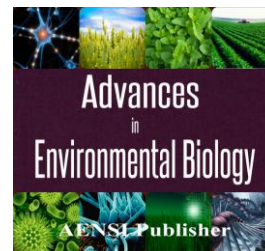




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The Analysis of Trans-Nationalization of Iranian Pharmacological Industry in Today World

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ABSTRACT

Globalization is the subject of political literature, commercial, cultural and safety market is not excluded from this. Nowadays, the pharmacy industry is discussed as one of the great industries in the world, as the consumed costs in the capital of pharmaceutical industry are significantly higher in comparison with other industries. Since possessing of such industries is as an important criteria to be development of well-known countries, countries have preferred themselves to be responsible of controlling and monitoring over supplying, producing and distributing it. Our country will distribute it in the public with the balanced price, considering specific subsidies for some medicines and also with monitoring over pharmaceutical affairs. Here the question arises, what strategies are needed to join the WTO. This article is a research article, is extracted of books, magazines, newspapers and other reputable sites and try to compare two topics, the production and export-import of Iran and world, to conclude that the transnational pharmaceutical industry, the government should define rules with allocating enough time, energy and money in order to make the pharmaceutical industry transnational. Reengineering and modifying the production structure as well as boosting the quality level of product, producing as nominal capacity, the price dependency of a logical system symmetric with inflation level, allocation credibility to carry the raw materials, and Machinery to produce in order to export need to be devoted the adequate time and financial resources. Moreover, rewarding bonus and exportation subsidies can be as a valid support in this field.

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INTRODUCTION

Any nation may present to the world people what it possesses of the resources, sciences, and techniques with opening its borders and thereby the access to all production and natural facilities is increased for welfare of human communities [1]. From the beginning of its arising, Iranian pharmacological industry has been exposed to numerous vicissitudes. Before the victory of Islamic Republic in Iran, all national pharmacological requirements were provided by foreign companies. With assignment of pharmacological companies under the foreign ownership to Organization of National Iranian Industries after the Islamic Revolution, the dependency of pharmacological enterprises was relatively reduced [2]. The present research has been conducted because of this fact that despite of over several years passed from independence of Iran and the forwarding vicissitudes, the existing challenges have still hindered the Iranian pharmacological industry to be able to take step identically and simultaneously with the modern pharmacological industries in the world and to enter in the world trade drugs club [2].

In order to enter into world trade drugs club and establishment of transnational pharmacological enterprises, it necessitates revising the policies regarding activity in this industry and for problems to be addressed and resolved with more extended view. It is assumed that Underdeveloped Nations will not be allowed to enter in this game at world trade drugs club and if they are permitted they will encounter serious damages. The current investigation is intended to identify the existing difference in rate of products and importation- exportation and quality of their administration and management and then recognition of structural problems in this industry and finding the needed strategies to achieve the goal of trans-nationalization of this industry [2].

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History:

The pharmacology started since period of *Shapur I* the Sassanid King with establishment of *Gundeshapur Academy* in Persia (ancient Iran) [3] and it was continued up to inauguration of *Dar- Al- Fonoon* center by Amir Kabir in 1843 and then separation of faculty of medicine from department of pharmacology in 1956 to the extent that the graduates of this faculty were granted PhD degree in pharmacology since 1971 and among them [5], the presence of some scientists has been highly effective including *Zachariah Al- Razi* (Rhazes) and *Avicenna*. Writing of several books by Rhazes including *Al-Mansuri- Fi- Teb*, *Al- Mansuri Kenash* and *Teb Al- Muluk* (Royal Medicine), *Krabadin* (great and little books), *Al- Madkhal Al- Teb* (outcome to science of Medicine), *Serr Al-Teb* (Secret of Medicine), *Ketab Fi- Al-Adviat Al- Ein* (Book of drugs for eye), and the famous book *Al- Hawi* (Virtuous Life Liber Continens) that is a collection of the practical techniques of medicine and also *Canon of Medicine* (in 5 volumes), *Limits of Medicine*, and a pamphlet in properties of chicory written by Avicenna that is crucially important [3]. During Safavid Period the medicine and pharmacology were assumed vitally important as well and some books like *Tohfeh of Hakim Momen* (of Mohammad Momen Deylami as the great physician of King Suleiman Safavid) and *Makhzan Al- Adviyeh* (Storehouse of medicaments) was written by Seyed Hossein Khan Shirazi [4].

