World Rural Observations

An analytical study of the current situation of the most important exports of medicinal and aromatic plants

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Abstract: The issue of export development is one of the important issues that occupies a prominent place on the map of economic policy priorities because it is one of the permanent and important sources. Results show that Poland, Germany, and America are the most important global markets receiving Egyptian exports of marjoram, as they absorbed what was exported to them of marjoram, equivalent to about 55.9% of the average total amount of Egypt's exports of marjoram to the world, with a value equivalent to 59.7% of the average value of Egypt's total exports of marjoram to the world during the period (2017-2022). Equivalent to about 38.8% of the average total amount of Egypt's exports of green mint to the world with a value of more than 45.7% during the period (2017-2022).And that Mexico is the most important global market receiving Egyptian exports of wormwood, as it absorbed what was exported to them of wormwood, equivalent to about 86.5% of the average total amount of Egypt's exports of wormwood to the world during the period (2017-2022).Raya of basil, where it absorbed what was exported to them of basil, equivalent to about 64.15% of the average total amount of Egypt's exports of basil seeds to the world during the period (2017-2022).as the values of the commodity concentration coefficient for Egyptian exports of marjoram, mint, wormwood and basil for the most important countries of the world are much less than 40%, and this indicates the increase in commodity diversity of Egyptian exports of marjoram, mint, wormwood and basil, and this is one of the success factors for the export policy, which depends on diversity and reducing the risk of dependence On one crop or product or a few crops and export products.

Key Words: Competitiveness indicators, Medicinal and aromatic plants, Instability coefficient, Reconcentration coefficient.

Introduction:

The issue of export development is considered one of the important issues that occupies a prominent place on the map of economic policy priorities because it is one of the permanent and important sources, and despite the increasing global interest in the cultivation of medicinal and aromatic plants, it is considered an unconventional crop because of its high economic importance for use in many fields, the most important of which is The field of medicines, cosmetics and perfumes. The cultivation of these plants at the local level has not received sufficient attention, despite the multiplicity of their types, the appropriate environmental conditions for their cultivation, and their high economic returns. Despite the economic importance of medicinal and aromatic plants, the area cultivated with them represents about 0.68% of the cropped area for the year 2021. Therefore, it has become important to study the most promising and non-traditional agricultural exports.

The study Problem:

Despite the economic importance of medicinal and aromatic plants due to their advantages in the production of medicines, what is achieved from their production and exports does not reach the level that is commensurate with the production and export capabilities, which make them competitive in global markets. However, the cultivation of these plants at the local level has not received sufficient attention, which has led to... This leads to a fluctuation in the cultivated areas and thus a decrease in production and productivity. This requires studying the competitiveness of Egyptian exports of these plants in their global markets.

Objective of the study:

The research aims mainly to increase exports of these medicinal and aromatic plants and to analyze some competitive indicators of the most important medicinal and aromatic plants, as this contributes to increasing exports of these medicinal and aromatic plants through studying the following topics:

1) The relative importance of medicinal and aromatic plants in the cropped area.
2) Development of area, production, and productivity of some medicinal and aromatic plants.
3) Development of the quantity and value of Egyptian exports of some medicinal and aromatic plants.
4) Geographical distribution of exports of the most important medicinal and aromatic plants.
5) Promising markets for the most important Egyptian medicinal and aromatic plants in the global market.

Methodology and sources of data:
The research relied on the use of a descriptive and quantitative analysis method for time series data over the period (2009-2021), in addition to the use of some statistical indicators and standards, such as the instability coefficient and the commodity concentration coefficient, which measure the degree of competition in Egyptian exports that help achieve the goal of the research. The research relied on published and unpublished data issued by entities closely related to the subject of the research, such as the Economic Affairs Sector at the Ministry of Agriculture and Land Reclamation, in addition to some data from the Central Agency for Public Mobilization and Statistics.

Discussion of the results:
The relative importance of the area of medicinal and aromatic plants from the crop area during the period (2017-2021)
It is clear from Table (1) that the average total area of medicinal and aromatic plants of the crop area has reached about 0.66% of the total crop area of about 16195 thousand acres, while it is clear from the data of the same table that medicinal and aromatic plants have occupied an area estimated at 106 thousand acres during the average period (2017-2021).

Development of area, production, and productivity of some medicinal and aromatic plants:
Table (2) Shows the development of the area, productivity, and production of some medicinal and aromatic plants during the two periods (2016-2018) and (2019-2021).

First: Change in cultivated area:
It is clear from the table that the cultivated area of medicinal and aromatic plants increased during the first period compared to the second period, as the average cultivated area in the first period (2016-2018) reached about 50,836.3 acres, and in the second period the average area reached about 42,191.3 acres, and the increase is estimated between the two periods. About 8645.0 acres, with an increase rate of about 17.0% during the period (2019-2021).

