## SUMMARY

Despite its relatively low share in acreage and contribution to agricultural GDP, medical plants in Egypt represent a potential source of income and export earnings. The fact that Egypt is the closest producer of certain types of plants to the export market of Europe, and the possibilities to improve both productivity and marketing patterns is a real asset in this regard.

Furthermore, as these crops are grown as marginal products in the crop rotation, with their relatively low requirements for irrigation whether in rain-fed areas or irrigated land represent another dimension for expansion particularily in zones outside the Nile valley or newly-reclaimed areas.

As raw material for local pharmaceutical industry and ats growing needs for inputs, and as an input for the extraction industry is a further potential for fostering the relative importance of this group of long-neglected crops.

The present study endeavours to analyze the economics of production, marketing and exports of the ten major medical crops in Egypt, namely Cummin, coriander, anise, caraway, Fennel, Chamomile, Mint, Marjoram, Henna and Rosell which constitute around 75% of the average area cultivated with medical plants, during the period 1976-1982.

In doing so, the study tachled issues related to prices, processing and the export policies of these plants at the local and world markets to show the share and potential position of the Egyptian production in the world market in ordet to propose marketing, policies which

meets development needs. The research comprises Five Chapters,.

The First chapter reviews ptevious studies, The second deals with the productivity of Some medical plants. The third chapter deals with the Value and costs of production, local prices, and marketing costs. The Fourth chapter deals with manufacturing and consumption of medical plants, whereas the Fifth chapter deals with the Egyptian exports of medical plants, and proposals to maximize their export revenues.

The analysis has showed the Follwoing:

- The average area cultivated with medical plants was 25000 feddans during the period 1970-1975, representing no more than 0.23% of the total crop area in A.R.E. which was 10.9 million feddans.
- 2. The average area cultivated with medical plants during the period 1976-1982 reached 38000 feddans, It representing 0.34% of the total crop area in A.R.E which was II.201 million feddans.
- 3. The annual average value of production for the medical plants during the period 1970-1975 was 3.5 million L.E. This was 0.23% of the total agricultural production value which reached 1390 million L.E. It also presented 0.42%, 1.88%, 4.83%, 73.78% of the total value production for crops, vegitables, Fruits and medical and aromatic plants.
- 4. The average production value for medical plants during the period 1976-1982 was about 11.6 million L.E. about 0.29% of the total agricultural production value which reached 3990 million L.E.
- 5. The net income per feddan of the aromatic seeds, Cummin, coriander, Anise, caraway, and fennel was 330, 191, 331, 140,76 L.E. It was

about 145,160,106,150,260 L.E. for chamomile, Mint, Marjoram, Henna and Rosell during 1980-1983.

The annual average production of oils extracted from medical plants during the period 1979-1982 was 62.9 Kg. It presented 2.8% of the total production of the extractors which reached 2269.3 Kg. It also presented 8.8% of the total production of the aroatic oils which reached 717.2 Kg. The annual average of exports value of medical plants under study during the period 1979-1982. Was 9 million L.E., it presented 0.46% of the total exports value which amounted to 1967 million L.E. It also presented 7.83% of the agricultural exports whose value was 115 million L.E. during the same period. During the period 1981-1983 the total exports of medical plants was 11.950 tons and its value was 9.366 mill. L.E., the private sector exports were 9304 tons, it presented 77.9% of the total exports of medical plants and its value was 7.738 million L.E., which presented 82.6% of total exports value of medical plants. The Public Sector exported 2646 tons for a value of 1.628 million L.E. This was 22.1% of the total exports and 17.4% of the total value of medical plants exported.

7. The average exports of medical plants oils was 5162 Kg. and its value was 511000 L.E. in 1982/83, the chair of private sector was 99.7% of the exported quan tity and 99% of the total exports value.

Average production of Coriander, Cummin, Mint, Chamomile, Caraway, Henna, Anise, Rosell, Marjoram and Fennel in order, were 6078,5123, 2094,1837,1470,842,535,442,362 and 76 tons respectively. They represent 32%, 1.9%, and 0.4% of the production of medical plants A.R.E.,

which amounts to 18859 tons during the period between 1970-1983. The percentages of the medical plants, cultivated area in the lower, middle and upper Egypt were 4.6%, 45.1% and 50.3% of the total area cultivated with medical plants in A.R.E. during the period between 1979-1983. The study has shown that there was no stability in the medical plants' cultivated area and that due to the following factors:

- The unstable sale prices of these plants in the local and world markets.
- The absence of planning policy for producing medical plant in Egypt. The study has shown that the variations in the productivity of each medical plant was due to the variations in their cultivaed area. The analysis has shown that, 83.4%, 99.7%,99.8%, 87.8%, 97.5%, 79% 36.1%, 98.7%, 90.6% and 48.6% of the total variations in the productivity of Cariander, Anise, Caraway, Fennel, Chamomile, Mint, Marjoram, Henna and Rosell in order, were due to the variations in the cultivated area of each plant. The total production of medical plant undertaken is corrolated with the cultivated area more than the average feddan productivity. The study has shown that the cultivated area is corrolated with the value of production. The corrolation coefficients for coriander, Anise, Fennel, Chamomile, Marjoram and Mint were 0.91, 0.88, 0.80, 0.80 and 0.60 respectively. As for Cumin, Caraway, Henna and Rosell the corrodation coefficients were 0.23, 0.52, 0.38 and 0.56 respectively. The study has shown that was a corrolation between the area cultivated of chamomile and coriander with their farm prices in the preceding year, The corrolation-coefficients  $v \in \mathbb{R}^n$ were 0.56, 0.51 respectively.

