Consumer Behaviour of Herbal Medicine Products Among Some Agriculture College Student

Research project

Submitted to the department of Field crops in partial fulfillment of the requirments degree of BSc. In Agricultural Engineering Sciences

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INTRODUCTION

According to the pharmacological study, the flowers discovered in the tomb of Shanidar IV of the Neanderthals have powerful medicinal properties. Based on the results, it is more likely that this possibility was the driving force behind choosing plants for burial instead of an aesthetic one. Furthermore, Shanidar IV flowers may have been chosen deliberately for therapeutic reasons, with remarkable medicinal properties, which may have been another reason for their use during the Middle Paleolithic Shanidar Neanderthal era (Abbott, 2014; Lietava, 1992).

Medicinal plants are used for therapeutic and disease prevention purposes, but can pose risks depending on the conditions of consumption (Sökmen and Gürel, 2001; Khadka et al., 2021). Medicinal and aromatic plants have been used for centuries in food, spices, and herbal medicine. Currently, they are widely used as food, food additives, pharmaceuticals, cosmetics, perfumes, spices, beverages, dyes, and pesticides and due to their antiviral and antioxidant properties (Karabak, 2017). Plants are important sources of medicine for thousands of years and are the most important source of life saving drugs for majority of the worlds' population. Thus, the cultivation of some plants such as cumin, poppy and anise has been present since prehistoric times. Herbal medicine is a traditional or folk medicine practice based on the use of plants' seeds, berries, roots, leaves, bark, flowers and plant extracts for medicinal purposes (Keykubat, 2016;Petrovska, 2012).

There are more than 3300 species of plants in Iraq, of which more than 75% are in northern Iraq, especially in Erbil province. Many of them are edible and many are endemic, meaning they only grow in those regions. It is a great treasure that deserves to be appreciated. Although some of them are known across the country such as nettles, sage and thyme. While some are used for more medicinal purposes, others add flavor to our food, others increase the nutritional value of cheese, and still others add variety to the table in winter when other vegetables are absent. It would be difficult to summarize all wild herbs from Iraq in one topic, so here we will talk about the most famous of them, their uses and properties.

Sabra and Walter (2001) and Handa et al. (2006) reported that around 35,000 to 70,000 plant species are utilized for medical reasons worldwide, with Asia accounting for 6,500 of them. Iraq is known for its enormous range of wild plants due to its geographical diversity and shifting climatic conditions. Thus, traditional health practitioners' systems of traditional knowledge are in jeopardy owing to strained relationships between generations. Moreover, due to the region's climatic variability and different biological environments, Iraq has a large variety of plant species (Youssef, et al, 2019; SEZEN, et al., 2018; Ghazanfar, 1994)

Kurdistan region -Iraq has poor coverage of health care services, with less than half of the population having ready access to healthcare and people might even be constrained because of costs (Hossain et al., 2022; Abed et al., 2021; AL-Abrrow et al., 2021).

The main characteristics of Herbal Medicine are as follows:

- They are available locally and their use is based on traditional ecological knowledge.
- They are a low-input, low-cost option to increase nutrition and reduce the need to spend limited cash.
- They offer greater benefits for vulnerable populations, who are often disproportionately affected by climate events.
- They contribute to the livelihood and are available in times of drought or famine caused by conflicts.

Plant resource groups are an essential part of human life in Erbil, but issues related to wild herbal plants and incomes have been overlooked. This study was significantly important to enable explaining how the participants (students) in the College could get more value and benefit from herbal medicine using. The current research on consumers (participants) medicinal plant species demonstrates a wide range of traditional cultural and socioeconomic assets held by students in the College.

The Aim of study

❖ To identify the rate of ethnobotanical use in the college, the reason for consumption, and the students' beliefs and good knowledge of ethnobotanicals' effects among (third and fourth class) agricultural engineering students.

❖ The student's perspective on the consumption and use of medicinal plants is presented.

