are natural, organic, safe, healthy and curative. Therefore, these plants quickly become the subject of business and marketing.

1. INTRODUCTION

Our country is the origine of many plant species by its ecological and geographical features. Medicinal and aromatic plants constitute an important part of this richness in the flora of our country where there are about 11.000 plant diversity (Dündar, 2001: 133). These plants, according to the World Health Organization (WHO), traditional medicine is used to protect physical, mental and it is a set of knowledge, skills and practices that can be explained or failed to be based on cultural theories, beliefs and experiences "and has a long history (WHO, 2000).

Since ancient times, extracts of plants, glycosides and essential oils have been widely used for healing effects. Herbal medicine is explained as products derived by plants which are untreated or treated, are therapeutic properties or benefit to the health of other people (Baytop, 1999: 12; Aslan, 2016: 34). In

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order to increase the production of medicinal and aromatic plants and to obtain higher quality products, it is thought that plant collections made from nature should be conscious and the plants with high demand should be cultured.

Medicinal and aromatic plants have been used in food, spices, medicine and alternative medicine since ancient times. Today, these plants continue to gain economic importance (Gıdık et al., 2016, 100; Gıdık et al., 2019, 681). With this study, it is tried to understand the purpose of consuming medicinal and aromatic plants collected from nature in Bayburt province by consumers. Medicinal and aromatic plants collected from nature are collected and sold by tradesmen and peddlers in Bayburt, and thus, the characteristics of these products shift from free goods to economic goods. So, these products gradually began to become the activity of business and marketing.

2. USE OF MEDICINAL AND AROMATIC PLANTS

According to Evcimen and Aslan, (2016: 36), the use of medicinal and aromatic plants as remedies dates back to the present day. People have always been seeking to determine the healing effects of plants. When the developments in the production and use of medicinal and aromatic plants in the 20th century are examined it has been determined that the use of synthetic chemical drugs were increased after World War and usage of medicinal and aromatic plants rapid decrease (Craker et al., 2003: 979).

In some studies, it was stated that approximately 450 diseases were identified in the old periods and some plants were used in the treatment of these diseases. In addition, ancient books written in many countries, such as India and China, include plants and treatment methods. Many sources mention that these medicinal plants are used for the treatment of injuries, sprains, fractures and even leprosy (Abacıoğlu and Onursal,1998: 598; Baytop, 1999: 19; İli, 2003: 37). In our country, together with the species and varieties collected from nature in the domestic market the average number of medicinal and aromatic plants are traded 347. The most cultivated plants include red pepper (*Capsicum annuum* L.), black tea (*Camellia sinensis* L.), poppy (*Papaver somniferum* Linnaeus), thyme (*Thymus vulgaris* L.), cumin (*Cuminum cyminum* L.), mint (*Mentha x piperita* L.), oil roses (*Rosa damascena* L.) and anise (*Pimpinella anisum* L.). Some plant as laurel (*Laurus nobilis* L.), basil (*Ocimum basilicum* L.), buckwheat (*Fagopyrum esculentum* L.), echinacea (*Echinacea purpurea* L.), quinoa (*Chenopodium quinoa* L.), lemon balm (*Melissa officinalis* L.), fennel (*Foeniculum vulgare* L.), saffron (*Crocus sativus* L.), orchid (*Phalaenopsis*) and stevia (*Stevia rebaudiana* Bertoni) are the second line for cultivation of medicinal plants (Özhatay and Koyuncu, 1998: 47). In Turkey medicinal and aromatic plants are grown byself because of the climate and the ecological characteristics, through the plants can be collected from the nature. Of the 12-13 thousand tons of oregano consumed in the world, 9-12 thousand tons of oregano are supplied from our country (TUİK, 2009).

Medicinal and aromatic plants are grouped in terms of plant family, type, active substances and application areas. Since the number of plants is very high, it is not possible to collect medicinal plants in a single group according to their families. Although the idea of classification according to active substances is considered in this case, this classification could not be sufficient due to the fact that the variety of active substances is high and that the plant can be found in different organs (İli, 2003: 41).

It is a known fact that the importance and industrial uses of medicinal and aromatic plants increase day by day. Collection from nature is more preferred in providing medicinal and aromatic plants. Especially in the plants traded, those collected from nature are sold at cheaper prices. This is especially Turkey, Albania, stands out in Spain and Hungary (Lange, 1998: 10).

