



RESEARCH ARTICLE

STUDY OF THE DETERIORATION OF MEDICINAL PLANTS IN THE BOUTRABA AREA OF AL-JABAL AL-AKHDAR IN LIBYA

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ARTICLE DETAILS

Article History:

Received 08 April 2022

Accepted 10 May 2022

Available online 17 May 2022

ABSTRACT

The study dealt with the deterioration in the vegetation cover for medicinal plants and draining it in the Boutraba region, as it is an area where many plant species are used in the treatment and installation of many types of medicinal drugs, the scope of this study is located within of the Mediterranean climate in the Jabal AL-Akhdar region on the first edge in the north- Eastern Libya, which is known for its abundance of annual plants, in which annual plants are associated with rain, as their number increases with the increase in the amount of rainfall. The vegetation cover in the Boutraba region is characterized by the presence of types of annual herbal plants and longitudinal perennials. The study showed the presence of 10 types of medicinal and aromatic plants distributed over 3 families, 4 genera, de-seeded 1 and covered with seeds. It includes dicotyledonous plants 7 species and contains 7 genera, while monocotyledonous plants, while monocotyledonous plants include one family containing two species and two sexes. Cotyledonous plants include 1 type 1 and contain On genus 1, where the risk of deterioration of the vegetation cover due to natural and human factors led to its deterioration and depletion.

KEYWORDS

green mountain; plant species; Libyan flora; human activities (overgrazing, logging).

1. INTRODUCTION

Medicinal and aromatic plants have been known for thousands of years in which man lived and experimented with plants that grow around him, and These plants were used in the field of medicine and the preparation of some popular foods, as the local population relied on providing these types of plants from the vegetation cover and the surrounding forests, and where the interest in medicinal and aromatic plants increased and the need for them became necessary after the spread of many folk healers and the provision of appropriate treatment for many Diseases (Jafri and Ai-Gadi, 1977-1987). Without the presence of side effects and a move away from chemical drugs that negatively affected the immunity of infected people, the medicinal and aromatic plants used are considered to be relevant. The used ones are of economic value like others and are important, as medicinal plants are the main component of raw materials focused on the manufacture of medicine in the world. the books also referred to the composition of the active substance in Medicinal plants, and a medicinal plant has been defined as a plant that contains all or one of its parts active substances that have a physiological effect on living organisms, and given the large and continuous consumption of medicinal plant species and wrong practices can be identified (Ali and Jafri, 1976-1977). For humans, the main reason for the deterioration of plants in the study area is due, whether directly in The pastoral and forest areas were subjected to overgrazing by herds of animals (sheep, cows and goats) randomly and without taking into account the grazing load. As a result, the vegetation cover was eliminated and plants were not allowed to form seeds, (ACSAD 1971) Atlas of Medicinal and Aromatic Plants in the Arab World - Arab Center for Studies of Arid Zones and Arid Lands (Muhammad Al-Darawi Al-Atib and Abdul Basit Badi, 2015). Overexploitation of medicinal and aromatic plants in the mountain Al-Akhdar Second Conference on Environmental Sciences - Zliten, Libya - p. 84. represented

by Juniperus phoeicea L. Urtica urens L., Sinapis pubescen L., Ceraaonia Siliqna L. carob, pistacia lentiscus L., Rhus tripartia (Ucria) Grande, and Malva Parvi flora linn Olive trees Olea europaea L. and Asphodelus microcarpus Salzm Viv.

And the pharaoh Urginea maritima (L.) Bakea. And being included in the calculation of plants that stabilize the soil from erosion it also prevented the storage of carbohydrate resources in the lower parts of the plant again the emergence of plant communities with less nutritional value for animals, and the emergence of grazing areas with fast –moving areas with fast –moving annual plants. these conditions make the process of desertification and the land becomes dry, sandy, topped with gravel and stones. Where we find that man contributed to the removal of vegetation cover by cutting trees and shrubs, as represented by Juniperus phoeicea L. Ceraaonia Siliqna L., pistacia lentiscus L., Rhus tripartia (Ucria) Gran, and Olea europaea L. olive trees, for the purpose of fuel, as he stripped large areas of vegetation cover by eroding the land for most plants, which leads to the loss of vegetation cover and leads to disintegration and lack of cohesion Soil making it vulnerable to erosion and erosion.

