

Investigation of the Awareness Level of the Medicinal and Aromatic Plants Garden of Inonu University Faculty of Pharmacy on the Students of the Faculty of Pharmacy

Narin SADIKOGLU* 

* Department of Pharmacognosy, Faculty of Pharmacy, Inonu University, Malatya, Türkiye

ABSTRACT: A survey study was conducted to shed light on the accreditation studies of the Faculty of Pharmacy of Inonu University and to determine the awareness level of the Medicinal and Aromatic Plants Garden of the faculty's on the faculty students. According to the data of the study in which 242 students participated, the courses taken in the Medicinal and Aromatic Plants Garden of Faculty of Pharmacy made a full contribution to the students getting to know the medicinal plants better and easily remembering the active ingredient contents when they saw the plant. The existence of the garden encourages most students to take further education in medicinal plants, and to grow medicinal plants as well as to prepare and sell herbal products when they own a pharmacy.

Key Words: Students of faculty of pharmacy, Inonu University Faculty of Pharmacy, medicinal plants, medicinal and aromatic plants garden, Malatya.

1 INTRODUCTION

Especially in recent years, it is seen that the public is exposed to information that is far from the truth about medicinal plants due to popular sources written by non-experts, television programs and even social media contents. However, in the Faculties of Pharmacy, which is the only place where education is given on indications, contraindications, side effects, interactions with drugs, food and other plants of medicinal plants, students graduate with the theoretical and practical training they receive in the classrooms and in the laboratories [1]. On the

other hand, in faculties that have a garden where medicinal and aromatic plants are grown, students receive practical training in the garden in addition to these and graduate with their knowledge reinforced. In addition, students from primary school to high school visiting the garden, the teachers who accompany them and those who are interested in amateurs will have the opportunity to correct their environmental misconceptions and incomplete knowledge, as well as some useful information they will add to their daily lives [2].

*Corresponding Author: Narin SADIKOGLU
E-mail: narin.sadikoglu@inonu.edu.tr
Submitted: 29.08.2023 Accepted: 11.10.2023

Herbal drugs are very important in pharmacy education. Medicinal and Aromatic Plants Garden of Inonu University Faculty of Pharmacy, is a laboratory where the plants are shown in live form to the students who take the courses of Pharmacognosy and Pharmaceutical Botany Departments and contribute to education. An important part of the herbal materials required for student laboratories are provided here [3]. All or parts of the lessons on medicinal plants are held in the garden. Especially, students who prepare a graduation thesis in their last year have the chance to experience the stages from seed to product. In addition, students who wish can work voluntarily in the garden.

Inonu University Faculty of Pharmacy was accredited in 2023 [4]. In this process, various opinions were taken from the students in order to contribute to the development and sustainability studies. In this study, it was aimed to investigate the contribution of the Medicinal and Aromatic Plants Garden in the Faculty of Pharmacy of Inonu University to the awareness levels of the students of the Faculty of Pharmacy.

This study was presented as an oral presentation at the 3rd National Botanical Gardens Symposium (Gaziantep- 23-25 March 2022), but it has not been published

anywhere before because no summary or full-text book of proceedings was prepared for the meeting [5].

2 MATERIALS AND METHODS

A questionnaire containing 31 questions was applied to the 3rd, 4th and 5th grade students of the faculty, stating that it would be used in the accreditation process and shared in the scientific environment, with the permission of the dean's office. The reason for choosing these classes is that during the study period, there is a compulsory course to be held in the garden in the 4th grade, in addition to the elective courses in the garden in the 5th grade, these students took courses in the garden the previous year and there were no courses to be held in the garden in the 3rd grade. Thus, in order to make an objective comparison of the effect of taking courses in the garden, three classes consisting of those who have taken one or more courses and those who have never seen them have been selected. The reason why 1st and 2nd year students were excluded from the study is that they are not very familiar with the faculty. Because the 2nd year students were restricted due to the pandemic in the year they enrolled in the faculty and were still in the adaptation process like the 1st year students.