According to Özhatay and Koyuncu (1998: 53); In our country, there are 347 species that are collected from nature and traded internally and externally, and approximately 30% of them are exported. The collection of plants from nature unconsciously causes deterioration of natural vegetation and the destruction of endemic plant species as well as the erosion which is a very important problem in our country.

Ekim et al., (1989: 227) said that the plants grown in the flora of our country are under various pressures and many plant species face difficulties in maintaining their generation. Industrialization and urbanization, overgrazing, tourism, sales and domestic use abroad, reclamation of barren, saline areas, agricultural combat and contamination, wooding and fires are some of them.

Today, sufficient standard and high quality medicinal and aromatic plants cannot be obtained by collecting plants from nature. In order to meet the demand, it is thought that regular culture, selection and breeding of these plants should be carried out.

According to Aslan and Karakuş (2019: 19), the perception of negative and real about the side effects of synthetic drugs leads to a high expectation of effect from the medicines prepared especially from medicinal plants collected from nature and to create a sense of trust against these plants. Thus, the use of medicinal and aromatic plants for therapeutic purposes is becoming widespread.

Evelik (labada) (*Rumeoc Patienta* L.), hibiscus (*Malva sylvestris* L.), mountain tea (*Sideritis scardica* L.), yemlik (*Tragopogon porrifolius* L.), nettle (*Urtica* sp.), Madımak (*Polygonum* sp.), chamomile (*Anthemis* sp.), rosehip (*Rosa* sp.), thyme (*Thymus vulgaris* L.), linden (*Tilia* sp.), hawthorn (*Crataegus* sp.), mushroom (*Fungus* sp.), mint (*Mentha* sp.), mustard (*Sinapis* sp.) centaury (*Hypericum perforatum* L.), civanperçemi (*Achillea millefolium* L.) and Coriander (*Coriandrum sativum* L.) are some of the plants collected from nature in Bayburt region.

3. METHODOLOGY

3.1. Purpose and Method

The aim of this study is to determine how and for what purpose the medicinal and aromatic plants collected from nature are consumed in Bayburt province. For this reason, a questionnaire was prepared and applied to the people living in Bayburt both face to face and online. The questionnaire was conducted only to participants collecting plants from nature, and therefore a total of 333 questionnaires were evaluated. Considering that the population of Bayburt is 82,274 according to TÜİK (Turkish Statistical Institute) 2019 data, it is assumed that this number is sufficient. The survey was conducted by convenience sampling method and it was conducted between 22.04.2019 and 11.07.2019. In the preparation of the questionnaire, the studies of Dicle (2010) and Kızıloğlu et al. (2017) were used. The questionnaire consisted of 7 demographic, 4 descriptive, 4 open-ended questions and 25 scale items (5-point Likert scale; response options ranged from 1: strongly disagree to 5: strongly agree) and it was tested in SPSS 25 program.

3.2. Research Hypotheses

The hypotheses created to achieve the aim of the research are as follows;

H1: Participants collect and consume medicinal and aromatic plants from nature because they are accessible and economical,

H2: Participants collect and consume medicinal and aromatic plants from nature because they are healthy and therapeutic,

H3: Participants collect and consume medicinal and aromatic plants from nature because they are food products,

H4: Participants collect and consume medicinal and aromatic plants from nature because they are natural, organic and reliable,

H5: The participants collect and consume medicinal and aromatic plants from nature due to their nutritional value,

H6: Participants collect and consume medicinal and aromatic plants from nature for cosmetic use.

In addition to the above-mentioned hypotheses, the following hypotheses have been established to see the correlation between the resulting factors;

$H7_0$: There is no correlation between the dimensions,

$H7_1$: There is a correlation between the dimensions.

3.3. Reliability and Factor Analysis

The reliability of the scale is accepted if the coefficient is found equal or greater than 0.6 and if this value is above 0.8, the reliability level of the scale is quite high (Kılıç, 2016: 48). In this paper, the Cronbach's Alfa coefficient is 0.844 for the reliability statistics of the study and it has a very high reliability rate.

If KMO value is greater than 0.5, it is sufficient (Çokluk et al, 2012: 207). As a result of KMO and Bartlett's Test performed before factor analysis; KMO (Kaiser-Meyer-Olkin) value was 0.764 (KMO ≥0.5) and Bartlet's sphericity test value was 4971.809; p value is 0.000. According to these results, the sample size is sufficient and the data is correlated, it is therefore suitable for data factor analysis.