1.1 The Study Problem

Due to the increased depletion of medicinal plants in the study area, this led to a decrease in their natural growth rates, which negatively affected the vegetation cover of the area.

1.2 Aim of The Study

The study aims to inventory the number of medicinal plants present in the study area and classify them according to the Libyan flora.

Study of climatic and human factors that led to the deterioration and

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DOI:
10.26480/ecr.02.2022.57.63

depletion of medicinal plants.

Increasing interest in medicinal plants and preserving them from extinction.

Continuing with this kind of studies and discovering new species in the mountains, plains and valleys of Jabal Al Akhdar.

1.3 Study Site

The Boutraba region is located in the north-east of Libya, 130 km from Benghazi to the east, and it is located 10 km from the Tolmitha region on the eastern coast line. Astronomical location: In front of an astronomer, the study area is located between latitudes 8.30-3:30 and 32.4.30 North and longitudes 20.52.00 and 20.56.00 east.

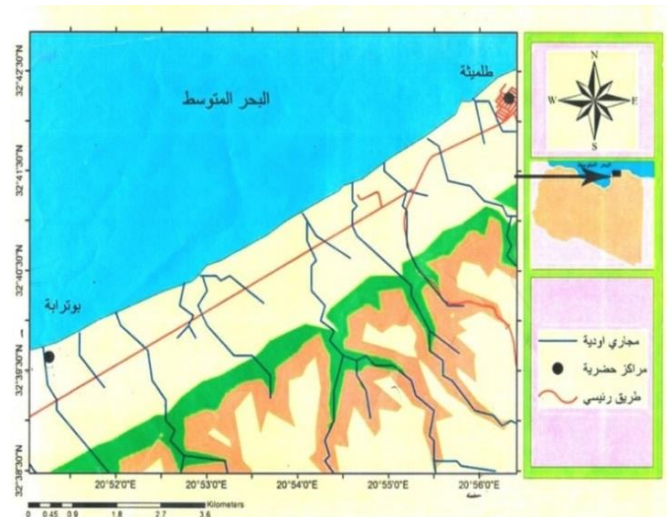


Figure 1: Map of the study area (Source: Land Sat8 moon images using Arc Gis10.5)

1.4 Study Methods

Use previous studies. There are many previous studies that dealt with the study of medicinal plants and dealt with it from different angles. These studies varied, and we will review this study a number of studies that have been benefited from despite this area not being studied in the past and that its most prominent features 1 Muhammad’s study Al-Darawi Al-Atib -

Abdul Basit Badi in 2015 - the overexploitation of medicinal and aromatic plants in the green mountain The second - conference of environmental sciences - Zliten Libya - they studied medicinal and aromatic plants in and where the aim of the study was to inventory the medicinal and aromatic plants targeted by Al-Ahly region for the purpose of trading and determining the quantities sold Including annually by increasing the perfume shops and getting to know them All most medicinal plants used in folk medicine.

1.5 Study Questions

- What are the uses of medicinal plants?
- What are the reasons for the deterioration of medicinal plants?
- How do we preserve medicinal plants?

1.6 The Importance of Studying

The Boutraba region suffers from a deteriorating situation, especially in the vegetation cover of medicinal plants that are suitable for the treatment of some diseases. Therefore, the importance of the study lies in identifying the reasons that led to the shortage of medicinal plants in the region and trying to reduce them. Also, the importance of the study lies in achieving plant sustainability in that region.

2. STUDY METHODOLOGY

Primary sources: The primary sources for this study depend on the field visit.

Secondary sources: In it, books and scientific messages related to the subject that took place in the study area were reviewed to the subject that took place in the study area were reviewed.