Table (1): the relative importance of the area of medicinal and aromatic plants from the crop area during the period (2017-2021).

years	Total area harvested thousand acres (1)	The total area of medicinal and aromatic plants thousand acres (2)	The total area of medicinal and aromatic plants from the crop area % 2/1
2017	16038	99	0.62
2018	16061	106	0.66
2019	16215	110	0.68
2020	16286	106	0.65
2021	16375	111	0.68
Average	**16195**	**106.4**	**0.66**

Source: Ministry of Agriculture and Land Reclamation, Economic Affairs Sector, Central Administration for Agricultural Economy, Annual Statistics Bulletin, various issues.

Productive and economic indicators of medicinal and aromatic plants:
First: Marjoram crop:
While Table (2) indicates an increase in the average cultivated area of marjoram plant from about 2791.3 acres during the first period (2016-2018) to about 3399.7 acres during the second period (2019-2021). The increase between the two periods is estimated at 608.3 acres, an increase rate of about 21.8% between the two periods.
Second: Green Mint Crop:
It is clear from the data of the same table that the average cultivated area of municipal mint increased from about 1798.0 acres only during the first period (2018-2016) to about 4924.3 acres during the second period (2019-2021). The increase between the two periods is estimated at about 3126.3 acres, with a significant increase rate of about 173.9% between the two periods.
Third: wormwood:
From the table, the average cultivated area of wormwood has reached about 233.3 acres during the first period (2016-2018) to about 166.7 acres during the second period (2019-2021). The decrease between the two periods is estimated at about 66.7 acres, with an increase rate of about 28.6% between the two periods.

Fourth: Green Basil:
While Table (2) indicates an increase in the average cultivated area of basil plant from about 8279.7 acres

during the first period (2016-2018) to about 8601.3 acres during the second period (2019-2021). The increase between the two periods is estimated at 321.7

acres, an increase rate of about 3.9% between the two periods.

Table (2): the amount of change in the area, production, productivity, and rate of change of some medicinal and aromatic plants during the two periods (2016-2018) and (2019-2021).

Statement	Average period (2018-2016)			Average period (2021-2019)			Amount of change between periods			The period between periods the two		
crop	Area	yield	Production	Area	yield	Production	Area	yield	Production	Area	yield	Production
Marjoram	2791.33	1.72	4729.67	3399.67	2.59	9218.00	608.33	0.87	4488.33	21.79	50.59	94.90
Green Mint	1798.00	16.64	30509.67	4924.33	20.71	104577.00	3126.33	4.08	74067.33	173.88	24.52	242.77
Wormwood	233.33	0.07	46.67	166.67	0.27	133.33	-66.67	0.20	86.67	-28.57	300.00	185.71
Green Basil	8279.67	19.15	157586.67	8601.33	11.38	146826.33	321.67	-7.77	-10760.33	3.89	-40.58	-6.83
The total area of plants	50836.33	0.00	0.00	42191.33	0.00	0.00	-8645.00	0.00	0.00	-17.01	0.00	0.00

Source: Ministry of Agriculture and Land Reclamation, Economic Affairs Sector, Central Administration of Agricultural Economy, Annual Statistics Bulletin, miscellaneous issues.

Second: Change in production:
Through the data of the same table, it was found that there is a significant increase in the production of medicinal and aromatic plants because of the increase in the cultivated area during the two periods, and the following is a review of the production of the most important medicinal and aromatic plants as follows:
Marjoram: Through Table (2), the average production of marjoram increased from about 4729.7 tons during the first period (2016-2018) to about 9218.0 tons during the second period (2019-2021), and the increase between the two periods is estimated at about 4488.3 tons, with an increase rate of about 94.9% between the two periods.
Green mint: It is clear from the data of the same table that the average production of the green mint plant from about 30509.7 tons during the first period (2016-2018) to about 104577.0 tons during the second period (2019-2021). The increase between the two periods is estimated at about 74067.3 tons, with a very large increase rate of about 242.8% between the two periods.
Chamomile wormwood: The data of the same table indicate an increase in the average production of chamomile wormwood from about 46.7 tons during the first period (2016-2018) to about 133.3 tons during the second period (2019-2021), and the increase between the two periods is estimated at about 86.7 tons, with a significant increase rate of about 185.7% between the two periods.
Green basil: The same table indicates a decrease in the average production of green basil from about 157586.7 tons during the first period (2016-2018) to about 146826.3 tons during the second period (2019-2021), with a decrease between the two periods by about

