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Medicinal and Aromatic Plants (Study in Economic Geography)

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Abstract

The study aims to identify the current production and marketing situation of medicinal and aromatic plants, and analyze the relevant variables by estimating production and cost functions and analyzing external demand in terms of geographical distribution of medicinal and aromatic plants exports, and the monthly seasonal in the most important main markets and their market share, and identifying the most important,the determinants facing its production, marketing and export, in order to try to develop some solutions to confront these problems, and to cover the production of these plants to meet the local and external demand.

This research deals with several axes, including: different classifications of medicinal and aromatic plants, geographical factors, the most important fields of using medicinal and aromatic plants, the economic importance of medicinal and aromatic plants, and applied studies of medicinal plants.

Key words: medicinal plants, aromatic plants, production status, current marketing, medicinal substances.

Introduction

Medicinal plants, also called medicinal herbs, have been discovered and used in traditional medicine practices since prehistoric times. Plants synthesise hundreds of chemical compounds for functions including defence against insects, fungi, diseases, and herbivorous mammals. Numerous phytochemicals with potential or established biological activity have been identified. However, since a single plant contains widely diverse phytochemicals, the effects of using a whole plant as medicine are uncertain. Further, the phytochemical content and pharmacological actions, if any, of many plants having

medicinal potential remain unassessed by rigorous scientific research to define efficacy and safety[1].

The earliest historical records of herbs are found from the Sumerian civilisation, where hundreds of medicinal plants including opium are listed on clay tablets. The Ebers Papyrus from ancient Egypt, c. 1550 BC, describes over 850 plant medicines. The Greek physician Dioscorides, who worked in the Roman army, documented over 1000 recipes for medicines using over 600 medicinal plants in De materiamedica, c. 60 AD; this formed the basis of pharmacopoeias for some 1500 years. Drug research makes use of ethnobotany to search for pharmacologically active substances in nature, and has in this way discovered hundreds of useful compounds. These include the common drugs aspirin, digoxin, quinine, and opium. The compounds found in plants are of many kinds, but most are in four major biochemical classes: alkaloids, glycosides, polyphenols, and terpenes [2].

Medicinal plants are widely used in non-industrialized societies, mainly because they are readily available and cheaper than modern medicines. The annual global export value of the thousands of types of plants with suspected medicinal properties was estimated to be US$2.2 billion in 2012.

In 2017, the potential global market for botanical extracts and medicines was estimated at several hundred billion dollars. In many countries, there is little regulation of traditional medicine, but the World Health Organization coordinates a network to encourage safe and rational usage [3]. Medicinal plants face both general threats, such as climate change and habitat destruction, and the specific threat of over-collection to meet market demand [2-4-5-6].

Aromatic plants are a set of plants used in cooking and herbal medicine for the aromas they give off, and their essential oils that can be extracted. These aromatic plants are cultivated as needed for their leaves, stems, bulbs, roots, seeds, flowers, bark, etc.

Aromatic plants include plants used as spices, aromatics or condiments, sometimes combined in aromatic mixtures2. The distinction between these three groups is confused and depends above all on the use to be made of the plant.

If we follow the English terminology, aromatic plants can be divided between spices "spices", plants of which the parts devoid of chlorophyll are used, and herbs "herbs", those of which the green parts are used.

The word condiment comes from the Latin condimentarius, “relating to seasonings”.

Aromatic herbs are plants cultivated in vegetable gardens or in large vegetable crops for their aromatic, condiment or medicinal qualities. The expression “fine herbs” can be applied to all aromatic herbs, but more particularly designates a mixture of four of them: chives, chervil, parsley and tarragon or burnet [7].

First: the different classifications of medicinal and aromatic plants

Everything is of plant origin and is used medically, as it is a medicinal plant, and a medicinal plant is defined as a plant that contains a substance or medicinal materials capable of treating a specific disease or reducing its infection, or that contains raw materials used in the preparation of medicinal materials.

As for the aromatic plant, it is any plant that contains an essential oil "volatile oil" in part, which is used in the preparation of perfumes. There are also plants that contain aromatic oils, and are used in the treatment of some diseases, and these are called medicinal and aromatic plants [8].

Medicinal and aromatic plants can be classified into groups with common characteristics or similar characteristics or characteristics, with the intention of easy identification of these groups, and the study of all the characteristics that combine these plants, and they can be summarized in three ways, which are:

1. Morphological classification

Where medicinal and aromatic plants are classified according to the part used that contains the active ingredient to:

- Plants used in its entirety: They are the plants in which the active chemicals are present in the different plant parts without the tendency to concentrate or cluster in a specific plant organ without the other. Examples include: black pine, wonka, al-Khurasani and Datura.
- Plants whose leaves are used: They contain active chemicals in their leaves, such as: basil, mint, aloe vera, tea, and henna.
- Plants whose nuances or flowers are used: They are the plants whose active substances are found either in the flowerpots, such as: “chamomile and chrysanthemum,” or they are found in the petals of flowers as in roses, jasmine and jasmine, or in the flower cup as in the “hibiscus” or the stigmas of flowers as in Saffron.