The study has shown that the average value for the total production of the medical plants was 8500 thousand L.E. for the period 1970-1983. The average total value of production of Cummin, Coriander, Chamomile, Caraway, Rosell, Anise, Henna, marjoram, Mint and Fennel and their value reached about: 3444, 2420, 1206, 453, 291, 257, 190, 142, 72, 25 thousand L.E. and represent about 40.5%, 28.6%, 14.2%,5.3%, 3.4%, 3%, 2.2%, 1.7%, 0.8%, 0.3% respectively. The total revenue per feddan was 345 L.E. for Anise, 289 L.E. for corainder, 213 L.E. for Caraway, 194 L.E. for fennel and 149 for Rosell during the period 1970-1983, but revenue was 415 L.E. for Marjoram during the period 1978-1983.

The study has shown that the farm prices for medical plants had annual rate of increase 11.1, 7.4, 4, 3.6, 3.1, 2.6, 2.4, 2, P.T. per Kg. for cummin, Anise, chamomile, coriander, Henna, Marjoram, Caraway and Fennel. The wholesale prises for medical plants had annual rate of increas but 18, 5.5, 12.3, 6.2 P.T. per Kg. For Cummin, coriander, Anise, Caraway, Fennel and Mint. The seasonal indexes of retail prices by using the ratio of moving average method for cummin in Cairo during the period 1975-1982, reached its maximum value during January and its minimum value during sebtaber. The farm chair of the wholesale price of one Kg. reached 64.5%, 78%, 69%, 58%, 72.3% and 15% forcummin, coriander, Anise, Caraway, Fennel, and Mint. It was also found the farm share of the retail prices for one Kg. 52.3%, 65%, 57%, 48%, and 53.1% for these plants. The share of the farm for the export price for Chamomile, marjoram, Rosell and Henna were 50.9%, 44.6%, 68.1% and 76.8% respectively. Production of oils from the medicinal plants is done by destillation and solvent extraction dehydration and packing oil production were 26.4,7.8,

9.2, 12.3 6.4, 0.756, 0.049 and 0.023 Kg. for marjoram, chamomile
Anise, cummin, caraway, fennel, coriander and Mint. The domestic
consumption of the medical plants during the period 1970-1983 were
4045, 3619, 718, 480 and 397 tons for Cummine, Coriander, Caraway,
Chamomile, Henna, and Rosell. They represented 79%, 59%, 49%, 42%,
57% and 89.8% of the total production of these plants. The quantitites
medical plants' export has increased. They reached 11.3 thousand tons
in 1983. It was 1.4 thousand tons in 1970. The exports value has increased from L.E. 698 Thousand in 1970 to L.E. 9.8 million in 1983.
The exports quantities were 2484, 1358, 1.78, 1.67, 931, 911, 434, 362,
and 45 tons of coriander, fennel, cummine, chamomile, caraway, marjoram,
Anise, Henna, Mint and Rosell.

The study indicates that the general trends for the average of export prices has increased 67.6, 33, 57.2, 42.4, 27.7, 141, 94.5, 52.7, 35.2 and 87 L.E. for cummin, coriander, Anise, caraway, Fennel, Chamomile, Marjoram, Mint, Henna and Rosell.

The study has shown the importance of private sector role in exporting of the medical plants and their oils. It has exported 77.9% of the total medical plants exports. It's value represented 82.6% of the total medical plants' exports value during 1981-1983.

The private sectors exports of medical plants oils represented 99.7% of the total medical plants oils and its value-represented 99% of the total medical plants' oils, during 1982-1983. The quantity of exports was corrolated with the cultivated area. The corrolation

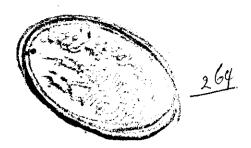
efficient was 0.78, 0.74, 0.69, 0.67 and 0.62 for Marjoram, Coriander, Mint, Henna and Chamomile. But it was low for cummin, Anise and caraway.

There is also a corrolation between quantity of exports and the production. The corrolation efficients were 0.79, 0.75, and 0.53 for Chamomile, Coriander Henna and Mint in order. They were low for Cummin, Anis-and Caraway and negative for Rosell.

The study has proved that Egyptian exports of aromatic seeds reached 8079 tons in 1983, with of 4.5 million L.E.

The linear progroming Method was used to maximize the revenves of exports' values. It was suggested three models were used. The first model maximized exports revenue to 5.3 Million L.E. The rate of increase was 15.6% The second model maximized export revenue by 5.3 mill. L.E. Its rate of increase was 16.4%. The third model maximized export value by 5.0 million L.E. the rate of increase was 10.3%.

The A.R.E. exported about 2902 ton of chamomile, Marjoram, Mint and Rosell in 1983. It's value was 5.3 mill. L.E. The study has suggested three models for maximizeing this value. These values were L.E. 6.9, 6.6 and 6.1 million Egyptian pounds respectively. The rates of increase were 31.6%, 23.5% and 15.2%.



## ECONOMICS OF SOME MEDICAL PLANTS

THE ARAB REPUBLIC OF EGYPT

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