❖ Initiated to determine the conservation status of Medicinal and Aromatic plants, as well as to prepare an ethnobotanical inventory of the plant resources of the study area.

Material and Methods

Study Procedure of Participants

135 individuals were identified from the study area. Among them were students of a third stage (all departments) and a fourth stage that included departments (field crops, plant protection, food technology and Animal resources), the data collected from these individuals reflects the entire community. Finally, a question was developed with the students (face-to-face questionnaire) to determine their view on the use of traditional folk remedies and the promotion of the preservation of botanical diversity and indigenous knowledge. In addition, the criteria for selecting individuals was a face-to-face interview; All interviews were conducted in English with explanations and explanations in Kurdish (or according to the participant's language). The questionnaires were distributed randomly to the participants without their knowledge of herbal medicine and the traditional health care system.

Data Analysis

Collected data should be edited and coded to get ready for analysis. After data collection, two steps should be followed. Before data analysis, this raw data should be ensured clean and free from incompleteness and mistakes. After editing, the data should be coded. In contrast, the researchers coded each variable based on the type of variable such as nominal, ordinal, and altitudinal variables. After performing these procedures, the data are ready for analysis. The data were entered into the computer by using software programs such as EXCEL as a first step. After data were entered into the EXCEL program, Statistical Packages for Social Sciences (SPSS) was used by the researcher to analyses the data.

Results and Discussion

Socio-demographic characteristics of Participants

The environmental challenges, poor quality and quantity of medicines, people's control over the trade-in imported medicines, and contemporary diseases have all contributed to a diversification of the reasons people utilize medicinal plants, resulting in greater consumption. Because of a lack of knowledge, the increased demand leads to abuse and misuse. As a result, people should be educated on the proper use and dose of medicinal plants, and most importantly, they should be made aware that they are permeable resources. In terms of the sustainable use of plants and the preservation of traditional knowledge, creating this awareness is especially important for younger generations (Weckmüller et al., 2019; WHO, 2019).

Descriptive statistics for respondents' socio-demographic characteristics were given in Table 1a. The current study used four socio-demographic variables in questionnaires. The results show that 63.7% of the participants were female and 36.3% female. Among the above participants, 91.1%, 7.4% and 1.5 were single, married and divorced, respectively. The share of participation nationalism the Kurd (96.29%), Turkmen (2.962%) and Arab (0.740%). finally, 69.6% were third class while 30.4% are Fourth class.

Table.1a . Socio-demographic characteristics of respondents (n=135)

Variables	Descriptions	Frequencies	%
Gender of respondents	Male	49	36.3
	Female	86	63.7
Marital status of respondents	Divorced	2	1.5
	Married	10	7.4
	Single	123	91.1
Nationalism	Arab	1	0.740
	Kurd	130	96.29
	Turkmen	4	2.962
Undergraduate stages(Classes)	Third class	94	69.6

	Fourth class	41	30.4
Total		135	100

As shown in Table 1b, the highest percentage of participants (20.7%) were field crop department students, while 5.9% were fish department students. Moreover, descriptive statistics for respondents are presented in Table 1b. Shows that, the monthly income of 25.9% of the participants was between (201,000 to 300,000) Iraqi Dinar has a highest income and. However, less than 5.9% of respondents had incomes less than 100.000 IQD.