- Plants whose fruits are used: They are the plants that contain the active chemicals in their fruits, such as the shata, al-khila, and caraway.
- Plants whose seeds are used: They are the materials that contain chemicals in their seeds, such as "black seed, mustard, cocoa, coffee, castor, and sunflower".
- Plants whose skin is used: such as cinnamon, willow, poplar, and Abu Farwa.
- Plants whose earth parts are used: they may be mutated ground stems, wedge roots, or tuberous roots, and in them there are active chemicals such as: munggas, gibophylla, sweet licorice, licorice, orchid tubers and others.

2. Physiological or therapeutic classification

The plants are classified according to the nature of the treatment or the benefit that can be gained from using these plants to:

Laxative or laxative plants: such as cinnamon, castor, and licorice.

- Sedative or narcotic plants: such as willow (analgesic), and poppy.
- Plants that prevent the rupture of capillary blood vessels: such as citrus, buckwheat.
- Cardiac stimulating plants: such as oleander, white onion, and digitalis.
- Plants that cause local redness: such as the white and black mustard plant, and the Sudanese chilli.

3. Commercial classification

The classification is done according to the nature of the field that these plants follow commercially, as they are classified into:

- Medicinal plants: They are plants that are traded commercially with the intent to use them in the field of medicine manufacturing, including: datura, mint, marjoram, and the satanic trait.
- Spices, spices, flavorings, and natural ingredients: they are used for food purposes, including black seed, nutmeg, and cumin.
- Aromatic plants: It is the group of plants that contains in a large part or more of its plant members volatile aromatic oils. They can be used in the aromatherapy and cosmetics industries such as jasmine, rose, and basil.
- Insect-resistant plants: They are the plants that are used in their natural form or their extracts to resist and exterminate insects such as: Albetherm and Alders.
- Plants used in making beverages: such as: tea, coffee, cocoa, muggets, orchids, chamomile, tamarind, mint, and hibiscus [9].

Second: Geographical factors

There are several factors that affect and even determine the production of medicinal plants in quantity and quality, the most important of which are the following:

1. Soil

The size of soil particles has an effect on the degree of moisture retention, and there are medicinal plants in which the percentage of active substances decreases as the soil moisture increases, and other plants give a high percentage of their active substance in coastal places as the moisture content increases from plants producing volatile oils such as mint and marjoram such as mint and marjoram. The percentage of its active substances is affected by the degree of humidity, and it has durability, but like alkaloids (datura and tobacco) need nitrogen and calcium, and it is advised to plant some medicinal plants such as cumin in soil infested with soil fungi and wilting causes, especially fusar.

2. The temperature

The volatile oils in many aromatic plants increase with the increase in the air temperature, while the fixed oils such as flax, castor and sunflower oils increase their percentage in plants at low temperatures, and most of the fatty acids in them are unsaturated at high temperatures.

3. The light

Some plants give an active substance when exposed to a long period of lighting, such as datura gives a higher percentage of Hyoscine alkaloid in the period before and during flowering, and the pond's eye plant gives a high percentage of the anti-cancer alkaloids Vincristine and Vinblastine and mint gives a higher amount of Menthone and its derivatives that turn into Menthol, especially In young leaves before flowering, either in the shade or in a short day, most of the oil content is from the inactive substance Menthofuran.

4. Geographical location

Geographical habitat has a clear effect on the formation of the active substances, in their quantity and type, and this is evident in the cannabis products, Opium, digitalis, tea, cocoa, etc., as they give a higher yield in their natural habitats, and may not give active substances if grown in other environments. It is also noted that aromatic plants yield differ in type and quantity in different places on the globe.

5. Terrain

The topography has a very important role in the quantity and quality of the production of the active ingredient. There are medicinal plants that give a high percentage of their active substances if grown in places higher than the sea level, such as tea and pine nuts and their better production plants in the lowlands such as sugar cane.

6. Water

There is no doubt that the availability of water suitable for irrigation of fields of medicinal plants is an important determinant of production, despite the variation in the need of these plants for water bottles, whether from wells or rivers.

7. Availability of manpower and practical experience

Manpower is one of the determinants of the production of medicinal plants. Some medicinal plants require the availability of large numbers of labor, such as chamomile, gujarat and saffron, due to the large need for agricultural service operations such as weeding, hoeing, watering, fertilizing and harvesting for several times, as well as continuous field inspection for fear of infection by an insect or Diseases, and in the absence of them, it is not recommended to cultivate these medicinal plants, just as most medicinal plants need to provide expertise for their cultivation, and to determine the best time for the active substance in its appropriate concentrations and quantities, then choose the appropriate method for collecting, harvesting, or reaping the active part, conducting drying, etc. In the event of a lack of such expertise, the yield of the resulting drug will be affected in terms of quantity and quality [10].

In the past, the Egyptians knew many natural plants and herbs that grow wild in a vast environment, where he found that many of them may be useful in food and others are suitable as medicine, and besides that, the first Egyptian inferred many aromatic plants with a smart smell, and got acquainted with Its characteristics and benefited from its benefits in perfuming the body with a smart scent and expelling evil odors, and over the ages, its succession, the progress of civilizations and their prosperity, the trade of spices, improvers and perfumes spread, and the scope of their use expanded and their circulation expanded in the East and West. Which helped to record and record its benefits and benefits, and the evidence for this is what was found recorded on the papyri and in the temples that were recently discovered, in addition to some perfume bottles that were found among the decorative tools in the graves of the ancient Egyptians, and in the modern era

has expanded the scope of their use where they are used directly or After extracting its active ingredients in the food industry, pharmaceuticals, perfumes, soaps and cosmetics.