When the spring semester of the 2021-2022 academic year started, each class was given a question paper before the lesson and they were immediately answered, and it was collected back and applied to the students who did not come in the next lesson. There was no one who did not want to participate in the survey, and everyone answered helpfully. It was aimed for all students to participate in the study, but 31 students could not participate because they did not come to faculty due to reported illness, registration freeze and absenteeism. Of the survey questions, 10 of them have 2 point (Yes / No) answers and 20 of them have 5 point (Strongly agree / Agree / Undecided / Disagree / Strongly Disagree) answer options. Only gender information was asked as a demographic question. Name, number or any contact information was not taken in order to reflect the truth without hesitation while answering. The questions were not taken from anywhere; they were prepared by the author completely amateurishly and in accordance with the purpose.

3 RESULTS AND DISCUSSION

As of February 2022, there are a total of 485 students, 308 females and 177 males, at the faculty (Figure 1.A). Among the students, 273 of these students are 3rd, 4th, and 5th grade students and it is aimed

to apply a questionnaire (Table 1). A total of 242 students, 93 from the 3rd grade, 90 from the 4th grade, and 59 from the 5th grade, participated in the survey. A total of 31 students, 9 from the 3rd grade and 22 from the 5th grade, could not be surveyed (Table 2). Although there is no course to be held in the garden of the 3rd grade, 4 students from the 3rd grade have taken courses in the garden and the reason is that they have taken the 4th grade upper class. Although there was a course to be held in the garden of the 4th grade, 6 students from the 4th grade did not take a course in the garden. These are the students who could not take courses because their credits were not enough, but they voluntarily helped with gardening. Of the students, 124 students took courses, 118 did not (Figure 1.B). The number of students who stated that they worked voluntarily outside the scope of the course was 74 (Figure 2.A). Considering the distribution according to classes, it was determined that 7 students from the 3rd grade, 41 from the 4th grade and 26 students from the 5th grade worked voluntarily. When asked whether they would like to help with gardening voluntarily, the majority of the 5th graders (36 students) stated that they wanted to volunteer, while the rate of willingness was half in the 3rd and 4th grades (Figure 2.B).

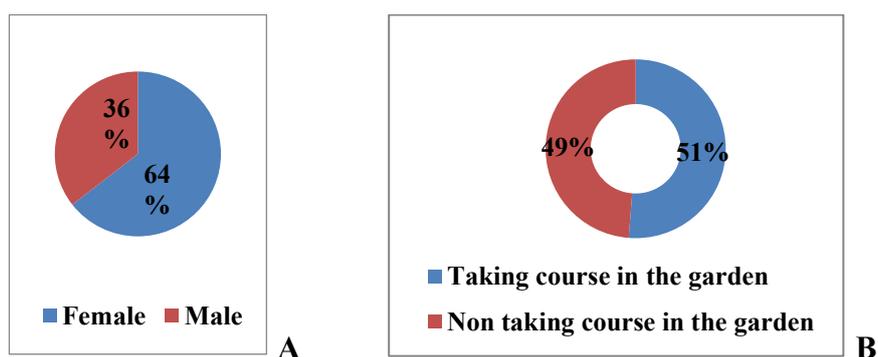


Figure 1. Distribution of students participating in the survey **A.** Gender, **B.** Course taking.

Table 1. Distribution of faculty students.

Faculty Students	Current	Aimed to be survey	Surveyed
Female	308	174	156
Male	177	99	86
Total	485	273	242

Table 2. Distribution of the students who were surveyed.