Background:

In March 2008, an essay was presented under title of 'The effect of globalization and joining to World Trade Organization (WTO) on profitability of industries' by Seyed Hamid Reza Ashrafzadeh and Mehran Nasirzadeh. With exploration into the effect of globalization of tariffs in this essay and total productivity of production factors and ratio of capital to workforce to profitability of industries during period (1980-2002), they found that the tariffs had the highest positive effect on profitability of industries and the globalization variable has the lowest impact on this factor. With intensification of globalization, the industries will encounter several problems. It is the best recommendation that to make the price competitive with reducing profitability margin and rising of productivity. This is an appropriate strategy for world competitiveness under the conditions when we need further to quick growth in importation and diversification of exported commodities. In 2012, Iranian Ordibehesht Brokerage Company proposed an essay titled 'The outlook of pharmacological industry in Iran and Security and Exchange Organization (SEO)' and it has tried to remove the problems by investigation in drug use per capita in the country.

$32 \text{ (billions, production)} + 1.5 \text{ (billions, imports)} - 4.5 \text{ (billion, exports)} = 29'000'000 \text{ drug use in the country}$
 $29 \text{ (billions, drug use)} + 76.4 \text{ (million peoples, national population)} = 380 \text{ (annual) drug use per capita}$
 $380 \text{ drugs} / 365 \text{ days} = 1.04 \text{ drugs (daily) drug use per capital}$
 One can refer to the required strategies to solve the current problems in this industry including necessity for codification of appropriate regulations, execution and supervision of them properly, amendment of rules by aiming at updating of systems, making production more economic with domestic investment, formulation of comprehensive rules and the definitive enforcement of them to behave duly with perpetrators of healthcare- medical- pharmacological crimes, revision of profit of the imported medications, requiring the drugs importation companies to take representation from drug manufacturing companies in the word to reduce price of the imported drugs and the like.

On June 2013, the commercial studies and researches center presented a research under title of 'High- tech Industries: Pharmacological Industry'. With introducing pharmacological industry and distinguishing this industry in Iran and world and review of exportation- importation rates in this essay, it was found that the mean annual growth rate of drug importation is 12% from 2002 to 2011. Allocation of foreign exchange quota, tariff supports, and quality of foreign products are considered as the major factors for growing importations. Similarly, it has achieved this point with surveying on copyrights for intellectual ownership and pharmacological industries that as copyrights for intellectual ownership are stronger concerning to drug products, the possibility of their effectiveness will be greater on medical care systems and delivery and giving the related services in Developing Nations.

Production Status:

The created developments in this industry and production of 96% of the needed drugs inside the country are unprecedented in history of Iranian pharmacology, but drug problem may be attributed to the imported drugs, which do not constitute the major share of the needed national products. Thus, it can be expressed that the imported drugs only provide 4% of medicinal need of the country. But this idea is false. The reasons for falsehood of such idea are in that firstly these products include important drugs. Secondly, in order to produce the given 96% domestic drugs it requires importation of raw materials from abroad. In this regard, one should imply 40-60% dependency of these products to the given foreign imported raw materials, which represent dependency of national pharmacological industry to abroad. Alternately, Iranian medications possess the least international and Iranian domestic standards but they have not necessarily the same high quality of foreign drugs. The patients could not achieve the treatment the same as with foreign medications. Meanwhile it should be considered this point that medicinal habit in some patients has been formed according to foreign drugs [6].

Quality Level And Updating Of Manufactured Product:

It depends on two factors [7]:

1) The Major Factor Including the Efficient and Accessory Raw Materials and Packaging:

Often pharmacological manufacturing plants tend to foreign sources for production of raw materials and packaging of sources with low quality and lower price and as a result, the quality and efficiency of effective material of given drug has been diminished [7].

2) Minor Factor Comprising Production Machineries:

Lack of benefitting from modern technology may reduce the efficiency that is in turn assumed as a main factor to reduce growth in production and rising of cost [7]. The old structure of pharmacological buildings, non compliance of quantity of the produced items with the existing physical area and for equipments, depleted machineries and equipments, classic formulations, omission of some items from medicinal protocols while Iran has not so far taken measure to manufacture and prescribe them, non- observance of the conditions for storage of drugs by distributor and drugstore and user, creation of microbial resistance due to illogical prescription and dosage of drugs, and lack of innovation and creativity in drug distribution system are considered as some of reasons for lower level of quality in the manufactured products and thus reduced production [8].