2.1 The Climate

2.1.1 Rain

It is clear to us from the amount of rainfall that is reflected on the plant life in it. Wherever it is heavy, the plant density will be, and this is what we noticed in the study area, where its rain is not sufficient for the growth of some types of plants. We note through the table the highest average amount of rain falling ranging (117.1) and less than (0.0) affect the distribution of plants in that area, and the emergence of some types of plants that indicate the phenomenon of desertification within the region. Among those plants, the emergence of the vine and the pharaoh in a large way, and this indicates the occurrence of soil erosion and erosion.

Table 1: Monthly averages of the amount of rain, mm for the years from 1989 - 2005 AD

| Annual Average | December | November | October | September | August | July | June | May | April | March | February | January | Year |
|----------------|----------|----------|---------|-----------|--------|------|------|-----|-------|-------|----------|---------|-----------------|
| 411.5 | 117.1 | 52.8 | 22.4 | 3.5 | 0.02 | 0.0 | 0.7 | 2.4 | 12.8 | 45.3 | 62.3 | 92.0 | Monthly Average |

Source: 1 National Center meteorological station, Tripoli, meteorological station Marj from the year1989 – 2005.

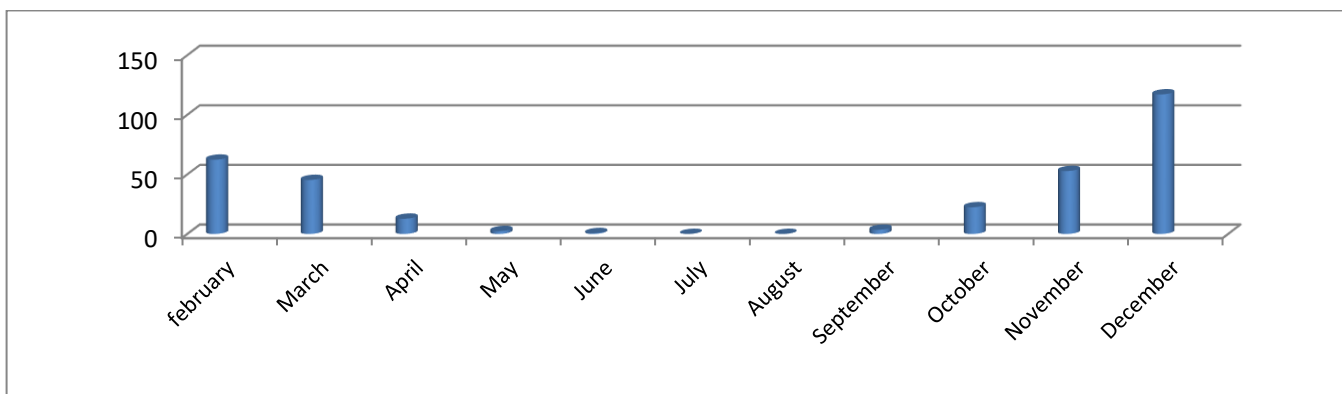


Figure 2: Shows the monthly average of the amount of rainfall for the years (1989 - 2005 AD)

2.1.2 The Effect of Temperature

The temperature determines the season of growth and the type of plants. Heat is of great importance in determining and distributing plants, and the greater the plant’s ability to withstand varying temperatures, the more widespread it is. The temperature should not be less than the minimum necessary for the plant, for every plant has a favorable temperature for its

growth and A minimum temperature that does not grow below it and a maximum temperature that does not grow above it, and the closer the temperature prevailing in the growing season is to the preferred degree, the more suitable for plant growth. The minimum temperature required for it, and if the temperature exceeds the necessary maximum, it will harm the plant.

The speed of its growth rate doubles, whenever the temperature increases (10°C), and this increase in temperature is above the minimum necessary for the growth of plants throughout the growing season, what is known as accumulated heat.