10760.3 tons, with a decrease rate of about 6.8% between the two periods.
Third: Change in acre productivity:
Through the data of the previous table, it was clear that there are some medicinal and aromatic plants whose acre productivity increased, such as marjoram, municipal mint, chamomile wormwood during the two periods, where the average productivity of marjoram, mint, chamomile wormwood during the second period compared to the first period, where the average productivity per acre in the first period (2016-2018) was about 1.7, 16.6, 0.1 tons / acre respectively, in contrast, the average productivity of these crops was about 2.6, 20.7, 0.3 tons / acre in the second period (2019-2021) respectively with an increase between the two periods amounting to about 0.9, 4.1, and 0.2 tons / acre respectively, with an increase rate of about 50.6%, 24.5% and 300% for each of them respectively between the two periods.
And others decreased their acre productivity, such as municipal basil during the two periods (2018-2016) and (2019-2021). The average acre productivity declined during the second period, because of the cultivation of new varieties or the development of cultivation methods for some plants during the two periods.
While it is clear from Table (2) that the municipal basil plant has decreased its average productivity per acre during the second period compared to the first period, where the average productivity in the first period (2018-2016) was about 19.2 tons / acre, where it declined in the second period (2019-2021) to about 11.4 tons / acre. With a decrease between the two periods amounting to about 7.8 tons / acre, a decline rate of about 40.6% between the two periods.

Change in the quantity and value of Egyptian exports and the export price of medicinal and aromatic plants:

Table No. (3) shows the quantity and value of Egyptian exports and the export price of medicinal and aromatic plants during the period (2009-2021), the highest amount of exports amounted to about 112579 tons per year with a value of about 158895 thousand dollars, and the export price amounted to about 1411 dollars / ton in 2011, with an average quantity of about 53080.71 tons during the period (2009-2021), and a minimum of about 51411 tons in 2009 with a value of about 111781 thousand dollars, and the export price amounted to about 2174 dollars / ton, with an average value of about 97940.24 thousand, With an average price of about $ 1787.39 / ton during the period (2009-2021).

By studying the general trend of the development of the quantity of Egyptian exports of medicinal and aromatic plants during the period (2009-2021), equation No. (1) in Table (4) shows the results of the statistical estimation of the features of the equation of the general trend of the quantity of Egyptian exports during the period (2009-2021), from which it is found that the quantity of exports has taken an increasing general trend by 2243.53. Tons The statistical significance of this increase has been proven at the level of 0.01, representing about 4.3% of the average of about 53080 tons, where it was found that the value of exports has taken an increasing general trend by 2128.8 thousand dollars The statistical significance of this increase has been proven at the level of 0.01, representing about 2.2% of the average of about 97940 thousand dollars during the period studied, where the

export price is decreasing by 56.71 dollars / ton, representing about 3.2% of the average of about 1787 USD/ton during the period (2009-2021).

Table (3): Quantity and value of Egyptian exports and the export price of medicinal and aromatic plants during the period (2009-2021)

Years	The quantity Egyptian exports of medicinal and aromatic plants ton	The value of Egyptian exports of medicinal and aromatic plants thousand dollar	Price dollar/ ton
2009	51411	111781	2174
2010	55037	112947	2052
2011	112579	158895	1411
2012	30329	110271	3636
2013	47908	129294	2699
2014	59828	152852	2555
2015	64576	140304	2173
2016	83483	144355	1729
2017	69129	139057	2012
2018	71419	135969	1904
2019	78710	143478	1823
2020	82667	143922	1741
2021	87458	146133	1671
Average	53080.71	97940.24	1787.39

Source: Central Agency for Public Mobilization and Statistics.

Table (4): General time trend equations for the development of the quantity and value of Egyptian exports of medicinal and aromatic plants in Egypt during the period (2009-2021)

No	Equations	R^2	F	annual% change
1- **quantity of Egyptian exports**	$\hat{Y}_1 = 53105.77 + 2243.53X_i$ (4.53) (1.52)	0.17	2.31	4.3
2- **value of Egyptian exports**	$\hat{Y}_2 = 121195.15 + 2128.80X_i$ (14.81) (2.07)	0.28	4.26	2.2
3- **Price**	$\hat{Y}3 = 2518.5 - 56.71X_i$ (7.71) (-1.38)	0.15	1.89	3.2

Where Xi: time variable for the time period (2009-2021), i=1, 2, 3… 13 the value in parentheses indicates the value (T) calculated for the significance of the regression coefficients, 1% significance. (R2) Coefficient of determination, (F) significance of the model. Estimated phenomenon/arithmetic average (*100 B) = % annual change in the phenomenon

Geographical distribution of Egyptian exports of medicinal and aromatic plants:

The benefit of studying the geographical distribution of some exports of medicinal and aromatic plants is due to identifying the absorptive capacity of global

markets for Egyptian exports, especially the countries with which Egypt has international agreements, and working to develop Egyptian exports to them by studying the markets of these countries and identifying the required specifications and appropriate prices in a

way that ensures continuity. In these markets, as well as identifying the changes that have occurred in the position of these exports.