In Egypt there are more than 2,100 species of wild plants, including 350 species that have medicinal uses. Medicinal and aromatic plants are first-class export crops, and the governorates of North Upper Egypt in Egypt are Fayoum, BeniSuef, Minya and Assiut among the most important governorates producing medicinal and aromatic plants. There are favorable conditions for production, and the area of medicinal and aromatic plants cultivated in Egypt is estimated at about 61,349 acres in 2005, and this area represents about 76% of the total cultivated area in Egypt, and the cultivation and production of medicinal and aromatic plants in Egypt is concentrated in the governorates of North Upper Egypt, where it represents 80.6% Of the total areas of medicinal and aromatic plants in Egypt, as for the rest of the governorates, they represent 4, 17%, 19.5%, and 5% of them. We find that the governorates of Minya, Fayoum, BeniSuef and Assiut represent 33.7 and 10.4%, respectively, of the total areas of medicinal and aromatic plants cultivated in Egypt. The governorates of North Upper Egypt are distinguished by a high comparative advantage in the field of medicinal and aromatic plants production in terms of quantity, quality and diversity of their types, and the most important of these crops are chamomile, municipal mint, pepper, chrysanthemum, thyme, jasmine, marjoram, basil, ferbascum, dill, parsley, lemon grass, cumin, caraway, anise, coriander, fennel, blackberry, taget, hibiscus, etc. Also concentrated in the governorates of North Upper Egypt are factories for the production of aromatic oils and jasmine pastes and others for drying and processing herbs, and that some medicinal and aromatic plants crops in northern Upper Egypt have an excellent international reputation, such as the flowers of wormwood, chamomile, chrysanthemum and verbascum, and otter oils and jasmine paste, cumin fruits and fennel, basil grass, mint and marjoram .

The governorates of North Upper Egypt began to produce medicinal and aromatic plants in a safe manner in line with the requirements of international markets, and the Ministry of Agriculture (Agricultural Research Center, Horticultural Research Institute), in cooperation with the Academy of Scientific Research, launched a national campaign to promote the crops of medicinal and aromatic plants, especially in northern Upper Egypt, to apply the results of applied research. On a large scale, to impart modern technology, good

agricultural practices, and post-harvest transactions to farmers and extension agents, to advance standardized production and increase our exports of these products.

The areas that are cultivated in the valley and the delta with medicinal and aromatic plants vary from year to year, and they reach an average of 90 thousand feddans (in 2020). %, Then BeniSuef Governorate by 17%, then Assiut Governorate by 10%, and 16% distributed to the rest of the governorates. Herbs and medicinal and aromatic plants exports come in fifth place in Egyptian agricultural exports, and 90% of their production is exported, which represents about 50 thousand tons, annually.

Investors wishing to grow and market these plants are supported, in addition to planting the roofs of the houses themselves. According to the reports of the Egyptian Ministry of Agriculture: We have an area of 13 acres, planted with lemon grass, citronella and municipal aroma, medicinal and aromatic grains such as black nigella, fennel and caraway, and spaces for municipal jasmine and the Aghouri rose. It is distilled to extract rose oil and water resulting from the distillation process called (rose water).

The Ministry of Agriculture aims to reach 250,000 acres of medicinal and aromatic plants by 2030, an increase of approximately 180%. In addition, the areas of medicinal and aromatic plants reach 120 thousand acres if the area of areas where medicinal herbs grow naturally in the desert areas is added to after the rainy seasons, which are difficult to quantify [11].

Third: The most important areas of using medicinal and aromatic plants

Medicinal and aromatic plants nowadays occupy a great position in Egyptian agricultural production, and they receive great care in many countries that produce them. Medicinal plant plants or the source of active substances, which are used in the preparation of medicine in the form of extracts or active substances, or are used as a raw material for the production of some Chemical compounds, which are the nucleus for the chemical synthesis of some important pharmaceutical substances, such as cortisone, sex hormones, blood plasma substitutes, and others. Therefore, medicinal and aromatic plants are considered one of the most important strategic materials in the pharmaceutical industry, thus increasing the need for many quantities of them in the industry.

Among the factors that have led to the increase in interest and its use in the treatment of diseases in the recent period are the following:

1. Medicinal and aromatic plants as a natural source for the manufacture of medicine, and replacing them with various active substances with work. This is due to the following reasons:

- **Experiments have shown that the effect of different active substances in the laboratory does not lead to the physiological effect of the same active substance extracted from medicinal plants, noting that the laboratory different substances have a high degree of purity.**
- **Experiments have shown that laboratory-created medicinal components have many side effects besides the basic medical effect for which they are used. In most cases these effects are harmful, even if their symptoms do not appear during the period during which the drug is used.**
- **These reasons are known to the fact that God Almighty has created in one plant the contents of a complete medicinal reminder of more than one active substance, and that these substances work together cooperatively in the treatment of disease, and that obtaining some of them in a pure state and using them alone is what leads to a lack Effectiveness or adverse side effects.**