The temperature affects the distribution of plants as the temperature distribution in Libya varies from one region to another and from one season to another, and where the coastal areas near the sea are

characterized by moderate weather compared to the interior regions where temperatures increase, and through the table in the period from (1989-2005) we find The average temperature is the lowest in February, when the temperature reaches (11:3) in February, while we find that the highest temperature was in August, where the temperature reaches (26:1) in August, and we note the highest average temperature In August (26.1) while the average temperature is lowest.

Table 2: of The Monthly and Annual Average Temperature in Al-Marj Station For The Period From (1989-2005).

| Annual Average | December | November | October | September | August | July | June | May | April | March | February | January | Year |
|----------------|----------|----------|---------|-----------|--------|------|-------|------|-------|-------|----------|---------|-----------------|
| 19.03 | 13.7 | 16.9 | 21.2 | 25.2 | 26.1 | 25.5 | 24.78 | 21.3 | 17.0 | 13.6 | 11.3 | 11.5 | Monthly Average |

Source: 1 - Source: 1 National Center meteorological station, Tripoli, meteorological station Marj from the year1989 – 2005.

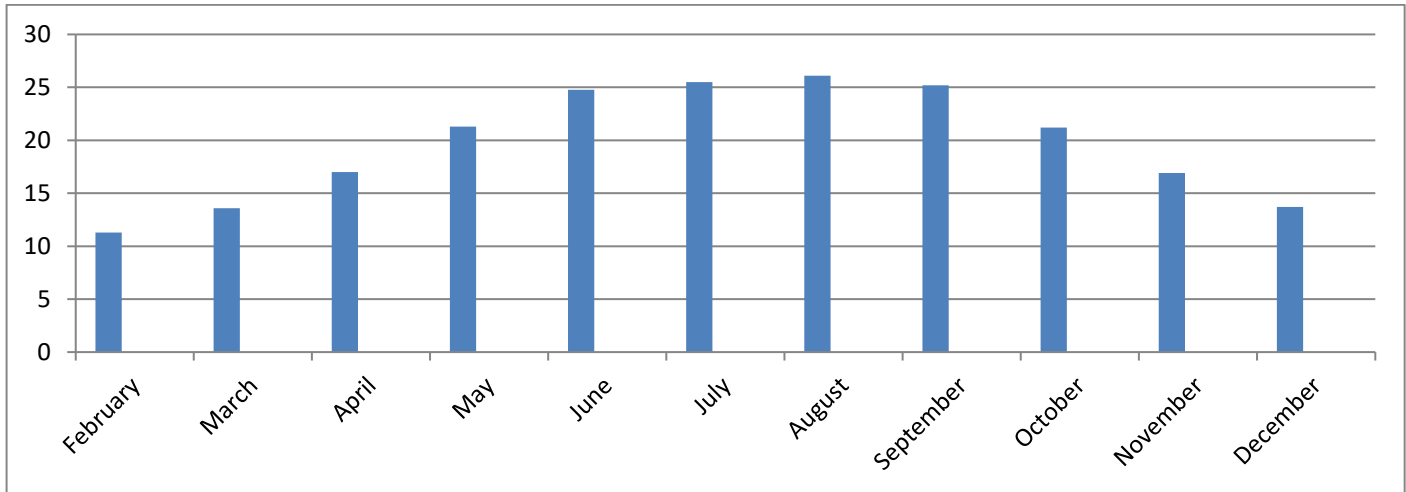


Figure 3: Shows the monthly average temperatures for the years (1989 - 2005)

2.1.3 Effects of Humidity

Humidity is an indication of the presence of water vapor in the air resulting from the process of transpiration and evaporation, and it is the main source of water vapor, soil, water bodies and plants. Waves, groundwater level and the physiological composition of plants.

The amount of moisture varies from place to place, as it is very little or no

in the polar regions and reaches about (4%) in the tropical and hot regions. temperature and air saturation, It is the amount of water vapor that the air can absorb at a given temperature.