Geographical distribution of Egyptian exports of marjoram:
Table (5) shows the geographical distribution of the quantity, value and price of Egyptian marjoram exports, where the average amount of Egypt's exports of marjoram to the world is estimated at about 2588.8 thousand tons, with an average value of about 4696.9 thousand dollars during the period (2017-2022), and Poland came in first place, as it acquired about 617.7 thousand tons, representing about 23.9% of the average amount of Egypt's exports of marjoram to the world, with a value of 982.2 thousand dollars, representing about 20.9% of the average value of Egypt's exports of cold. Gosh during the same period, Germany ranked second, as it acquired about 567.3 thousand tons, representing about 21.9% of the average amount of Egypt's exports of marjoram to the world, with a value of 1176.3 thousand dollars, representing about 25.0% of the average value of Egypt's exports of marjoram during the same period, and America came in third place, as it acquired about 261.6 thousand tons, representing about 10.1% of the average amount of Egypt's exports of marjoram to the world, with a value of 648.1 thousand dollars, representing about 13.8% of the average value of Egypt's exports of marjoram during the same period, followed by Austria, Latvia, Belgium, Turkey, Slovenia, Brazil, Spain, the Russian Federation, the United Kingdom, Saudi Arabia, the Czech Republic, the Netherlands, Mexico, Peru, and Hungary in the last place represent about 5.3% 2.9%, 2.8%, 2.3%, 2.1%, 2.7%, 1.6%, 1.5%, 1.2%, 1.1%, 1%, 1%, 1% of the average amount of Egypt's exports of marjoram to the world, with a value representing about 5.7%. , 1.9%, 3.2%, 3.1%, 2.7%, 1.3%, 1.8%, 1.1%, 1.2%, 1.4%, 1.2%, 1.2%, 0.7%, 0.7%, 0.9% of the average value of Egypt's exports of marjoram during the same period respectively.

In light of the above, the results show that Poland, Germany and America are the most important global markets receiving Egyptian exports of marjoram, as they absorbed what was exported to them of marjoram, equivalent to about 55.9% of the average total quantity of Egypt's exports of marjoram to the world, with a value equivalent to 59.7% of the average value of Egypt's total exports of marjoram to the world during the period (2017-2022).

Table (5): Geographical distribution of the quantity and value of marjoram crop exports during the period (2017-2022)

Country	quantity	%	value	%
Poland	617.7	23.9	982.2	20.9
Germany	567.3	21.9	1176.3	25
America The United States of	261.6	10.1	648.1	13.8
Portugal	138.3	5.3	268.4	5.7
Republic of Latvia	76.3	2.9	86.9	1.9
Belgium	72.2	2.8	152.2	3.2
Turkey	71.7	2.8	147.2	3.1
The Republic of Slovenia	69.6	2.7	126.8	2.7
Brazil	59.8	2.3	62.1	1.3
Spain	54.7	2.1	84.5	1.8
Federal Republic of Russia	40.6	1.6	53.6	1.1
United Kingdom	39.2	1.5	55.7	1.2
Saudi Arabia	31.6	1.2	66.4	1.4
Czech Republic	27.5	1.1	57	1.2
Netherland	26.3	1	54	1.2
Mexico	26.1	1	32.9	0.7
Peruvian	26.1	1	31.3	0.7
Hungary	25.3	1	42.5	0.9
Others	356.9	13.8	568.8	12.1
Total	**2588.8**	**100**	**4696.9**	**100**

Source: Central Agency for Public Mobilization and Statistics

Geographical distribution of Egyptian exports of green mint:

Table (6) shows the geographical distribution of both the quantity and value of Egyptian green mint exports, where the average amount of world exports of green mint to the world is estimated at about 3224.2 thousand tons with an average value of about 6564 thousand dollars during the period (2017-2022), and Germany came in first place, as it acquired about 1249.5 thousand tons, representing about 38.8% of the average amount of world exports of green mint, with a value of 2997.8 thousand dollars, representing about 45.7% of the average value of world exports. For the same period, Turkey ranked second, as it acquired about 221.4 thousand tons, by 6.9%, with an average value of about 237.9 thousand dollars, by 3.6% of the average value of the world during the period studied, and the United Kingdom came in third place, account in India, about 165.0 thousand tons, representing about 5.1% of the average amount of world exports, with a value of 327.4 thousand dollars, representing about 5.0% of the average value of exports during the same period, followed by, the United States of America, Argentina, The Hashemite Jordan, Spain, Mexico, Brazil, Russian Federation, Saudi Arabia, Serbia, France, Romania, Poland, Italy, India and Italy ranked last with an average quantity of about 154.6, 121.3, 115.9, 111. 96, 89.4, 82.4, 77.8, 60.8, 48.1, 45.3, 42.4, 42.2, 39.5 thousand tons represent about 4.8%, 3.8%, 3.6%, 3.5%, 3.3%, 3%, 2.8%, 2.6%, 2.4%, 1.9%, 1.5%, 1.4%, 1.3%, 1.2% of the average amount of Egypt's exports of municipal mint to the world during the average period (2017-2022). With a value representing about 6.1%, 2.5%, 2%, 2.7%, 3.8%, 1.5%, 2.3%, 2.3%, 1.5%, 3.1%, 1.1%, 1.3%, 0.7%, and 1.7% of the average value of Egypt's exports of green mint during the same period respectively.