Table.1b. Socio-demographic characteristics of respondents (n=135)

Variables	Descriptions	Frequencies	%
income monthly involved in the study	101,000-200,000	30	22.2
	201,000-300,000	**35**	**25.9**
	301,000-400,000	20	14.8
	401,000-500,000	18	13.3
	Less than 100,000	8	5.9
	More than 501,000	24	17.7
Departments	Field Crops	28	20.7
	Food technology	22	16.3
	Plant protection	20	14.1
	AnimaI Resources	19	14.1
	Forestry	15	11.1
	Horticulture	13	9.6
	Soil & water sciences	10	7.4
	Fish	8	5.9
Places	Akri	2	1.48
	Duhok	3	2.2

	Hawler	**109**	**80.7**
	Kfri	1	0.74
	Mergasor	3	2.2
	Choman	2	1.48
	Rwandz	1	0.7
	ShaqIawa	3	2.2
	Shexan	1	0.74
	Slemani	1	0.74
	Soran	11	8.14
Total		135	100

The share of most of the participants who belonged to Hawler (Erbil), which were 109 (80.7%), was high because Hawler is the city center of the study area, and at the same time the majority of the population tracked their location. Their origins go back to three regions, but they now live in the center (Hawler). However, the fewest participants were within the districts of Kfri, Rwandz, Shexan, and Slemani, with 0.74%.

Table 2. Use and growing of medicinal and aromatic plants

Variables	**Description**	**Frequency**	**Percent**
Do you propagate (growing) the native medicinal plants in your garden?	No	73	54.1
	Yes	62	45.9
Have you ever use traditional herbal medicines before?	Yes	62	45.9
	No	73	54.1
Total		135	100

Information on the purpose of growing medicinal and aromatic plants of the participants is given in Table 2. It can be seen that about 45.9% of respondents had some sort of medicinal plant in their garden compared to 54.1% who has not. The local people collect wild plants and use them as part of their health care due to their cheapness and ease of access, especially in Kurdistan region.

Faber and Laurie (2011), in South Africa, have proposed horticultural and nutritional education activities woven together into a home garden strategy that uses community growth monitoring as an entry point. Fruits and vegetables (some of them wild plants) that are high in vitamin A have a significant impact on meeting the

nutritional requirements for vitamins and other micronutrients. Vitamins and other nutritional deficiencies can be mitigated by growing food at home. Therefore, they are suggested to people for the cultivation and propagation of plants in their gardens.

Table. 3 How have you learned to use medicinal plants?

Variables	Frequency	Percent
By book/magazine	21	15.6
By family member	34	25.2
Friends	13	9.6
Internet	49	36.3
Media	18	13.3
Total	135	100.0

According to the results in table 3, The 49 (36.3%) of the participants acquired or learned the use of medicinal plants through the Internet. Consequently, 34 (25.2%) of respondents referred to certain knowledge transferred by their parents, and 21 (15.6%) of the research sample claimed to have obtained the information from a book or magazine. Furthermore, among the samples, 13.3% and 9.6% of the respondents received information about medicinal plants from audio media and friends, respectively. The participants learn how to use herbal medicine from the internet, their families, the media, and books and magazines.

Table. 4 Do you agree with medical quality drugs in KRG?

Descriptions	Frequency	Percent
No	51	37.8
To some extend	39	28.9
Yes	45	33.3
Total	135	100.0

According to results in table 4. Showed that 51(37.8%) of the participants do not satisfy with Kurdish Regional Government (KRG) health system and do not have confidence about country medicines currently. The reason may be due to the competent authorities' neglect of the health sector in terms of the lack of health insurance, the lack of advanced examination devices, the lack of services, the quantity and quality of medicines, the lack of public hospitals compared to the population of the regions, the high-priced of medicines, and the high cost of private hospitals. In addition, it can be observed that factors such as the individual's own health, people's understanding, as well as no data observed of some plants such as medical plants by participants, for example, walnuts, lemons, and almonds play a crucial role in the impact of outcomes.

Table 5. Which of the following methods do you prefer, when you get ill (sick)?