The coastal areas near the sea are characterized by moderate weather with a high humidity compared to the interior regions, which affects the distribution of plants. We find that the average humidity was lowest in July (50.1%), and its maximum average was in January (76.3%).

Table 3: of The Monthly And Annual Average Humidity at Al-Marj Station For The Period From (1989-2005).

| Annual Average | December | November | October | September | August | July | June | May | April | March | February | January | Year |
|----------------|----------|----------|---------|-----------|--------|------|------|------|-------|-------|----------|---------|-----------------|
| 6.4 | 73 | 67.3 | 63.6 | 59.4 | 60.2 | 50.1 | 53.9 | 56.3 | 5.9 | 66.7 | 72.4 | 76.3 | Monthly Average |

Source: 1 - Source: 1 National Center meteorological station, Tripoli, meteorological station Marj from the year1989 – 2005.

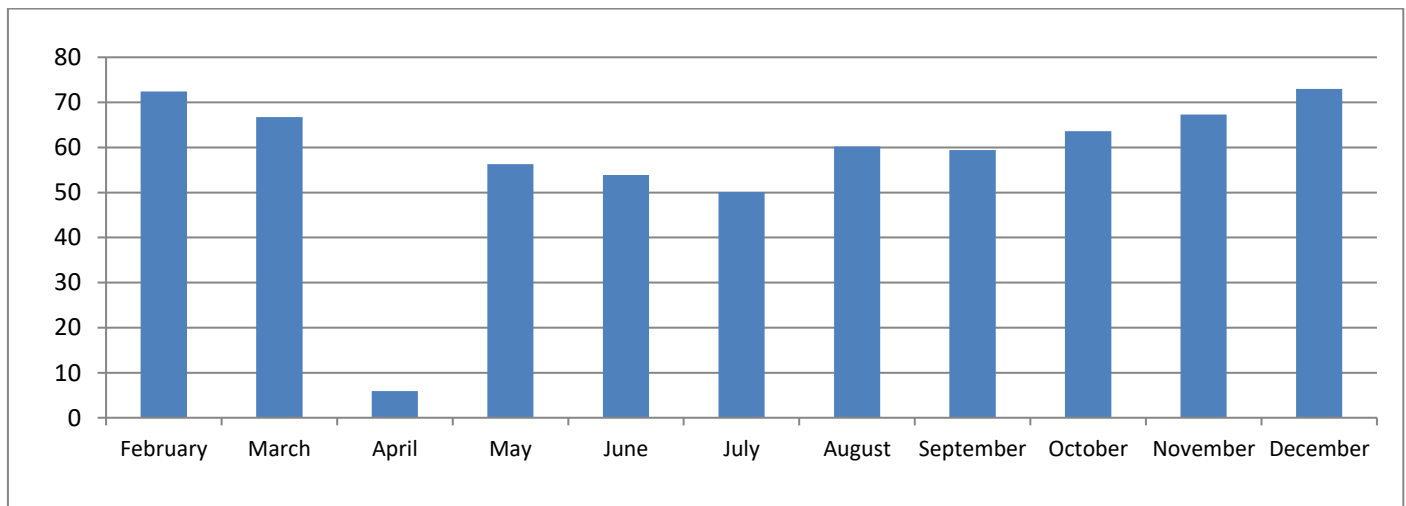


Figure 4: Shows the monthly averages of humidity in the period from 1989-2005.

2.1.4 Wind Effects

Wind has positive and negative effects on the growth of plants, and one of its positive effects is the carrying of pollen.

Among its harmful effects is its extreme speed that causes the stems of some weak plants to break, in addition to its role in soil erosion, especially in dry areas.

The effect of wind appears on the rate of evaporation and transpiration in

plants, and it plays a major role in pollination. The intensity of the wind causes fruits and some grains to fall on the ground. Strong winds sweep the soil and strip it, and the wind may sometimes prevent insects from performing their function in pollinating flowers, as well as It works to transmit the germs of some fungal diseases, and winds affect the vegetation cover and have a greater impact on areas with light soil, as well as in coastal areas in Libya, where we find through the table in From the table in the period from (1989-2005) the lowest monthly average wind speed was in September with a rate of (11.0), while we find that the highest monthly average wind speed was in February with a rate of (9.9).