In light of the above, the results show that Germany is the most important global market receiving Egyptian exports of green mint, as it absorbed what was exported to them of green mint, equivalent to about 38.8% of the average total amount of Egypt's exports of green mint to the world, with a value exceeding 45.7% of the average value of Egypt's total exports of green mint to the world during the period (2017-2022).

Table (6): Geographical distribution of the quantity and value of mint crop exports during the period (2017-2022) Quantity: one thousand tons Value: one thousand dollars

Country	quantity	%	value	%
Germany	1249.5	38.8	2997.8	45.7
Turkey	221.4	6.9	237.9	3.6
United Kingdom	165	5.1	327.4	5
America The United States of	154.6	4.8	401.2	6.1
Argentine	121.7	3.8	162	2.5
Hashemite Kingdom of Jordan	115.9	3.6	132	2
Spain	111.3	3.5	174.8	2.7
Mexico	108	3.3	247.9	3.8
Brazil	96	3	98.8	1.5
Federal Republic of Russia	89.4	2.8	152.4	2.3
Saudi Arabia	82.4	2.6	148.8	2.3
Republic of Serbia	77.8	2.4	100.3	1.5
France	60.8	1.9	204.8	3.1
Romania	48.1	1.5	73.1	1.1
Poland	45.3	1.4	84.3	1.3
Italy	42.4	1.3	69.1	1.1
India	42.2	1.3	48.3	0.7
Netherland	39.5	1.2	110.7	1.7
Others	353.1	11	792.3	12.1
Total	**3224.2**	**100**	**6564**	**100**

Source: Central Agency for Public Mobilization and Statistics

Geographical distribution of Egyptian exports of wormwood:

Table (7) shows the geographical distribution of both the quantity and value of wormwood exports, where the average amount of Egypt's exports of wormwood to the world is estimated at about 7631.2 thousand tons with an average value of about 3468.1 thousand dollars during the period (2017-2022), and Mexico came in first place, as it acquired about 6603.8 tons, representing about 86.5% of the average amount of wormwood exports to the world, with a value of 53.9 thousand dollars, representing about 1.6% of the average value of Egypt's exports of wormwood during the same period. Germany ranked second, accounting for about 246.1 thousand tons, representing about 3.3% of the average amount of Egypt's exports of wormwood to the world, with a value of 1052.9 thousand dollars, representing about 35.0% of the average value of Egypt's exports of wormwood during the same period, and the Netherlands came in third place, where it acquired about 184.5 thousand tons, representing about 2.4% of the average amount of

Egypt's exports of wormwood to the world, with a value of 619.9 thousand dollars, representing about 17.9% of the average value of Egypt's exports. of wormwood during the same period, followed by, China, Latvia, Spain, Russia, America, Paraguay, Brazil, Romania, and Italy came in last place with an average quantity of about 1.3%, 1.3%, 1, 0.6%, 0.6%, 0.3%, 0.3%, 0.2%, 0.2% thousand tons, representing about 8.7%, 6.2%, 5.8%, 3.4%, 8.5%, 2.8%, 1.6%, 1.5%, 2.1% of the average amount of Egypt's exports of wormwood to the world, from the average The value of Egypt's exports of wormwood during the same period respectively.

Considering the above, the results show that Mexico is the most important global market receiving Egyptian exports of wormwood, as it absorbed what was exported to them of wormwood, equivalent to about 86.5% of the average total amount of Egypt's exports of wormwood to the world during the period (2017-2022).

Table (7): Geographical distribution of the quantity and value of exports of the wormwood and chamomile crop during the period (2017-2022)

Country	Thousand Ton quantity	%	Thousand dollar value	%
Mexico	6603.8	86.5	53.9	1.6
Germany	246.1	3.3	1052.9	35.0
Netherland	184.5	2.4	619.9	17.9
Peoples Republic of China	99.2	1.3	261.1	8.7
Republic of Latvia	98.2	1.3	214.5	6.2
Spain	78.3	1.0	173.6	5.8
Federal Republic of Russia	48.2	0.6	119.1	3.4
The United States Of America	45.3	0.6	256.2	8.5
Belgium	21.1	0.3	98.6	2.8
Brazil	20.0	0.3	47.8	1.6
Romania	18.4	0.2	51.1	1.5
Italy	16.0	0.2	62.6	2.1
Others	152.2	2.0	456.7	13.2
Total	**7631.2**	**100.0**	**3468.1**	**100.0**

Source: Central Agency for Public Mobilization and Statistics.