Variables	Frequency	Percent
First Herbalist and then Hospital	6	4.4
Herbalist	8	5.9
Hospital and then Herbalist	10	7.4
Hospital	111	82.2
Total	135	100.0

The reason for different methods of traditional uses of herbal medicine is shown in Table 5. If the participants have a health problem, their choices are the hospital, only herbalist, first hospital and then herbalist, and first herbalist and then hospital. Hospital is used 111(82.2%), prefer than other methods, while, first herbalist and then hospital 6(5.9%) among 135 students, which is the smallest share. Indicators and reasons for participants' first preferences in case of a health problem are presented in Table 5. the reason to feel safe in hospital is due to expensive drugs for only herbals, without social insurance for first hospital and then herbalist, and do not want to utilize the drug for first herbalist and then hospital. These results agreement with the results of Abdullah

et al. (2016), who reported that it is difficult to obtain drugs due to the high costs, quality and quantity of drugs. As a result, many diseases that are treated with traditional remedies are interrelated to the health of local peoples, as well as compelled to use medicinal plants. On the other hand, many healers presently use a recipe of modern and traditional remedies.

Conclusion

Herbal products are becoming increasingly popular due to their health benefits, but there is a risk of adverse effects due to lack of research. Research should be conducted with the goal of minimizing error, and medicinal herbs have a lot of options and flexibility for fighting disease.

In addition, scientific information regarding dose, efficacy and contraindications should be provided to consumers. To accomplish this, global harmonization of regulations is required to govern ethical herbal medicine production and marketing. If there is sufficient scientific proof of a herb's value, such law should enable it to be utilized correctly to promote its use in order to accomplish these advantages for the promotion of public health and sickness treatment (Ekor, 2014; Wachtel-Galor and Benzie, 2011).

The aim of the research was to identify and document medicine plants, socio-economic aspects of plant resources, and to find out and approximate students' knowledge about their knowledge towards medicinal plants. For this purpose, interviews were conducted with students in different departments and stages of their studies in the College of Agriculture. The results of the study showed that many of the students believed in going to the hospital instead of going to the herbalist and were also less interested in recording and preserving ethnic folklore and medicinal plants.

Recommendations

➢ Research institutions, universities, agricultural regional directorates, and local governments should work together to safeguard medicinal plant ecosystems and traditional applications.

➢ The shortage of agricultural land, informal governance arrangements, and poor regulatory frameworks, which restrict the advantages that may be derived from the cultivation of medicinal and aromatic plants on private property, preclude their recognition as viable livelihood strategies.

➢ There seems to be little motivation for individuals to engage in and care for plant resources under the existing conditions.

➢ We must act now to protect medicinal species and our remaining biological diversity, or risk losing them.

➢ Ethnobotanical research often benefits from the cooperation of local peoples. Research findings gleaned from studies on ancient traditions should be routinely presented at scientific conferences.

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Appendix

QUESTIONNAIRE FORMAT FOR ETHNOMEDICOBOTANICAL STUDY

Dear Sir / Madam

    We are currently a BSc. Final class from Salahaddin University-Erbil, College of Agriculture Engineering Sciences. Department of Field crops and Medicinal Plants.

    My research is about (**Herbal Medicinal uses by all third and fourth class students of College of Agriculture Engineering Sciences**). Participation in this interview is volunteer, and data confidentiality of participants is taken into account thus, names are not expected to be mentioned. I highly appreciate your time and value your information for this research. This questionnaire takes 15-20 minutes of your precious time. If you feel uncomfortable or wish to skip a question, kindly inform me.

Kind regards

Kwstan Fars Anwar and Chro Mofaq Mhyaddin

Part One: Background Information

Gender: ☐ Male ☐ Female

Age: ....

Education level ☐ Second class ☐ Third class ☐ Fourth class

Marital Status ☐ Married ☐ Single ☐ Divorced

Departments ☐ Horticulture Dept. ☐ Forestry Dept. ☐ Plant Protection Dept. ☐ Soil & Water Sciences Dept. ☐ Animal Resources Dept. ☐ Field Crops and Medicinal Plants Dept. ☐ Food Technology Dept. ☐ Fish Resources and Aquatic Animals Dept.