The uses are for example:

- Preparing some medicines, such as medicines for relieving joint pain, rheumatic infections, medicines for high blood pressure and atherosclerosis, and as an antiseptic.
- Production of fixed oils, as the seeds of some of these plants contain fixed oils that are included in the composition of some medical preparations.
- Preparing food for the treatment of atherosclerosis and angina pectoris, such as huhoya seed oil, sunflower, flax, and castor.
- Preparing cosmetics such as powders, hair creams, and soaps.
- It is used in the manufacture of aromatherapy and perfumes, such as rose and jasmine plants.
- Manufacture of insecticides, which depend on what is found in medicinal and aromatic plants of toxins that are lethal, whether to insects or fungi, such as these plants (AlbidTherm, Alders, Henna and Smoke).
- Used as condiments, spices, beverages, flavorings or aromas.

2. Detailed medicinal uses of medicinal and aromatic plants:

- Marjoram (leaves): blister, repellent gases, improves the taste of foods.

- Parsley grass (whole): a tonic for the sexual aspect, improves the taste of foods.
- Nutmeg (seeds): gas repellent, general tonic, flavoring.
- Nigella sativa (seeds): treatment of asthma, expectorant, expectorant.
- Cardamom (fruits): spice, gas repellent.
- Hops (floral cones): beer making, hypnotic, pain reliever.
- Lemon grass (leaves): anthelmintic, perfumery, soap making.
- Halfa Bar (Herb): gas repellent, diuretic, and poly disinfectant.
- Hassa Alban (leaves): gas repellent, flavor enhancer, perfumery.
- Basil (herb): gas repellent, diuretic, treatment of rheumatism, perfumery.
- Zurbih (grass): a worm repellent.
- Thyme (leaves and floral tops): spice, gas repellent, colic pain reliever, anthelmintic.
- Lily (floral): cosmetics, aromatherapy.
- Dill (fruits): analgesic, gas repellent.
- Fennel (fruits): analgesic, gas repellent.
- ATR (grass): aromatherapy, cosmetics.
- Black Pepper (fruits): Tonic, appetizing.
- Cinnamon (stalk): repels gases, and aromatic stimulant.
- Cloves (flower buds): Soothes dental pain.
- Camphor (leaves): treatment of infections of the nose and throat, as a disinfectant, making soap.
- Caraway (fruits): a nutritious drink for children, gas repellent, and food enhancer.
- Celery (grass and seeds): Calms the nervous system, strengthens the sexual aspect in males, and repels gases.
- Coriander (fruits): Gas repellent, pain reliever, spice.
- Cumin (fruits): gas repellent, flavoring, pain reliever.
- Lawand (floral tops): stimulant for nerves, perfumery.
- Baladi mint (leaves and floral tops): spices, candy making, perfumes.
- Peppermint (leaves and floral tops): gas repellent, pain reliever, candy making, perfumes.
- Rose (flower petals): making perfumes, improving the bitter taste of medicines.
- Jasmine (flower petals): high-priced perfumery.
- Anise (fruits): gas repellent, pain reliever, diuretic.

- Atrua (leaves and floral tops): pain reliever, reduces the secretion of juices in the body, dilates the pupil.
- Ergot (mushrooms): a source for obtaining various alkaloids in migraine and preventing uterine bleeding.
- Opium (dry milky fluid): Painkiller, anesthetic.
- Ephedra (herb): a treatment for shortness of breath.
- Bin (seeds): a stimulant drink for the nervous system.
- Tobacco (leaves): the manufacture of cigarettes, an insecticide.
- Emetic nuts (seeds): Tonic for muscles, and is very toxic.
- Wolf's Smother (roots): very toxic, local analgesic, used outwardly in paints.
- Poppy (the milky secretion extracted from unripe fruits): anesthetic and pain reliever.
- Datura (herb): pain reliever, anesthetic and hypnotic.
- Pomegranate peel (the fruit peel): astringent, diarrhea treatment, and anthelmintic.
- European Drunk (herb): Analgesic for pain and colic.
- Egyptian drunk (herb): Relief for pain and cramps.
- Solanem (leaves and fruits): used in the preparation of sex hormones and cortisone.
- Chili (fruits). Tonic for stomach, eliminates rheumatic pain.
- Gold vein (roots): a treatment for cough.
- Canka (grass): treatment of leukemia and other cancers.
- Qat (the leaves): a stimulant for the central nervous system.
- Coffee (seeds): a stimulant drink for the nervous system.
- Cocoa (seeds): a nutritious and mild stimulant used in the manufacture of chocolate.
- Eucalyptus wood in the treatment of malaria - strengthens the stomach
- Lahlah (seeds and grapes): gout and arthritis.
- Lobia (grass): expectorant, tonic for the respiratory system, alternative to tobacco to quit the habit of smoking.
- Onion Onion: Strengthen the muscles of the heart and improve its strokes, expelling phlegm.
- Buckwheat (leaves): strengthening the weak capillaries, thus preventing bleeding.
- White mustard (seed): emetic, treatment for rheumatism, aperitif.
- Black Mustard (seed): emetic, rheumatism treatment, appetizer.
- Khillah Municipal plant (fruits): treatment of kidney and urinary tract stones.