The Problem Of Drug Industrial Production May Be Reviewed From Perspective Of Quality:

According to statistics from active factories in 2006, these products included 75 factories and medicinal production rate of 27.3 billion items [7] and these statistical numbers have reached to 89 active plants with 32 billion items in 2011. Of course, these statistics were given by Trade Development Organization but based on a report from Daruyab Website; number of these manufacturers is 101. What it exists, is the nominal capacity of these plants estimated about 40 billion drugs but as the rate of produced drugs was mentioned in these units 75% of this capacity is employed in average. 70% of these plants are managed by governmental producers, foundation (e.g. 15- Kordad Foundation), and public manufacturers and only 30% of them belong to private sector. Perhaps the public nature of these manufacturers is deemed as one of the reasons for lower productivity in pharmacological industry [8].

The existing differences among Iranian pharmacological industry with the world:

After passing many years since national independence in pharmacological industry and despite of noticeable achievements in this industry at various fields [2] and providing more than 97% of national medicinal needs inside the country [9] and also 70% growth in producing of medicinal raw materials since 2005 [10], the existing essential challenges in forwarding path is still considered as barrier for advancement of this industry. These challenges hinder Iranian pharmacological industry to be able to take step simultaneously with the updated pharmacological industries in the world and to enter world trade drugs club. To do this task, it necessitates recognition of the existing differences among Iranian pharmacological industry with the world. One can imply these essential reasons as the following cases [2].

1) Inappropriate Pricing:

Two stable costs are considered in drug pricing system [8]:

1-1) The Cost of Scientific Communication to Medical Community and Marketing:

Today, the world of pharmacology has found that it should spend a remarkable fund from selling of their drugs as the costs for communication and marketing in order to improve level of specialized knowledge and prescription of drug as well as to enhance level of customer's satisfaction[8]. For instance, 12 pioneer pharmacological enterprises in the world spend approximately 34% of selling their products for updating the specialized knowledge and drug prescription issued by physicians and for medicinal marketing [2].

The pharmacological companies pay due attention to medicinal communication since medicinal communication causes more rational dosage of drug and its scientific prescription for the patients by physicians as well as improvement the level drug effectiveness in treatment of patients and rising level of customers' satisfaction by means of various methods including holding of scientific seminars and publication of scientific essays etc. Unfortunately, the communication costs for drugs and marketing are not considered in drug pricing system at our country in order to keep price of drug lower [2].

1- 2) Research and Development (R&D) cost:

In average, about 15-17% of price of medicinal products are spent as cost of R&D in the world and the rest constitutes the cost of communication and profit while R&D cost does not approach to even a half percentage in

Iran in which these costs have not been addressed in method of pricing for drugs in our country and producers of drugs are not supported for this purpose [2].

2) *Lack of Valuation for Formulation and Researches* [7,8].

3) *Calculation of Very Small Profit Margin for Pharmacological Companies:*

As usual, the profit margin for producer is considered as 30% and also 15% as risk and threat in European countries while the producer's profit margin is 15% in Iran [7,8].

Profitability Of Pharmacological Industry:

According to classification of 53 countries, which were published in Journal of Fortune in 2010 in which the industry of pharmacology was the most profitable industries in the world with 1% difference compare to network and internet services industries. In 12 bestseller pharmacological companies in the world, the ratio of profit to sale was about 20% while in their economic environment, banking interest rate is less than two percent and inflation rate approaches to zero but this rate is greater than 25% in Iran. It can be implied that at least 75% of total value of any drug unit in Europe or USA are related to R&D, medicinal communications, updating drug standards and equipments, and producer's profit while in Iranian pharmacological industry, the raw materials, direct and indirect production costs constitute about 75% of drug sale price [2].

Status Of Domestic Market:

About 30 billion drug items were sold in 2007 out of which 95% belong to domestic production and the rest for imported drugs [7]. This figure was 32 billion drug items in 2010 out of which 96% was domestic products and 4% of them were the imported drugs [8]. This figure was 34.7, 38.5, 25.7 billion items for 2011, 2012, and up to December 2013 [11]. The importation of drugs has been increased up to 900% since 1997 while drug production has been exposed to 500% growth during this period. Iran imported 1'320 billion Rials of drugs in 1997 while this figure has reached to 33'000 billion Rials in 2011. The astronomical growth in drug importation is in such a way that it seems if governments considered further production of drugs than the importation, the country did not encounter the medicinal crises despite of international embargoes to this extent. The very small share of drug- manufacturers in the country, ownership of 70% of pseudo- governmental companies of this sector, disturbance in ratio of domestic drug products to importations in 2005, and double presence of drug importers compared to manufacturers of drugs and raw materials are some of obvious examples for severe dependency of national pharmacological industry on importations as the most major critical medicinal factor in the country [15].



Diagram (1): Sale of Domestic Produced and Imported Drugs (in figure and Rials, 2007), [7].