Factor analysis revealed 6 dimensions. The contribution of these 6 factors to the total variance is as follows; 1: 15.720%; 2: 14.977%; 3: 14.187%; 4: 13.647%; 5: 9.556% and 6: 7.901%. Thus, it was seen that the total variance of the 6 factors was 75.989%. Dimensions that are in line with the literature are given the following names; 1: Accessible and economical, 2: Healthy and therapeutic, 3: Food products, 4: Natural, organic and reliable, 5: Nutritional value and 6: Cosmetic use.

4. FINDINGS

The findings presented in the research are as follows; 1: Demographic characteristics, 2: Other descriptive statistics, 3: Interpretation of open-ended questions, 4: One sample t test and 5: Correlation analysis.

4.1. Demographic Characteristics

73% of the participants live in the Central District, 56.8% are male; 43.2% are female. In terms of marital status, 75.7% are married and 24.3% are single, 40.5% are in the 46-55 age range, 51.4% are high school graduates. 35.1% of the respondents are workers-farmers and 27% have income between ₺6001-8000.

Table 1. Demographic Characteristics

Variables	Groups	N	%
Location	Center	243	73
	Aydıntepe	63	18.9
	Demirözü	27	8.1
Gender	Male	189	56.8
	Female	144	43.2
Marital Status	Married	252	75.7
	Single	81	24.3
Age	15-25	9	2.7
	26-35	45	13.5
	36-45	117	35.1
	46-55	135	40.5
	56-65	18	5.4
	+66	9	2.7
Education Level	Primary School	99	29.7
	High School	171	51.4
	Vocational School	27	8.1
	Bachelor's Degree	27	8.1
	Graduate	9	2.7
Occupation	Worker-Farmer	117	35.1
	Public Officer	82	24.7
	Student	18	5.4
	Housewife	36	10.8
	Merchant	35	10.5
	Specialist (Dr., engineer, lawyer etc.)	18	5.4
	Other	27	8.1
Household Income (₺)	-2021	45	13.5
	2021-4000	72	21.6
	4001-6000	72	21.6
	6001-8000	90	27
	+8001	54	16.2

4.2. Other Descriptive Analyzes

In the other descriptive statistics, 4 questions were asked to the respondents. The first was whether the participants collected plants from nature and those who responded "no" were excluded from the

analysis. Therefore, the study was conducted with 333 participants who answered "yes" to this question. For the other 3 questions are; Table 2 shows the responses to questions about the purpose for which the respondents collected plants from nature, how the collected plants were preserved and how they were consumed. Plants are consumed most as food (73%) and least as animal feed (5.4%), they are mostly dried and stored (62.2%); rarely keep frozen (2.7%) or canned (2.7%) and these are herbal tea is made and drink (%43.2).

Table 2. Other Descriptive Analyzes

Variables	Groups	N	%
Purpose of collecting plants from nature	To consume as food	243	73
	For use as medicine	54	16.2
	To feed animals	18	5.4
	Other	18	5.4
Preservation of collected plants	Drying	207	62.2
	Canned food	9	2.7
	Freezing	9	2.7
	Immediate consumption	90	27
	Other	18	5.4
Consumption of collected plants	As tea	144	43.2
	As food	135	40.5
	As animal feed	9	2.7
	As a healer	18	5.4
	Other	27	8.1

4.3. Answers to Open-Ended Questions

In the answers given to the open-ended questions directed to the participants, it was seen that those who use the plants as medicines consumed as general tea. In addition to this, there are also those who say they have been chewed and eaten directly for toothache and other oral care. It is stated that medicinal and aromatic plants are collected intensively in the months corresponding to spring and summer season and can also be collected in autumn. It is noted that the months in which medicinal and aromatic plants are most intensively collected during these seasons are May, June, July and August. The respondents go to certain locations to pick plants 3-4 times during these months. These places; Kop Mountain, Aslan Mountain, around the Demirözü Dam, Aydıntepe and Arpalı highlands, Yukarıkırzı, Yapracık, Uluçayır, Heybetepe, Söğütlü villages.