- Dignales (Leaves): Strengthen the heart muscles and improve its strokes.
- Saffron (stigma): an aromatic stimulant, and an anti-cold.
- SNB (leaves): strengthening the walls of small blood vessels.
- Sana Maki Iskandrani (The Leaves): a powerful laxative.
- Sana Maki Hindi (The Leaves): a powerful laxative.
- Sabr (Leaves): a powerful laxative.
- Willow (leaves): treatment of rheumatism.
- Licorice (roots and rhizomes): expectorant, coats stomach ulcers.
- Vanilla (fruit): keratolytic, flavor enhancer.
- Cascara: a powerful laxative.
- Ratatia (the roots): an astringent used in the treatment of diarrhea and mouth rinse.
- Tea (leaves): a stimulant and astringent, and the alkaloid caffeine is extracted from the leaves.
- Tannins (al-Baraem): astringent, commercial source for obtaining tannic acid, used in tanning and ink production.
- Two Melis (leaves): astringent, stop bleeding, antiseptic used in the treatment of hemorrhoids, and superficial bruises.
- BalahaJuha (unripe fruit juice): in folk medicine, in the treatment of jaundice.
- Handhal (the pulp of the fruit): a powerful laxative.
- The Fayoum Governorate occupies the second place in the cultivation, production and export of medicinal and aromatic plants after Minya Governorate, and a clean agriculture system applies to it, which is agriculture without pesticides (organic crops).

Fourth: The economic importance of medicinal and aromatic plants

Many diverse medicinal plants grow in the Arab world, either desert or wild herbs that spread in fields, farms, valleys and along canals and canals, and this encouraged their collection and utilization in pharmaceutical factories.

The need for it led to the encouragement of its cultivation and the cultivation of other varieties, for example, the municipal plant and municipal Shaitan, whose collection of them became insufficient for the needs of the factories that import them from abroad in hard currency.

Medicinal and aromatic plants have a huge global market, as the value of exports to the 20 largest countries reached 609.9 million US dollars, which represents 80.23% of the total global exports in 2001, and among the most important countries exporting medicinal and aromatic plants in the world are: China, India, France, the states The United States of America, Singapore, Chile, and the most important exporting countries of medicinal and aromatic plants in the Middle East: Egypt, Iran, Syria, Morocco, and Tunisia, and the most important of these countries are the Arab Republic of Egypt, where Egypt ranked eleventh among the countries of the world, with a market share of 2.33% of the total Global exports. As for the export of medicinal and aromatic plants, we find that Egypt exports 85% of the production of herbs, seeds, fruits and flowers, 98% of the production of oils and aromatic pastes, and exports of medicinal and aromatic plants represent the third place in Egyptian agricultural exports after cotton and rice in terms of export value. 2005 40 thousand tons of our products were exported, amounting to 47 million dollars, and the global trade of medicinal plants includes 19% fresh herbs, 48% dry herbs, 12% seeds, 21% volatile oils[12].

Consistent with that, the Ministry of Agriculture announced that it aims to reach areas of medicinal and aromatic plants to 250 thousand feddans by the year 2030, an increase of approximately 180%, as the areas cultivated in the valley and the delta with medicinal and aromatic plants vary from year to year, and reach an average of 90 thousand acre.

In the following report, the most important figures related to the cultivation of medicinal and aromatic plants in Egypt, their number, the material output that returns to the Egyptian economy from the cultivation of thousands of acres of these specific plants, and the steps that Egypt has taken to increase production.

The areas of medicinal and aromatic plants reach 120 thousand feddans (2020), if the area of areas where medicinal herbs grow naturally in desert areas is added to after the rainy seasons.

The report pointed out that the gross national income from exports of medicinal plants and their cultivation is about 8 to 10 billion pounds annually, and that they generate a rewarding income locally, as Egypt ranks fourth in the world in exports of essential oils, and the most important of these oils are jasmine, basil, marjoram, chamomile, Cumin.

The price of a ton of basil is 20 thousand pounds, while mint ranges between 11 to 15 thousand pounds, parsley 15 thousand pounds, and wormwood chamomile 40 thousand

pounds, while the prices of other plants range between 10 thousand to 15 thousand pounds in the local markets and higher export values. Egyptian exports have also succeeded in penetrating nearly 40 international markets for aromatic plants.

While the figures of the Export and Import Control Authority indicate that the volume of Egypt's exports of aromatic and medicinal plants ranges between 50 and 70 million dollars. It is expected that exports of aromatic plants will exceed 112 million dollars this year compared to 100 million dollars last year, with a growth of 12%.

According to the Export Council for Agricultural Crops, exports of medicinal and aromatic plants amount to 90% of the total annual output, as 76 thousand tons of medicinal and aromatic plants were exported, valued at $ 126 million, during the period from September 2018 until the end of June 2019 for a period of 10 months.