Classes	Gender	Current	Surveyed		
			Total	Taking Course	Non Taking Course
3	Female	63	58	3	55
	Male	39	35	one	34
	Total	102	93	4	89
4	Female	59	59	58	one
	Male	31	31	26	5
	Total	90	90	84	6
5	Female	52	39	24	15
	Male	29	20	12	8
	Total	81	59	36	23
Total		273	242	124	118

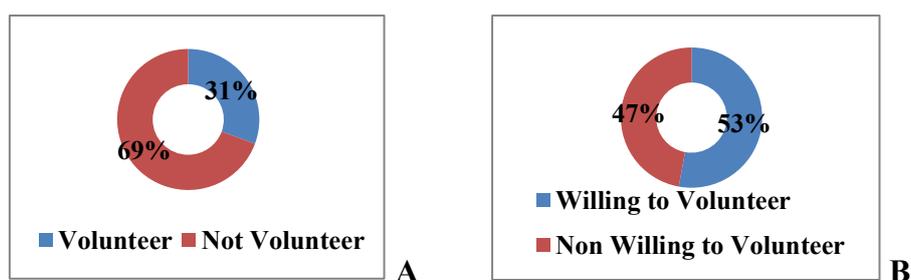


Figure 2. **A.** Volunteering, **B.** Willingness to volunteer.

When asked if they wanted courses in the garden, 80% gave a positive answer, and 82% when asked if they wanted to increase the number of courses to be taught in the garden (Figure 3.A, B). The number of students with soil experience is more than half in each class (Figure 4.A). It was

clearly seen that the students who worked in the field or in the garden easily did the work in the faculty garden compared to the others. The number of those who intend to produce medicinal plants in the future is 191, 72 students from each of the 3rd and 4th grades, and 47 students from the 5th grade (Figure 4.B).

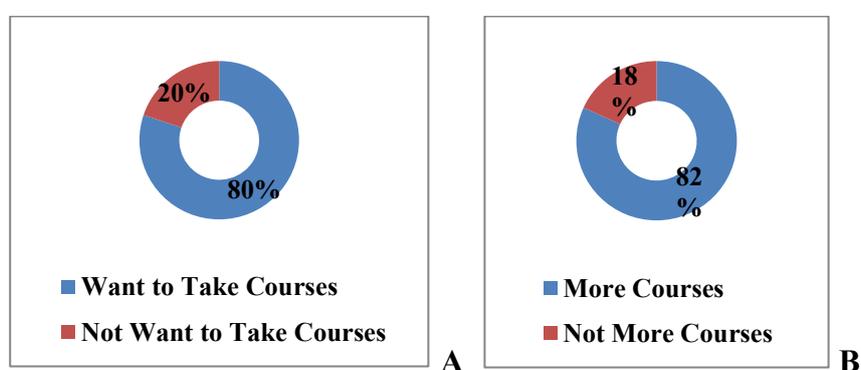


Figure 3. A. Desire to take courses in the garden, B. Desire to take more courses in the garden.

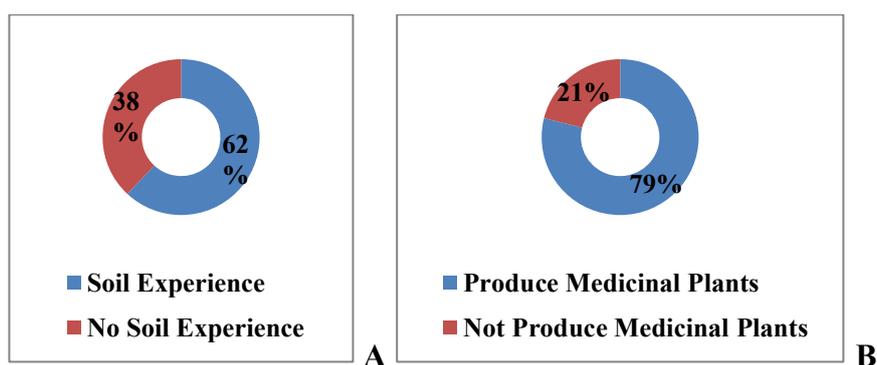


Figure 4. A. Soil experience, B. Production will.