Geographical distribution of Egyptian exports of basil seeds:

Table (8) shows the geographical distribution of the quantity, value and price of basil seed exports, where the average amount of Egypt's exports of basil seeds to the world is estimated at about 218894 thousand tons with an average value of about 36116 thousand dollars during the period (2017-2022), and America came in first place, as it acquired about 66152 thousand tons, representing about 30.22% of the average amount of Egypt's exports of basil seeds to the world, with a

value of 1661 thousand dollars, representing about 4.60% of the average value of exports Egypt from basil seeds during the same period, and Vietnam ranked second, as it acquired about 52213 thousand tons, representing about 23.85% of the average amount of Egypt's exports of basil seeds to the world, with a value of 365 thousand dollars, representing about 1.01% of the average value of Egypt's exports of basil seeds during the same period studied, and Germany came in third place, as it acquired about 22059 thousand tons, representing about 10.08% of

the average amount of Egypt's exports of basil seeds to the world, with a value of 4594 One thousand dollars represents about 12.72% of the average value of Egypt's exports of basil seeds during the same period. Followed by Spain, Russia, Poland, Turkey, France, Brazil, Canada, Belgium, Italy, Austria, the Netherlands, the United Kingdom, India, the People's Republic of China with an average quantity of about 4.13%, 4.46%, 2.76%, 2.60%, 2.44%, 1.95%, 1.81%, 1.77%, 1.73%, 1.72%, 1.96%, 0.91%, 0.76%, 0.73% thousand tons of the average amount of Egypt's exports of basil seeds, representing about

4.42%. 22.62%, 3.13%, 2.93% 3.52%, 13.04% 2.96% 2.18%, 2.02% 2.23% 2.23% 1.26% 0.89%, 0.84% of the average value of Egypt's exports of basil seeds to the world during the same period respectively.

Considering the above, the results show that America, Vietnam, and Germany are the most important global markets receiving Egyptian exports of basil seeds, as they absorbed the export of basil seeds equivalent to about 64.15% of the average total amount of Egypt's exports of basil seeds to the world during the period (2017-2022).

Table (8) Geographical distribution of the quantity and value of the basil crop during the average period (2017-2022) Quantity: one thousand tons. Value: one thousand dollars

Country	quantity	%	value	%
The United States of America	66152	30.22	1661	4.6
Vietnam	52213	23.85	365	1.01
Germany	22059	10.08	4594	12.72
Spain	905	4.13	1595	4.42
Federal Republic of Russia	758	3.46	8169	22.62
Poland	605	2.76	1132	3.13
Turkey	570	2.6	1058	2.93
France	5351	2.44	1270	3.52
Brazil	426	1.95	4711	13.04
Canada	397	1.81	1070	2.96
Belgium	388	1.77	789	2.18
Italy	3786	1.73	729	2.02
Austria	3756	1.72	807	2.23
Netherland	370	1.69	805	2.23
United Kingdom	2002	0.91	456	1.26
India	1671	0.76	323	0.89
Peoples Republic of China	1604	0.73	302	0.84
Others	16109	7.36	6280	17.39
Total	**218894**	**100**	**36116**	**100**

Source: Central Agency for Public Mobilization and Statistics.

Efficiency of exports of the crops under study:
Second Stability Coefficient:
stability coefficient the majority of developing countries, including Egypt, are characterized by the instability of their exports, especially agricultural ones, because most of them rely on the principle of exporting surpluses and not producing for export. Calculating the stability coefficient is considered one of the important indicators through which one can identify the extent of continuity and stability of exports of a particular commodity, and the extent of its fluctuation, whether in quantity, value, or price. This can help in drawing up and developing policies to encourage exports in a correct manner. The stability coefficient is calculated in several ways, including the

method of percentages of average deviations, which is done in the following steps:
1- Calculate the general time trend equation using the least squares method for the quantity, value, or price of the crop during the study period.
2- 2- Calculating the estimated values of the dependent variable from the previous step during the study period.
3- 3- Calculate the stability coefficient with the following equation:
4- S.C = $((Y_i - \hat{Y}_i)/ \hat{Y}_i) *100$ Where S.C = Stability Coefficient Y_i = the actual value of the variable in year i $\hat{Y}_i$ = the estimated value of the variable in year i The optimal state of stability in exports of the commodity indicates

if the value of the stability coefficient is equal to zero, and whenever the value of the coefficient is greater than zero - regardless of the sign - this means instability in exports.