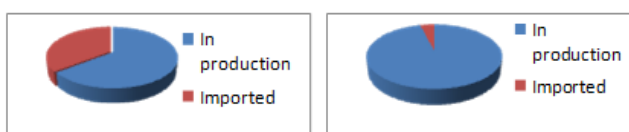


Diagram (2): Sale of Domestic Produced and Imported Drugs (in figure and Rials, 2012), [8].

Importation and exportation status:

During years 2003-2010, 68.5 million USD of drugs have been exported to neighbor countries and even Europe in average and in contrast about 669.75 million USD of drugs have been imported into Iran. As a result, the exportation rate of Iran has been approximately one- tenth of importation of these products while according to 4th five- year national development plan, the revenue of exportation should provide 30% of cost for the imported drugs [12].

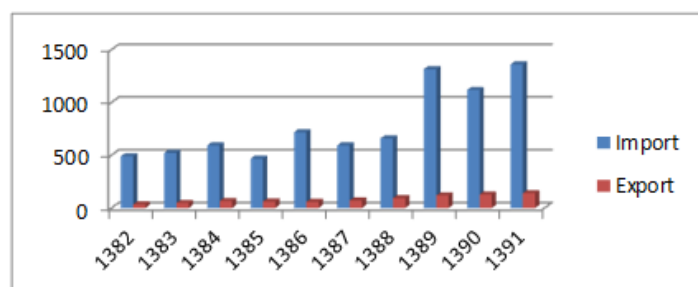


Diagram 3: Drug Commercial Balance in Iran During Period (2003-10), [7, 8].

According to Diagram (3), drug importation has been extremely increased in 2010. It seems that the administrative changes in Islamic Republic of Iran Custom Administration (IRICA) have acted successfully in improving this trend and accelerated drug importation into the country and of course this indicates the false policymaking and occupation of domestic market with foreign commodities since the government has spent its budget further for importation instead of making effort to provide the budget for drugs production and exportation. This point is essentially important of course that the importation of drugs causes the manufacturer of domestic products to be familiar with the latest achievements in pharmacological industry in the world and for this reason; organizing of drugs importation is crucially important [13].



Diagram 4: Five Major Drug Importing Countries in 2007 and 2010 (billion USD).

In 2007, Iran has exported 467 million USD of drug products and this figure was 1361 million USD in 2012, which were provided from several countries including French, Netherland, Canada, India, and Luxemburg[7,8].



Diagram 5: Five Drug- Exporting Countries in 2007 and 2010 (billion USD).

With exportation of 58.1 million USD in 2007 and 118 million USD in 2010 (about 0.02% of world total exports), Iran has a little share in this market [7,8].

Drug exportation had the ascending trend in Iran during 2001-5, but it had the reduced trend in terms of value during 2006 and 2007[14]. Of course, this trend was passed again through its ascending order since 2008. Some of the foremost reasons for reduction in exportation in 2006 and 2007 included the exportation of drugs with lower value in terms of price and the presence of some rivals such as China and India, which have compelled the exporter to reduce their price with following of the policy of the minimum price. Likewise, one should add the exportation of narcotic drugs, which are caused by the restriction from the campaign against goods and foreign exchange trafficking headquarter. We have witnessed rising in exportations again during the next years where the economic crisis governing over the world and rising price of the medicinal raw materials have led to increase in price of drug. Some of other effective factors in rising exportation are related to Iran's entrance in new markets such as Libya and Uganda as well as high competition among the companies inside the countries due to saturation of domestic market and tendency of companies to exportation. On the other hand, changing of attitude taken by exporting companies toward more valuable commodities such as supplements and some of antibiotics have increased exportation of drugs[8]. One can refer to some of the reasons for rising drugs exportation again since 2008 as the issuance of permission for rising price by health and drug organization. Similarly, one of the major reasons for rising production and thus increased exportation is to increase governmental supports to provide public exchange for raw materials to drug producers.

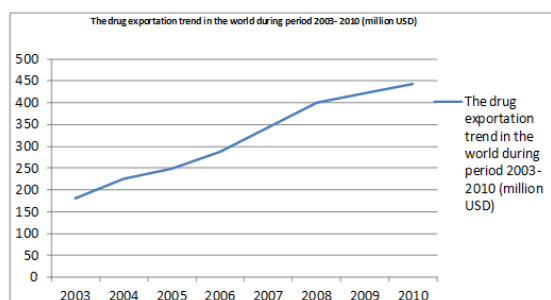


Diagram 6: The Drug Exportation Trend in the World During Period 2003- 2010 (million USD).