Table 4: Shows The Monthly Average Wind Speed at Al-Marj Station For The Period From 1989 To 2005 M

| Annual Average | December | November | October | September | August | July | June | May | April | March | February | January | Year |
|----------------|----------|----------|---------|-----------|--------|------|------|-----|-------|-------|----------|---------|-----------------|
| 9.3 | 9.9 | 9.1 | 8.1 | 7.8 | 8.4 | 8.7 | 8.6 | 2.4 | 8.8 | 10.1 | 9.6 | 11.0 | Monthly Average |

Source: 1 Source: 1 National Center meteorological station, Tripoli, meteorological station Marj from the year1989 – 2005.

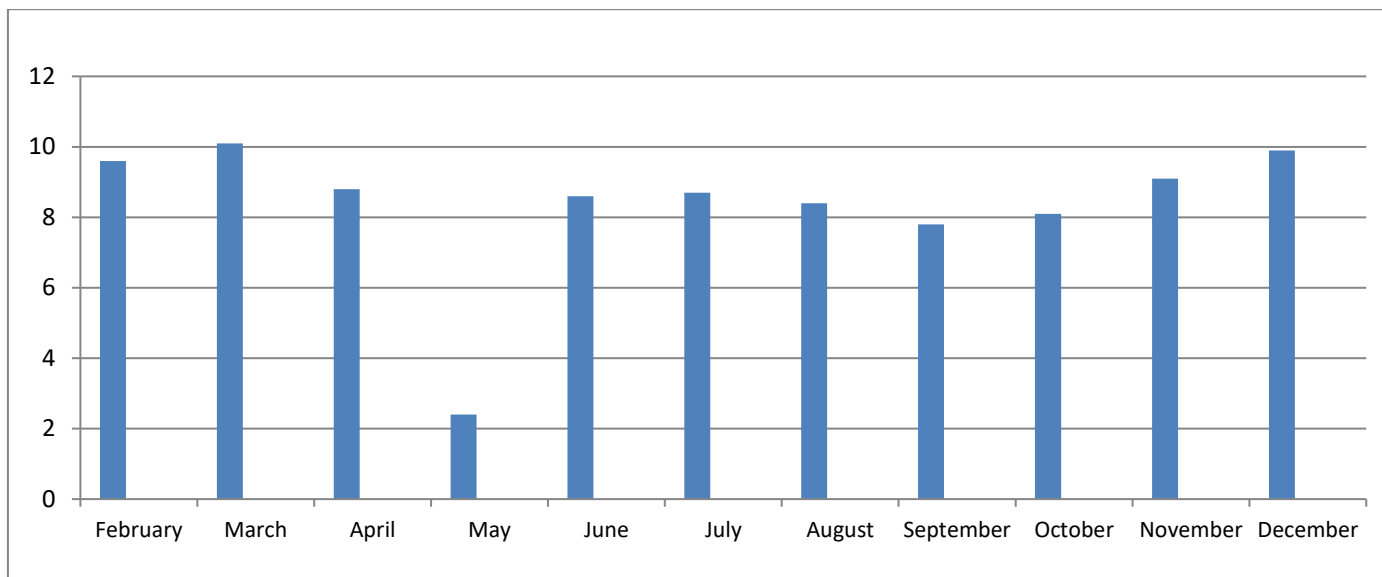


Figure 5: Shows the monthly average for the wind speed years (1989 - 2005)

3. METHODS OF MATERIALS USED IN THE STUDY AREA

Collecting samples in the study area Samples of medicinal plants were collected through field visits to the study area, which are in the flowering or fruiting stage due to the importance of classification.

Tools used to collect samples: Notebook for taking notes on plants while collecting, preserving and identifying them because you may forget the information on these plants.