First: Instability Coefficients:

- **Marjoram**: It is clear from Table (9) the development of the total value and quantity of Egypt's exports of marjoram during the period (2010-2022), where the quantity exported of marjoram for the year 2021 increased from its dust from the years, which amounted to 3078.56 tons and amounted to about 5611.50 thousand dollars during the same year. This quantity also decreased to about 2970.38 tons during the year 2022. It was worth 4776.66 thousand floors. Then it rose to reach 2670.19 tons in 2020 and amounted to 5382.69 thousand dollars, and this is reflected in the value of the instability coefficient for those quantities and values, as its value for the two variables reached about 6.05% 4.64% each, respectively. This indicates the relative stability of these variables, and it is generally clear that marjoram surpasses the rest of the studied crops (mint, wormwood, basil) as one of the important Egyptian exports during the period (2010-2022), where the average quantity exported of marjoram during the average of that period was 2131.20 tons, with an average of 4080.47 thousand dollars.

Table (9): Evolution of the total quantity and value of marjoram exports to countries of the world during the period (2010-2022) Quantity: tons Value: one thousand dollars

Years	Quantity of exports	Coefficient of instability	value of exports	Coefficient of instability
2010	1215.01	2.86	1870.07	20.66
2011	2428.31	73.75	3427.41	29.62
2012	753.44	51.21	2396.77	18.24
2013	1290.36	23.69	2984.98	7.26
2014	1626.20	11.51	3561.15	1.57
2015	1961.59	1.15	3729.25	1.69
2016	2664.31	25.02	4065.13	0.38
2017	2301.69	1.04	4630.07	6.01
2018	2199.28	9.30	4679.71	0.53
2019	2546.27	0.98	5930.75	20.00
2020	2670.19	1.76	5382.69	2.93
2021	3078.56	7.46	5611.50	1.72
2022	2970.38	1.37	4776.66	17.70
Average	**2131.20**	**6.05**	**4080.47**	**4.64**

Source: Central Agency for Public Mobilization and Statistics

Mint:

It is clear from Table (10) the development of the total value and quantity of Egypt's mint exports during the period (2010-2022), as the amount exported of mint for the year 2022 has increased compared to previous years, which amounted to 2532.85 tons and its value amounted to about 4816.99 thousand dollars during the same period. General. This quantity also decreased to about 2,390.09 tons within a year during 2021. Its value amounted to 4,546.32 thousand dollars. Then it increased after that to reach 2247.32 tons in 2020, and its value amounted to 4275.64 thousand dollars, and this is reflected in the value of the instability factor for those quantities and values, as its value for the two variables reached about 13.49% and 4.20% for each of them, respectively. Which indicates the relative stability of these variables, as the average quantity of mint exported during that average period reached 1676.26 tons, with an average value of about 3192.94 thousand dollars.

Wormwood:

It is clear from Table (11) the development of the total quantity and value of Egypt's mint exports during the period (2010-2022), as the exported quantity of mint in 2001 increased compared to previous years, which amounted to 2346.89 tons and its value amounted to about 4324.69 thousand dollars during the same period. General. This quantity also declined to reach about 2,301.75 tons within a year during 2002. Its value amounted to 4,260.66 thousand dollars. Then it rose to reach 2256.61 tons in 2002 and its value amounted to 4196.63 thousand dollars. This is reflected in the value of the instability coefficient for those quantities and values, as their value for the two variables reached about 23.79% and 17.99% for each

of them, respectively. This indicates the relative stability of these variables, as the average quantity of wormwood exported during that period reached

2076.06 tons at an average value of 3940.50 thousand dollars.

Table (10): Development of the total quantity and value of mint exports to countries of the World during the period (2010-2022)

Years	Quantity of exports	Coefficient of instability	value of exports	Coefficient of instability
2010	819.67	9.11	1568.9	12.26
2011	962.44	87.99	1839.57	38.82
2012	1105.2	49.42	2110.25	15.72
2013	1247.97	22.33	2380.92	5.82
2014	1390.73	12.12	2651.6	0.93
2015	1533.49	3.98	2922.27	4.21
2016	1676.26	19.25	3192.94	4.48
2017	1819.02	5.14	3463.62	0.21
2018	1961.79	16.05	3734.29	6.16
2019	2104.56	9.44	4004.97	10.84
2020	2247.32	6.34	4275.64	0.77
2021	2390.09	8.68	4546.32	4.14
2022	2532.851	13.92	4816.99	3.67
Average	**1676.26**	**13.49**	**3192.94**	**4.2**

Source: Central Agency for Public Mobilization and Statistics

Table (11): Evolution of the total quantity and value of wormwood exports to countries of the world during the period (2010-2022)