Diagram 7: The Drug Exportation Trend in Iran During Period 2001-2012 (million USD).

Barriers And Problems Versus Trans-Nationalization Of Pharmacological Industry:

The production scale is deemed as one of the today important challenges in national pharmacological industries so that drug manufacturing companies in our country lack global and exportation scale. One may refer to World Trade Organization (WTO) with several objectives including development of production, trade, and optimal productivity from international sources, acquisition to sustainable development with optimal exploitation from resources, environmental protection, increase in share of Developing Countries and Less-Developed Nations in growth of international trade[17] and it has currently 153 members (Approximately all 123 countries, which have attended in Uruguay Summit are today as permanent members in this organization) [18]. Twenty seven parts of European Union (EU) also attend as agents of this union in this organization[19]. In a report this organization has stated that the producers with less than 2% of market share at their disposal could not compete and survive in this market.

According to reports of this organization, technological life cycle in 72 industrial fields is shorter than five years and this period is less than ten years in 35 industrial fields. In the other words, of 128 industrial fields existing in the world, 107 possess technological life cycle shorter than ten years. This indicates that the manufactured products by the production enterprises in our country lack the required market or competitiveness with the current available technologies [2].

Based on another report from this organization, of 43 underdeveloped and developing countries, which have joined to this organization, 22'000 items of commodity had more than 55% reduction in price and 6'500 items of goods were deducted more than 70% in terms of price. This means that if Iran intends to join to WTO, it should reduced price of its goods about 55%. Do the existing economic conditions allow us to reduce 55% price of commodities in order to enter world trade club as one of the perquisites for economic development despite of noticeable rising rate of yearly wages, legal withholdings, and constant increase in foreign exchanges rate and the like? It can be stated that lack of:

- 1) Modern administrative tools
- 2) The existing problems in financing of resources for investors
- 3) Rising final cost caused by wearing of production lines
- 4) Low capacity for production compared to nominal capacity in some of drugs production plants
- 5) Lack of competitiveness of products
- 6) Price of drugs and inappropriate pricing
- 7) Weakness in marketing
- 8) Weakness in communication networks regarding statistics of production importation and exportation
- 9) Lack of transportation network to new exportation markets are considered as the problems and bottlenecks which hinder growth in drug industry as well as act as barrier against trans-nationalization of this industry in the country. Of course, these days our economy is placed under pressure from the existing sanctions as well and the embargoes have caused the officials and importers of drug industry of our country to tend to the eastern countries instead of the western nations and to purchase drugs and raw materials from China and India; these are

the goods which apparently not only lack the high quality but also some of them are outdated and out of standard [7,8].

Conclusion And Suggestions:

What strategies and methods are required for joining to WTO? How can improve the level of products and exports and propose the goods wit quality of international standard?

Formation of Iranian pharmacological industry has been accompanied with government's presence in industry and production sector and all of the used structures are dependent on governmental supports; thus, the financial and capital structures and the existing technologies, size of enterprises, quality of human resources and productivity and little efficiency of production activities have been also formed in production enterprises accordingly. These structures should be transformed in order to exit from supportive conditions and arrival in the field of world trade competition club. After renovation of these structures, the competition should be principally experienced inside the country and then allow to the successful companies in this competition to enter in world trade club. Whereas Iran has a very little share in the field of drug exportation and it encounters several major problems to join in WTO thus it should be tried to remove the existing problems and we should improve the rate of national products and exportations with high quality. It should be declared that:

- 1) National pharmacological industries have a long history and their used equipments and machineries are either worn or they are not compliant with today world standards and it requires replacement of worn machineries with modern and advanced machineries.
- 2) It is very necessary to pay attention to some cases like design, Research and Development (R&D), promotion modern techniques, and marketing like holding of exhibitions etc and also revision in structure of production in national drugs industry.
- 3) Creating the communication networks through specialized websites, establishing exportation Development Company with the exporting company as general investor may be efficient.
- 4) Reengineering and amendment of production structure along with improvement in high quality of products
- 5) Production up to nominal capacity
- 6) Follow-up the prices from a logical system proportional to inflation rate
- 7) Allocation of the needed credits to transport raw materials and machineries for production of exported goods require spending efficient time and financial resources.
- 8) Similarly, granting exportation rewards and subsidies may be efficient contribution in this area.

The government may correct the structure of national drug industries including financial, capital, and technological structures and Human Resources Development, rising productivity, and improving quality level with establishment of several funds by means of the revenues from issuance and collection of tariffs on imported foreign drugs.

In this course, we primarily should prepare and codify strategic plans and then establish the fund and execute this plan with supervision and control over it step by step.

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