Monthly income (IQD) less than 100,000 ☐ 101,000-200,000 ☐ 201,000-300,000 ☐ 301,000-400,000 ☐ 401,000-500,000 ☐ more than 501,000

Religion ☐ Islam ☐ Christian ☐ Yazidi ☐ Others

Nationalism ☐ Kurd ☐ Arab ☐ Yazidi ☐ Turkman ☐ Christian ☐ Others

The place of your living (location): Village_____ District_____ Town_____

Part Two:

1. Please answer the followings by (Yes) or (No) by tick (√)

Question	Yes	No

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Do you have a social insurance?		
Do you propagate (growing) the native medicinal plants in your garden?		
Do you have the native herbal plants in your garden?		
Have you ever used traditional medicine before?		
Do you suggest to your friends to use medicinal plants?		
Have you ever noticed any healthy problem because of using the medical plants?		

2. Do you use medical plants for medicine or food purposes?

☐ Medicine   ☐ Food   ☐ both of them

3. If you use medicinal products, how long have you used?

☐Once a day   ☐Once a week   ☐Once a month   ☐only once

4. How have you learned to use medicinal plants?

☐By family member   ☐By book/magazine   ☐Media   ☐Friends ☐Internet

6. Does your financial situation effect on your choice of healthcare provider?

☐YES   ☐to some extend   ☐NO

7. Do you satisfy with KRG health system?

☐YES   ☐to some extend   ☐NO

8. Do you agree with medical quality in KRG?

☐YES   ☐to some extend   ☐NO

10. For how many years you have used medicinal plants. …..years

11. How do you assess the level of using medicinal plants in Kurdistan Region?
☐Very low   ☐Low   ☐Average   ☐High   ☐Very high

12. Which of the local medicinal plants do you use more; mention the name of plants (not more than 5 plants?

13. Which of the following methods do you prefer, when you get ill (Sick)?

Place	Reason	
☐Hospital	☐I feel safe. ☐In order to be inspected in a wide scale ☐To get a good treatment	☐For Expert physicians ☐Because I have social security ☐Other ....
☐First hospital and then herbalist	☐For expert specialist physicians ☐For large-scale inspection ☐Because of my social security ☐I do not want to use due to side effects of the drugs	

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	☐To be a supplement for the medicines given at the hospital ☐Other ....
☐First herbalist and then hospital	☐Because I do not have social security ☐I do not want to use because of side effects of drugs ☐Because I do not take my disease seriously ☐When I could not heal myself because I have to I am in need ☐Due to expensive Drugs ☐Other ....
☐Only Herbalist	☐Because I do not have social insurance ☐I do not want to use the drug ☐Because of having Naturopathy ☐Because of the density (intensity) in the Hospital ☐Due to expensive Drugs ☐Other ....

14. Share your opinion by tick the following solutions to the issues

Issues	Solutions
When you get ill, (having an ailment), do you take medical drugs at first or you take advantage of (plants) herbs?	☐I will get medical drug ☐I will go to herbalist
Which plant parts do you use?	☐Flower ☐Stem ☐Leaves ☐Seeds ☐Fruits ☐Roots ☐Bulbs ☐Bark
Medicinal uses:	☐Dermal ☐Internal ☐Anti-cancer ☐Sexual ☐Nutrient ☐Others
Traditional uses:	☐Food ☐Medicinal ☐Nutrient ☐Cultural ☐construction & Houses ☐Others.
Sources of herbal medicine plants:	☐Market ☐Nature ☐Cultivation ☐Others
Sources of Ethnobotanical knowledge:	☐Ancestors ☐Media ☐Neighboring ☐Others
Is conservation for herbal medicine plants necessary?	☐Yes ☐No
How do you assess the knowledge of people in terms of medicinal plants in Kurdistan region?	☐Below average ☐Average ☐ Good ☐Excellent

15. Do you recommend give information about local medicinal plants to young generation?

☐Yes ☐No

Thank you for your time