4.4. One-Sample T Test

One Sample T test was performed to test the hypotheses mentioned in the hypotheses part of the study. Test value for One-Sample Test; neutral response coded with 3 was determined on the 5-point Likert scale. If the mean value of the dimensions is greater than this value, it means that the result is in favor of the factors. In Table 3, p = .000 for all dimensions. According to this result, since all factors are p <.05, all hypotheses of the research (H1,H2,H3,H4,H5,H6) can be supported.

Table 3. One-Sample Test Results

Dimensions	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Accessible and economical	19.871	332	.000	.75000	.6758	.8242
Healthy and therapeutic	20.752	332	.000	.77703	.7034	.8507
Food products	25.971	332	.000	.99099	.9159	1.0661
Natural, organic and reliable	27.059	332	.000	.83784	.7769	.8987
Nutritional value	8.199	332	.000	.48649	.3698	.6032
Cosmetic use	8.261	332	.000	.34333	.2540	.4127

Descriptive statistics results for dimensions test performed in the One-Sample T Test indicated that the mean of all factors was greater than 3 (neutral). "Food products" factor has the highest mean value with 3.9910; mean of "cosmetic use" factor is 3.4333 and this mean is the lowest factor.

In fact, in studies aimed at measuring consumer attitudes, the fact that the mean is higher than 3.41 indicates that it is in favor of the variable (Tekin, 2002). The lowest variable mean in the test is greater than 3.41 (it is 3,4333). Table 4 presents the results of this test.

Table 4. Descriptive Statistics Results for Dimensions

	N	Minimum	Maximum	Mean	Std. Deviation
Accessible and economical	333	1.50	5.00	3.7500	.68877
Healthy and therapeutic	333	1.50	5.00	3.7770	.68329
Food products	333	1.67	5.00	3.9910	.69632
Natural, organic and reliable	333	2.25	4.75	3.8378	.56503
Nutritional value	333	1.00	5.00	3.4865	1.08271
Cosmetic use	333	2.00	5.00	3.4333	.73632
Valid N (listwise)	333				

Table 5 displays the decisions regarding the hypotheses of the One-Sample T Test of the study. As already mentioned, all hypotheses are in support for One-Sample T Test.

Table 5. Results of One-Sample T Test Hypotheses

Hypothesis	Result
H1: Participants collect and consume medicinal and aromatic plants from nature because they are accessible and economical	supported
H2: Participants collect and consume medicinal and aromatic plants from nature because they are healthy and therapeutic	supported
H3: Participants collect and consume medicinal and aromatic plants from nature because they are food products	supported
H4: Participants collect and consume medicinal and aromatic plants from nature because they are natural, organic and reliable	supported
H5: The participants collect and consume medicinal and aromatic plants from nature due to their nutritional value	supported
H6: Participants collect and consume medicinal and aromatic plants from nature for cosmetic use	supported

4.5. Correlation Analysis

After making decisions about the hypotheses about consumption of medicinal and aromatic plants collected from nature in Bayburt, correlation analysis was performed to see the correlation between the dimensions. Thus, it can be seen how the preferences of consumers about one element can change another element and Pearson Correlation test was used for this purpose. In correlation analysis; The relationship between "natural, organic and reliable" factor and "healthy and therapeutic" (r=.490), "food products" (r=.542)and "nutritional value" (r=.736) factors draws attention. By looking at the correlation coefficients (r); It can be said that the most critical element in the consumption of medicinal and aromatic plants is "natural, organic and reliable". On the other hand, the relationship between the "nutritional value" factor and the "cosmetic use" factor appears to be r = -.113. There is a negative and very weak relationship between these two factors. For the relationship between all dimensions in the test, p <.05, and therefore the $H7_1$ hypothesis (there is a correlation between the dimensions) is acceptable. In other words, there is a significant correlation between all variables. Table 6 points the results of the correlation analysis.