The number of aromatic plants in Egypt reaches 2075, about 384 of which are used for medicinal purposes, and Sinai alone accounts for 46% of these plants, and the northwestern coast 36%, followed by Minya by 34%, followed by Fayoum Governorate by 20% and then BeniSuef by 17%. And Assiut Governorate by 10%, and 19% is distributed to the rest of the governorates, and BeniSuef Governorate alone aims to cultivate 69,000 feddans this year, through a promising project that represents a leap and leap for the cultivation of medicinal and aromatic plants, and in November 2020 the Institute of Medicinal Plants was launched And aromatic in the province[13].

Medicinal and aromatic plants in Egypt are considered non-traditional crops that provide part of the foreign exchange earnings to the state treasury, and the economic importance of these crops depends on the relative relationship between the economic return from them and the economic return from alternative crops or their competition for the unit of earth materials, whether in relation to the local yield or the return from Foreign exchange earnings in agricultural exports.

The cultivated area of medicinal and aromatic plants in 2001 reached 553040 feddans, with an estimate of the monetary value of 724.9 million Egyptian pounds, and about 0.97% of the value of agricultural production. The value of exports amounted to 17.7 million US dollars in 2000, and its marketing share amounted to 2.33% of the total global exports for the same year.

The triangle of Egyptian exports of medicinal and aromatic plants 0.43% of the total Egyptian exports in 2001, and the number of markets to which Egypt exports medicinal

and aromatic plants reached 25 markets, the top 25 markets accounted for 68.26% of Egypt's exports of medicinal and aromatic plants, and the importance for the American market was in exports. Egyptian medicinal and aromatic plants with a relative importance amounting to 22.56% of total Egyptian exports.

The average value of a ton of Egyptian exports of medicinal and aromatic plants at the level of the first ten countries reached the highest value in 2001, equivalent to 3088 US dollars per ton.

The total exports of medicinal and aromatic plants in Egypt amounted to between 10 and 12% annually, while agricultural experts emphasized the possibility of increasing exports at higher rates by expanding their cultivation and providing the appropriate climate for them.

Egypt's exports of medicinal and aromatic plants include cumin, caraway, marjoram, fennel, chamomile, and basil, and Egypt comes first in the world in exports of luxurious fragrance oil, with 40% of trade volume, followed by China, Indonesia, and then the United States of America.

A source in the Ministry of Agriculture said that the annual growth rates of cultivated areas of these plants do not exceed 2.7%, despite their economic importance due to the high export prices, which reach 5 thousand dollars per ton in some species such as chamomile.

He pointed out that Egyptian plants have a special taste in "European countries, Japan, and America", due to their quality and ability to compete with products of other countries, especially Morocco in the African continent, and Japan globally.

He pointed out that 42% of Egyptian exports went to Western Europe, 33% to North and Central America, 17% to Arab countries, 3% to Asian countries, 2.7 to South America and 1.3% to Australia, and only 1% to African countries.

By the end of last year, the global trade volume reached more than $ 60 billion, of which Egyptian exports represented about $ 100 million, through being used in the preparation of medicines and cosmetics.

The head of the Association of Producers and Exporters of Medicinal and Aromatic Plants expected exports this year to exceed $ 100 million, compared to $ 88 million last year.

He mentioned that Egypt exports only 500 tons of local chamomile artemisia despite the negligible cost of cultivating it, which ranges between 4 and 5 thousand pounds per feddan, with an average production of 3.5 tons.

He added that the cultivated areas of plants are small, and despite that it finds a wide response at the global level, to the quality of soil and local production, and attention to it makes Egypt one of the largest exporting countries in the world, which leads to an increase in the dollar proceeds, and we need to increase our exports and compete in the global market. And this will only be possible with a good product that matches the export standard specifications required by the importing countries with an appropriate price that is not competitive, and we must take advantage of the comparative advantage of medicinal and aromatic plant products in developing and maximizing the volume of our exports, through a well-thought-out plan for global markets and thus for national production while providing information. It is evident from the above that the export of these products does not affect the needs of the local market, unlike other crops. Medicinal plants are unconventional crops, and their economic return is more important than strategic crops.

Fifthly: Applied studies of medicinal plants

1. Lazocam "A new detection that defeats influenza viruses easily[14]

Research over the past ten years has resulted in the detection of the tremendous effect of natural waves of medicinal plant oils against influenza viruses and completely neutralizing their effect without exposing living cells or various body organs to any risks. This is called an effective natural plant preparation." "Lasocam" is an expression of people relieving the suffering of a painful cold.

2. There is a global trend to return to nature and medication

using medicinal plants and natural products during the last ten years, and due to the rapid development in pharmaceutical industries based on medicinal plants, the Ministry of Health and Population in Egypt has set controls to legalize the production of phytochemical drugs, and is considered the National Authority for Drug Control and Research through Its specialized laboratories are the reference point to ensure the quality, safety and efficacy of these medicines. The establishment of the Center for Applied Studies for Medicinal Plants Research in 1995 was a vital requirement for assessing the production, efficacy and safety of medicinal plants and their products[15].