The number of those who think to include herbal products when they own a pharmacy is 231, and 2 students from the 3rd grade, 6

from the 4th grade and 3 from the 5th grade stated that they do not want to sell (Figure 5.A). Those who think about preparing

herbal products in their pharmacies are again in the majority and those who stated that they do not want are 6 students from the 3rd grade, 12 from the 4th grade and 3 from the 5th grade (Figure 5.B). The rate of those who are considering taking postgraduate education (in-service training, courses, graduate degrees, etc.) on medicinal plants

is 76% (Figure 5.C). Of those who stated that they do not intend to receive education, 27 are from the 3rd grade, 20 from the 4th grade, and 10 from the 5th grade. When students move on to advanced classes, an increase in their desire for education is observed. Since a quarter of the seniors did not participate in the survey, it can be expected that this rate would increase even more if they did.

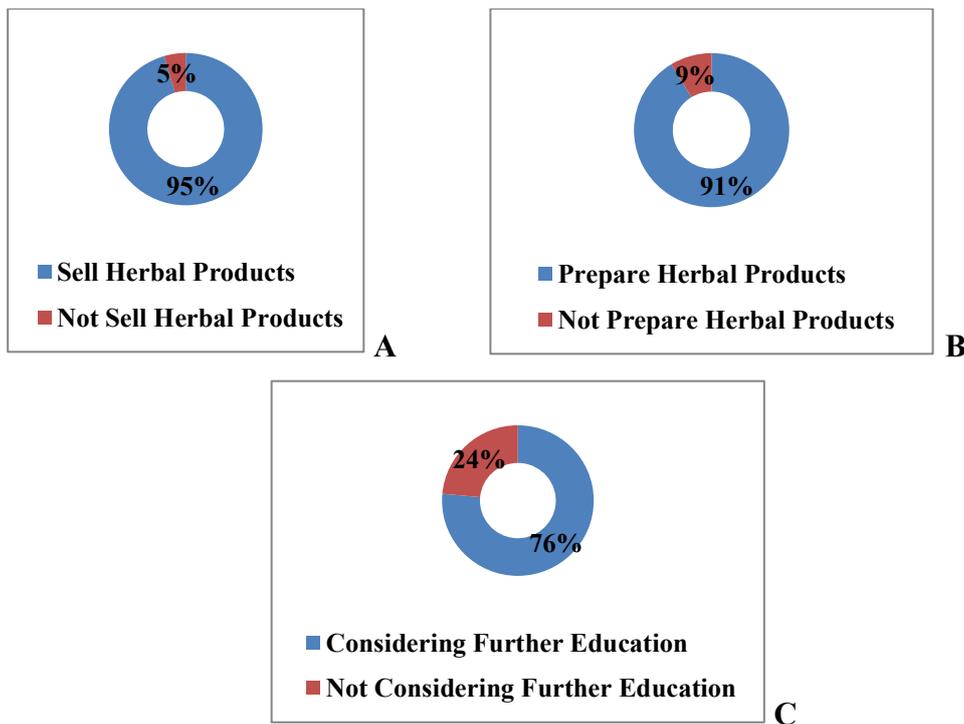


Figure 5. A. Willingness to sell, B. Willingness to prepare, C. Training prompt.

Almost all students (except 1-3 students from each class) think that with taking courses in the garden, they will be able to recognize medicinal plants better, remember the names of medicinal plants more easily, keep their effects in mind more easily, to have an idea about growing medicinal plants and increase their knowledge in the process starting from seed to product development. They also mostly agree that dealing with the soil will reduce stress, enjoy drinking the tea of the plants they have helped to grow, also enjoy developing products from these plants and, that taking courses in the garden will positively affect their success in the exam. Those who did not participate are mostly from the 3rd grade students who did not take lessons in the garden.