The environment of the plant growth area. The plant may grow between rocks or next to rocks.

The nature of the soil. The nature of the soil varies in the distribution of the types of medicinal plants.

Plant strength: herbaceous, shrubby, or tree plants.

Camera: where the samples are photographed according to the shape in it

- Digging tools: such as axe and scissors branches.
- Bags for placing tree branches: to be placed

- Bags for placing tree branches: they are placed in a proper manner according to the shape or situation in which it is located.
- Newspapers: the purpose of which is to dry the samples collected in the study area.

Poisoning process: Insecticides are used to preserve samples from damage and infection with fungi or insects.

- Deposit of samples: After the process of classifying the samples, the Libyan flora is used, and it is deposited at the university.

4. RESULTS AND DISCUSSION

Through this study, it was found that medicinal plants were identified and enumerated, where they numbered ten species, divided into 3 families and 4 genera, de-seeded 1 and cotyledonous, and dicotyledonous plants include 7 species and contain 7 genera, while monocotyledonous plants, while monocotyledonous plants. One cotyledon includes one family containing two species and two sexes. Angiosperms include 1 type 1 and while monocotyledonous plants, while monocotyledonous plants include one family that contains two species and two sexes. Angiosperms include 1 species 1 and contain 1 genus as shown in Table 5.

Table 5: Shows the division of plant groups obtained from the study area. The number of plant aggregates, the number of species, the number of genera, the number of families.

| The Number of Families | The Number of General | The Number of Species | | |
|------------------------|-----------------------|-----------------------|----------------------------|---|
| 1 | 1 | 1 | naked seed | 1 |
| 7 | 7 | 7 | covered with dicotyledous | 2 |
| 1 | 2 | 2 | Covered with monocot seeds | 3 |
| 9 | 10 | 10 | Total | 4 |

| Table 6: The medicinal plants present in the study area | | |
|---|----------------|---|
| Name of species | Family | ت |
| <i>Juniperus phoeicea</i> L. | CUPRESSACEAE | 1 |
| <i>Urtica urens</i> L. | URTICACEAE | 2 |
| <i>Sinapis pubescen</i> L. | BRASSICAEAE | 3 |
| <i>Ceraaonia Siliqna</i> L. | CAESALPINACEAE | 4 |
| <i>pistacia lentiscus</i> L. <i>Rhus tripartia</i> (Ucria) Grande | ANACARDIACEAE | 5 |
| <i>Malva Parvi flora</i> linn. | MALVACEAE | 6 |
| <i>Olea europaea</i> L. | OLAECEAE | 7 |
| <i>Asphodelus microcarpus</i> Salzm Viv. <i>Urginea maritima</i> (L.) Bakea. | LILIACEAE | 8 |

Table 6 The medicinal plants present in the study area as they are included in the composition and treatments of some medicinal drugs. These plants were classified using the Libyan flora. They were exploited by the local

population in folk medicine as they are part of the vegetation cover, and it is accessible to everyone and represented in *Juniperus phoeicea* L. *pistacia lentiscus* L. *Ceraaonia Siliqna* L. *Olea europaea* L.