Years	Quantity of exports	Coefficient of instability	value of exports	Coefficient of instability
2010	2346.89	18.88	4324.69	32.25
2011	2301.75	57.10	4260.66	19.79
2012	2256.61	49.40	4196.63	13.45
2013	2211.47	31.36	4132.60	15.03
2014	2166.33	11.74	4068.56	2.91
2015	2121.19	8.88	4004.53	9.64
2016	2076.06	51.20	3940.50	21.54
2017	2030.92	33.65	3876.46	40.85
2018	1985.78	30.77	3812.43	44.94
2019	1940.64	34.29	3748.40	20.77
2020	1895.50	25.42	3684.37	22.66
2021	1850.36	16.81	3620.33	22.50
2022	1805.22	5.78	3556.30	13.65
Average	**2076.06**	**23.79**	**3940.50**	**17.99**

Source: Central Agency for Public Mobilization and Statistics

Basil:

It is clear from Table (12) the development of the total value and quantity of Egypt's exports of basil during the period (2017-2022), as the quantity exported of mint for the year 2022 increased compared to previous years, which amounted to 2,354 tons and its value amounted to about 4,474.29 thousand dollars during the same period. General. This quantity also decreased to reach about 2219.08 tons within a year during the year 2021. Its value amounted to 4218.13 thousand

dollars. It then increased to reach 2084.15 tons in 2020, and its value amounted to 3961.96 thousand dollars, and this is reflected in the value of the instability factor for those quantities and values, as its value for the two variables reached about 18.02% and 17.99% for each of them, respectively. This indicates the relative stability of these variables, as the average quantity of marjoram exported during that average period reached 1,544.44 tons, with an average of 2,937.31 thousand dollars.

Table (12): Development of the total quantity and value of basil exports to countries of the world during the period (2010-2022)

Years	Quantity of exports	Coefficient of instability	value of exports	Coefficient of instability
2010	734.875	35.41	1400.32	9.37
2011	869.803	91.81	1656.49	42.16
2012	1004.730	42.52	1912.65	3.95
2013	1139.658	29.97	2168.82	14.87
2014	1274.586	22.46	2424.98	10.75
2015	1409.514	11.30	2681.14	11.35
2016	1544.441	13.03	2937.31	9.33
2017	1679.369	8.12	3193.47	2.81
2018	1814.297	16.35	3449.63	6.39
2019	1949.224	9.14	3705.80	11.31
2020	2084.152	5.80	3961.96	0.10
2021	2219.080	12.72	4218.13	8.09
2022	2354.007	17.17	4474.29	0.87
Average	**1544.44**	**18.02**	**2937.31**	**5.47**

Source: Central Agency for Public Mobilization and Statistics.

Second: Commodity concentration coefficient:
The Gina – Hirschman coefficient is used to calculate the degree of commodity concentration of exports of a particular commodity according to the following equation:
$(C_{jx}=(X_{sj} / X_i)*100)$
Whereas: C_{jx} commodity concentration coefficient, X_{SJ}: exports of a certain commodity from a specific country, X_i: the value of total agricultural exports, and the closer the value of this coefficient of 100, this indicates an increase in the degree of commodity concentration of exports of a particular commodity, and the lower the value of this coefficient indicates an increase in the degree of commodity diversity of exports of that commodity.

It is clear from the data of Table No. (13) that the values of the commodity concentration coefficient for Egyptian exports of marjoram, mint, wormwood and basil for the most important countries of the world are much less than 40%, and this indicates the increase in commodity diversity of Egyptian exports of marjoram, mint, wormwood and basil, and this is one of the success factors for the export policy, which depends on diversity and reduce the risk of relying on a single crop or product or a few crops and export products.

Table (13): Commodity concentration factor for Egyptian exports of the crops under study to the most important countries in the world during the period (2017-2022)

Country	Marjoram	Green Mint	Wormwood	Basil
Germany	0.015	0.038	0.014	0.059
the united states of America	0.008	0.005	0.003	0.021
Brazil	0.001	0.001	0.001	0.060
Spain	0.001	0.002	0.002	0.020
Federal Republic of Russia	0.001	0.002	0.002	0.105
Netherland	0.001	0.001	0.008	0.010
Poland	0.013	0.001	0.001	0.015
Belgium	0.002	0.002	0.002	0.010

Source: Central Agency for Public Mobilization and Statistics, and Food and Agriculture Organization (FAO).

Recommendations:
1- I am interested in cultivating medicinal and aromatic plants and trying to increase their production to meet the growing global needs by producing high-yielding varieties of high quality and purity.

2- Encouraging an increase in Egyptian exports of the crops under study.
3- Paying attention to the quality and specifications of both wormwood and marjoram, as most of its foreign markets are markets searching for first-class quality.

4- Studying the most promising markets for Egyptian exports, which requires following up on these markets and studying their needs and the most important factors affecting them, especially the countries with which Egypt has international agreements.

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