Table 6. Correlation Analysis Results

Dimensions		Accessible and economical	Healthy and therapeutic	Food products	Natural, organic and reliable	Nutritional value	Cosmetic use
Accessible and economical	**r**	1	.212**	.146**	.335**	.191**	.334**
	p		.000	.008	.000	.000	.000
Healthy and therapeutic	**r**	.212**	1	.442**	**.490****	.400**	.422**
	p	.000		.000	.000	.000	.000
Food products	**r**	.146**	.442**	1	**.542****	.402**	.335**
	p	.008	.000		.000	.000	.000
Natural, organic and reliable	**r**	.335**	.490**	.542**	1	.736**	.429**
	p	.000	.000	.000		.000	.000

Nutritional value	**r**	.191**	.400**	.402**	**.736****	1	-.113*
	p	.000	.000	.000	.000		.039
Cosmetic use	**r**	.334**	.422**	.335**	.429**	**-.113***	1
	p	.000	.000	.000	.000	.039	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

5. CONCLUSION

The plants used in the treatment of a disease are medicinal plants, while the taste and odorous plants are aromatic plants. Medicinal and aromatic plants are plants that can be consumed both as a medicine and as a foodstuff. Because of this feature; level of involvement is very high and is also widely consumed. There are many medicinal and aromatic plants in the province of Bayburt and these plants are collected by people living in this province and are consumed for various purposes. It is even used by some consumers for more than one purpose and thus becomes multi-purpose (for example; it can be consumed in many different ways such as cosmetic product, food supplement, medicine). In this study, the dimensions that cause consumption of medicinal and aromatic plants grown and collected in Bayburt province were tried to be determined.

The data obtained from this study showed that the most collected plant in the Bayburt region is in the labada (evelik) (*Rumeoc Patienta* L.). Rosehip (*Rosa* sp.) varieties and yemlik (*Tragopogon porrifolius* L.) plants are the second most collected plants in this region. Both of them are useable plants for food and some medicinal purpose, in addition they are widespread in the region. Also coriander according to this study; coriander (Coriandrum sativum L.), Madımak (Polygonum sp.) and mustard (Sinapis sp.) were the least collected plants from nature.

In order to obtain the results of the research, factor analysis was carried out for 25 items in the scale, and 6 dimensions emerged as a result of the factor analysis, and the consumers' preferences and purposes of consuming medicinal and aromatic products were tried to be understood. One-sample t test was performed to see this situation. As a result of the test, it is revealed that consumers have positive attitudes towards all variables. Because the mean of all variables is greater than 3 coded neutral option. Thus, all hypotheses of the research are acceptable. Consumers collect and consume medicinal and aromatic plants in Bayburt; because of these are "accessible and economical", "healthy and therapeutic", "food products", "natural, organic and reliable", "have a high nutritional value" and "cosmetic products". Consumers tend to consume these products mostly as food products. Subsequently, the consumers are respectively natural, organic and reliable; healthy and therapeutic; accessible and economical; due to nutritional value and intend to use it as the latest cosmetic product.

By looking at the correlation between the variables of consumption preferences of the plants, the relationship of these dimensions with each other was also revealed and thus the degree of influence to each other was tried to be seen. Although there is a correlation between all variables, the most remarkable variable is "natural, organic and reliable". The participants' thoughts on other variables are most influenced by this variable. Consumers' thinking about the variable "natural, organic and reliable" is in a medium relationship with "healthy and therapeutic" and "food products"; "nutritional value" is also in a high relationship. Therefore, if the participants' views that medicinal and aromatic plants are "natural, organic and reliable" increase positively, it may lead to a positive increase in the opinions about other variables and this may increase the motivation of consumers in Bayburt to use medical and aromatic plants. Because of this attitude and behavior of consumers; medicinal and aromatic plants become the subject of the enterprise, organic agricultural enterprises are increasing their activities in the point of growing or selling these products. This situation naturally raises the actions of marketing these products and enables the continuation of research on consumer attitudes and behaviors.

Limitations and Future Research

Limitations of the research; the number of samples and the number of items. It is possible to achieve different and perhaps even more consistent results with more participants and items and thus, consumers' preference for consuming medicinal and aromatic plants can be examined in more detail, subsequent research can be carried out taking these issues into account. In addition, instead of the consumption of medicinal and aromatic plants collected from nature in general, certain plants can be

selected, or by suggesting certain plants to the participants, their behavior and attitudes towards consumption of those plants can be understood. The " chi square", "independent sample t test" and "one way anova" tests can be performed to determine whether there is a difference in preferences of consumers according to their demographic characteristics or whether there is a correlation between demographic characteristics and dimensions. Thus, findings regarding consumer attitudes can be revealed. In addition, these plants, which are free goods, are transformed into economic goods in Bayburt. They are collected and sold by farmers, tradespeople and sellers. Therefore, researches can be made on the marketing activities or consumer behaviors of these products.

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