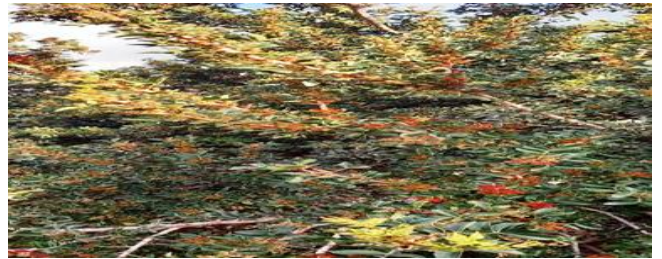
| Table 7: Shows the use of existing medicinal plants. | | | | |
|---|--------------------------|---------------|--|----------------|
| Use it | Part used | Local name | Scientific name | Family |
| treat infectious infections and urinary tract infections. | leaves | Juniper | <i>Juniperus phoeicea</i> L | CUPRESSACEAE |
| used to relieve sciatica and tonic for blood circulation and lowers blood sugar level and uses bark of fire in infectious infections Cruciferous. | a whole plant | Urtica | <i>Urtica urens</i> L. | URTICACEAE |
| The decoction of the plant is used in folk medicine in cases of constipation Sulfur compounds and their derivatives exhibit antibacterial and antifungal properties It is used to treat stomach bloating. | a whole plant | Hara | <i>Sinapis pubescen</i> L | BRASSICAEAE |
| promote digestion and treat diarrhea Promote digestion, treat diarrhea, reduce cholesterol levels, prevent cancer, treat cough and Influenza It is used in the treatment of colic and also in the treatment of menstrual pain | Carob pods | Carob | <i>Ceraaonia Siliqna</i> L. | CAESALPINACEAE |
| is used in the treatment of involuntary urination and is used in the treatment of stomach infections. | leaves | Patum | <i>pistacia lentiscus</i> L | ANACARDIACEAE |
| The bark is used in the treatment of stomach infections | leaves and fruits | Parietal | <i>Rhus tripartia</i> (Ucria) Grande | ANACARDIACEAE |
| are used in cases of dry cough Used for oral and pharyngeal infections and gastrointestinal infections. Boiled flowers or leaves are used topically in the treatment of hypersensitive skin swelling, toothache and insect stings | fruit Flowers and leaves | Baking | <i>Malva Parvi flora</i> linn. | MALVACEAE |
| Protecting the heart from various diseases Reducing the level of high cholesterol Olive oil keeps hair and skin moisturized <i>Olea europaea</i> L. Olive leaves and fruit - Protecting the heart from various diseases Reducing the level of high cholesterol Olive oil keeps hair and skin moisturized Controlling blood sugar levels, promoting brain health, eating olive oil on an empty stomach helps to strengthen the immune system from cold and others. | leaves and fruit | Olive | <i>Olea europaea</i> L. | OLAECEAE |
| are used in the treatment of lichen and heart failure. | The rhizomes | | <i>Asphodelus microcarpus</i> Salzm Viv. | LILIACEAE |
| are used in the manufacture of cancer drugs, a diuretic, an expectorant, a killer of germs in the digestive system, helps with chest pain and shortness of breath, improves the vocal cords, aids in digestion It strengthens the stomach wall and prevents blood clots. | bulbs | The pharaoh's | <i>Urginea maritime</i> (L.) Bake | LILIACEAE |

Table 7 shows the uses of medicinal plants in folk medicine as they have no side effects and are more widely used and used by local people as they are accessible to everyone.

Pictures of the plant species present in the study area (2019-2020)



Juniperus phoenicea L.



Rhus tripartita (Ucra) Grande



Rhus tripartita (Ucra) Grande



Olea europaea L.



Ceratonia siliqua L.



Malva parviflora Linn.



Sinapis pubescens L.



Urginea martima (L.) Bakea.



pistacia lentiscus L.



Asphodelu microcarpus Salzm V

5. CONCLUSIONS

The vegetation cover in the study area must be preserved by limiting and preventing the cutting of medicinal plants located there, as well as overgrazing.

Establishing natural reserves to preserve medicinal plants from extinction by stimulating existing plants and taking care to increase their growth and multiply their numbers.

Enact strict laws, activate existing laws for the protection of agricultural lands, apply penalties to deter logging, overgrazing and charring, and punish anyone who violates that.

Supporting and motivating the competent authorities entrusted with the protection of agricultural lands, such as the agricultural police and

- In order to carry out his assigned duties to the fullest.

The sound scientific methods of cutting medicinal plants must be observed in order to benefit from them for medicinal purposes, provided that it is limited.

- Educating individuals about the necessity of preserving these plants and not cutting them in order to preserve the vegetation cover, through the various media, seminars and scientific conferences.

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