It has been determined that they do not have much knowledge about soil conditions required for growing medicinal plants, and drug collection and preparation. It is a known fact that especially graduates of Medicinal and Aromatic Plants Cultivation department will have full knowledge on this subject. Although the students of the Faculty of Pharmacy are not expected to have a good command of the subject, these questions were included in the questionnaire in order to observe the change in the situation as they take more

courses in the garden in the future. It has been observed that this knowledge, which the uneducated can acquire by practicing and spending a lot of time in the garden, is 1/3 even among the students who have taken courses in the garden, but it has been clearly observed that as the experience increases, those who work as extra volunteers outside of class hours have clearly shown improvement. Students working in the garden have become able to recognize some important medicinal plants when they see them in nature. They state that they can recognize some important plants used in the preparation of medicinal teas and as spices, as well as some poisonous plants. Among those who do not work in the garden, the number of those who say they can recognize them is less. These students are 3rd year students who have seen plants in theoretical courses and have come to the garden only for visiting purposes. It is seen from the answers they give that they want to be in the garden even though they had not yet taken a course in the garden, and that they envy those who take courses.

There were also students (12 from 3rd grade, 21 from 4th grade, 7 from 5th grade) who stated that they did not agree, although they were expected to participate in professional matters such as herbal

products are important in treatment, herbal medicines have therapeutic effects, and counseling the patient about the use and effect of medicinal plants is among the duties of the pharmacist. Those who are undecided on these issues are 20 students from the 3rd grade, 30 students from the 4th grade, and 15 students from the 5th grade. Most of the students think that herbal medicine or natural products will take place more in pharmacies in the future. Those who do not think are 11 students; those who are undecided are 20.

It was planned to develop the questionnaire and repeat it every year at the end of the year, to increase the quality of education in the garden accordingly, and to publish the results on the faculty website. In addition, it is thought that conducting a survey for each course to be held in the garden and publishing the results by combining them will encourage the opening of new courses and the improvement of the existing ones.

4 CONCLUSIONS

It has been determined that the students are generally satisfied with working in the garden, they want to take more courses in the garden, they take the stress of dealing with gardening, they like to develop products from the plants they

contribute to their growth, they want to prepare and sell herbal products in their pharmacies and grow medicinal plants in the future. It has been concluded that the presence of the Medicinal and Aromatic Plants Garden in the faculty contributes to better knowing the plants and the success rate in the exams. It is clearly seen from the answers given by the students who have taken courses in the garden and those who have not, that teaching in the garden contributes to the student. It is possible to say that the existence of the garden creates an awareness compared to the absence of a garden, even for the students who have not taken a course in the garden.

Medicinal plant gardens are very important for Pharmacy Faculties. Cultivating the plants used in drug making, like the old pharmacists, will provide an advantage to the students in terms of both predisposing to the preparation of magistral drugs and being ready for the processes in the preparation of traditional herbal medicinal products. The establishment of these gardens in other Pharmacy Faculties should be encouraged.

5 ACKNOWLEDGMENTS

I would like to thank to Prof. Dr. Kadir BATÇIOĞLU, dean of the faculty who gave me the idea to create this work

and the faculty accreditation committee members for their support in preparing the survey questions.

6 AUTHOR CONTRIBUTIONS

Hypothesis: N.S.; Design: N.S.; Literature review: N.S.; Data Collection: N.S.; Analysis and/or interpretation: N.S.; Manuscript writing: N.S.

7 CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

8 REFERENCES

[1] Anonim. ECZAKDER Öz Değerlendirme Raporu, İnönü Üniversitesi Eczacılık Fakültesi, 2022.

[2] Sadıkoğlu N. İnönü Üniversitesi Tıbbi ve Aromatik Bitkiler Bahçesi Oluşturulması. Malatya, İnönü Üniversitesi BAP, Gündümlü Proje No: 2013/34, 2016.

[3] Sadıkoğlu, N. Yeniden Canlandırma Sürecinde İnönü Üniversitesi Tıbbi ve Aromatik Bitkiler Bahçesi. Ulusal Botanik Bahçeleri, Arboretumlar, Herbaryumlar ve Botanik Müzeleri Çalıştayı, 18-21 April 2019, Düzce, Proceeding Book, 78.

[4]

<https://www.inonu.edu.tr/eczacilik/>
23 June 2023

[5]

[https://ubbs2022.com/Sempozyum/sempozyum-programi/15/18 March 2022](https://ubbs2022.com/Sempozyum/sempozyum-programi/15/18%20March%202022)