3. The current status of medicinal plants globally

At the beginning of the First World War, Germany was interested in studying wild herbs and making use of them for medicinal purposes, followed by other European countries, and

this signaled the transformation of Egypt from an importer of some medicinal plants to countries with export opportunities to Europe and America, as well as other countries, led by China and India, and the interest in medicinal plants increased in the wake of World war

The second is when it is confirmed that the industrially different chemical compounds do not break down inside the bodies of the living, which leads to their accumulation in the various organs causing significant health damage, which stresses the energy effort to move away globally from those compounds and the union towards the use of living organisms including medicinal and aromatic plants considering that the existing medicinal chemicals With them, they are built from a series of biological reactions, and by this they can be broken inside the body through another series of biological reactions, and in this context, these countries have renewed all the specifications for what is imported from these plants and their extracts, including the method of preparing and packing them and determining the percentage of the active substance in them.

4. The current state of local medicinal plants

Egyptian medicinal and aromatic plants are considered the main pillar of natural materials that are found in remote desert and semi-desert lands. Farmers in these areas have been and still rely on wild medicinal data in dealing with pests that may attack crops and others, including clematis, bitter melon, artemisia, demsesia, onion, onion, drunken, cactus and others. It is useful to mention that these plants have both medicinal and national importance, as they are the basis of important medicines that Egypt needs. The many Egyptian laboratories are equipped to produce the important medicines that Egypt and Arab and international countries need. In addition, they are the important economic basis.

History records the pharaohs the first in creating various environmental methods to get rid of harmful agricultural pests in order to obtain safe, good and suitable agricultural products for human consumption.

The success of the export process has become linked to the production of agricultural crops and medicinal and aromatic plants involved in the food and medicinal fields, and it is only done through the use of modern agricultural applications and methods, which are multiple methods, including, for example, the full use of trees and wild plants that may exist in the environment and are distinguished by their ability to chase harmful pests.

With the existing agricultural crops and the preservation of those crops without resorting to intensive human efforts to combat potential pests, an invitation to visit the Halayeb and Shalateen area is sufficient to clarify this.

Egyptian production of organic products is currently being exported within a framework of control over production, processing and manufacturing to produce what is in conformity with the declared specifications related to the exported letter with attention to the method of packaging in order to preserve it from damage and adherence to all the national and international specifications required for these products, and in this context it is necessary to refer to the necessity Good identification from the source on the methods of ecosystems because they will have great importance for the product as it helps him to determine the optimal method for environmental maintenance during the period of cultivation and during the processing operations associated with export operations and the prevention of inappropriate weather conditions, including the possibility of environmental pollution of the site or its vicinity or the difficulty of obtaining the required labor During the period of greatest necessity for that employment, with an assurance that the framework of communication between the producers and exporters of horticultural crops and each of the agricultural directorates and agricultural extension in the country will have the greatest impact on the increase in exports and the increase in the level of production, whether it is domestic or for export. Exploit them, provided that the level of production increases so that it can be fully accepted domestically and internationally.

Conclusion

- The results of the study showed the fluctuation of the areas of the crops under study during the period from 1994 to the present time, and Egypt has hundreds of different types of medicinal and aromatic plants, and large quantities of them are exported annually, which achieves huge profits for those types of plants only for agricultural exports, especially since this type of The plant is called "God's treasures on the earth."
- The study indicates that the most important medicinal and aromatic plants crops at the level of Minya governorate are wormwood, chamomile, marjoram, and caraway, which represent about 54.61 %, 56.16 %, 28.5 % of the total area of medicinal and aromatic plants in the governorate, which amounts to about 16.11 thousand feddans, representing 4.18 % of the total cultivated area in the republic, which amounts to about 62 thousand

feddans during the period (2004-2008). The study relied on a field sample of 145 farmers for traditional agriculture, and 60 farmers for organic farming.

- It appeared in the recent times of the twentieth century, and despite the state's efforts in land reclamation, and positive attempts to preserve agricultural land by issuing laws and legislation and agricultural development, many variables have emerged due to urban development and the needs of railway networks and the establishment of public facilities, and others.
- While the state launched, about 3 years ago, one of the most important agricultural projects over the past years, which is the cultivation of the 4 million feddans, at the level of Egypt, distributed among the most important governorates, on top of which is the New Valley, the state did not refer from near or far to a map. For the cultivation of these millions of acres, on top of which comes the cultivation of plants that represent a great national income for a limited number of countries around the world, the most important of which are China and India, which are "medicinal and aromatic plants", those plants that are used in the manufacture of medicines, perfumes, cosmetics, food, and pesticides. Which represents a real hope to support the economy of any country looking for a promising future, and because God Almighty has chosen "agricultural" Egypt to describe it in his generous book as "treasures of the earth", Egypt already has plants that are the highest in the world, on top of which is camomile, next to wild plants that grow As we say "Rabbania", meaning without human intervention, the most famous of which is in Sinai and the southern Red Sea. Despite that, Egypt only grows 0.8% of the total cultivated area in our lands, and exports represent only $ 80 million annually, as raw materials, and there are only A single "governmental" factory for you In perfumes, the government is considering establishing a project for medicinal and aromatic plants on 69,000 feddans in BeniSuef.
- The aromatic plants are the forgotten treasure, which the private sector is dealing with, but in small proportions, and the state's efforts for these plants may cause Egypt within a few years to be in the ranks of the largest economic countries, and with it a new cycle in the global economy may start, to be the beginning of the "tigers of Africa".
- There is a large national project, which is to maximize the use of wild medicinal plants for the development of the population in the southeastern region of Egypt, and to benefit from them in exports, in cooperation between the center and Nile University, and the

implementation of the project began in the Halayeb and Shalateen area, several months ago, it was completed in 2018, with funding from Academy of Scientific Research and Technology.

- Among the achievements that were made in the project within one year, he said: "In the beginning, the natural vegetation cover was surveyed for (46) sites in Shalateen region, which included: the valleys of Abraq, Al-Diff, Abusafa, two basins, Kansarob, Marafay, Deeb, Sarmatai and coastal environments from Sharm Al-Madfa to Hadraba, then the quantitative assessment For (43) medicinal plant species prevalent in these valleys, which included places and degree of spread, season of growth, density, seasonal productivity, fresh and dry, and analysis of vegetation cover of the plant communities growing in them, after which a chemical analysis of the effective medicinal substances of these plant species was carried out qualitatively and quantitatively.
- We have great challenges in production. Producers, exporters, researchers, competent official bodies, institutions and non-governmental associations, investors, export control, pharmaceutical companies and the media must work to meet the challenges that confront us towards increasing our exports and competing with other countries. We need the following:
- Establishing centers for the production, marketing and export of medicinal and aromatic plants in the governorates of North Upper Egypt so that we can export according to (GAP) Egypt in order to apply good agricultural practices
- Providing a sound and accurate database on areas and production at the national level, as well as data on the needs of the external market where we can produce according to the needs of the external market.
- Provide the necessary funding to develop the current methods of production, collection, sorting and packing through foreign grants and aid.
- Establishing advanced modern centers in production concentration areas, especially drying, distillation, extraction, preparation, processing and packaging.
- Establishing a central steam sterilization unit to get rid of microbial contamination in the product, and it will serve the governorates of North Upper Egypt.
- Working on manufacturing medicinal and aromatic plants instead of exporting them as raw materials to increase the yield from them.
- Assist in establishing chillers for the export of fresh green herbs.

- Cooperation of pharmaceutical companies in Egypt in purchasing medicinal and aromatic plant products and their extracts from local production instead of relying on importing them.
- Egyptian media cooperated in spreading awareness among citizens to increase their consumption of these plants.
- Encouraging investors to set up integrated projects in the new lands in the governorates of North Upper Egypt to produce, manufacture and export medicinal and aromatic plants.
- Availability of large areas of reclaimed or reclaimable lands inexpensively that can be used in the production of medicinal and aromatic plants.
- The area of the country extends to vast distances from the coast of the Mediterranean and the temperate Mediterranean, including to the borders of the hot-climate Sudan in the south, which gives a great deal of room in choosing suitable plants for each climate.
- It provides a number of medicinal and aromatic plants that grow wild and have markets at home and abroad, such as: Egyptian drunken, onion onions, Alkhalah
- Developing high-quality, productive and disease-resistant varieties, in order to reduce the decline in productivity per feddan, which reduces the use of pesticides and reduces production costs.
- Activating the role of agricultural extension in educating farmers about the economic and export importance of these crops, in order to urge farmers to increase the area,
- The lack of trained labor in the field of packing and processing in accordance with international conditions, and there are limitations for export procedures that are limited to government estimates, loss of time in completing export procedures, and the burden of Egyptian agricultural and tax administrative and tax expenses that the exporter bears on his exports.
- Providing the necessary financing through agricultural loans in all its forms and to include all stages of production and marketing, especially for small producers, conducting scientific research regarding the production and marketing of these crops and also with regard to developing the desired varieties locally and internationally with high productivity and increasing the concentration of active substances.
- Conducting studies on studying domestic and foreign consumer behavior.
- Paying attention to clean crops and creating and disseminating brochures on these crops.

- Establishing a database of cultivation, production and marketing of these crops.
- Attracting investments in the field of production and processing of medicinal and aromatic plants crops.
- Supporting and developing the role of agricultural extension, supporting cooperative activity to reduce the monopoly of traders.
- Expanding horizontally and vertically in the cultivation of these crops, especially the neglected lands that are not suitable for other crops.
- Development of Egyptian exports of these crops through the provision of administratively trained personnel.
- Providing specialized labor in the field of processing and packaging, and paying attention to advertising operations.
- Advertising and promotion of marketing crops locally and internationally through agricultural flyers and exhibitions.
- The most important problems facing the production and marketing of plants are:
- Price fluctuation and reliable seeds.
- High production and marketing costs.
- The lack of an economic entity to look after the affairs of the producers of these plants and work to promote them.
- The lack of specialized stores.
- As for the problems facing exports, they are the high export costs, customs complications, the high costs of trained manpower, the variation in export prices from one company to another, and the unity of competition with other countries.
- The most important solutions to face these problems are selecting seeds from a reliable source, grouping production areas, disseminating marketing information, activating the role of agricultural extension, establishing branches of associations for the producers of medicinal and aromatic plants especially in villages, establishing a fund to support exports, reducing regulatory agencies, providing marketing information, and expanding. In the cultivated areas of medicinal and aromatic plants, the study indicates that the most important importing countries are Germany, Spain, the Netherlands, and chamomile wormwood, while Germany, Poland, and America are among the most important importing countries for marjoram. While Algeria, the UAE, and Tunisia are among the most important importing countries of caraway.

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