In the name of God

Pre-feasibility study form

Plan Name: Production and packaging of herbal essential oils

Employer: Chaharmahal and Bakhtiari Industrial Estates Co.

Consulting Company: Kavosh Consultants Co.

Project Address: Shahrekord Industrial Estate

Date: ۲۰۲۲

Update: ۲۰۲٤

SUMMARY OF THE FEASIBILITY STUDY

general information
Project title: Feasibility studies of production and packaging of herbal essential oils
Project capacity: ۲۰،۰۰۰ units per year
Employment rate: ۲۶ people
Working days: ۲۸۸ days
Product uses: pharmaceutical, industrial and food
Market
Global price of the product: starting from ۵۰ Euro
Domestic demand: about ۳۵ thousand tons in the next five years
Domestic production: about ۲۵ thousand tons
Import: ۲۲۷ - ton
Export: ۳ thousand tons
Technical study
Land area: ۵۰۰۰
Building area: ۱۸۲۰
Main raw materials: plant materials and additives and...
How to supply raw materials: internal-external
Required electricity: ۱/۱۰۰/۰۰۰ kWh
Required water: ۷۰،۰۰۰ cubic meters
Required fuel: ۱/۲۰۰/۰۰۰ cubic meters
Financial and economic study
Fixed investment amount: ٤٧٣٨٩٧ million rials- ٨٦٣،٢٠٠ euro
Working capital: ٨٧٣٩٩ million rials- ١٥٩،١٩٧ euro
Total investment: ٥٦١٢٩٦ million rials- ١،٠٢٢،٣٩٧ euro
Annual profit: ٢٠٠،٠٠٠ million riyals - ٣٦٤،٢٩٩ euro
Net Present Value (NPV): ٤٦٧٧٤٧ million rials- ٨٥١،٩٩٨ euro
Breakeven point (BEP): ٥٦٠٠٠٠ million rials- ١،٠٢٠،٠٣٦ euro
Internal rate of return (IRR): ۳۵٪
Payback period: ۳ years
Investment Sources Ratio Equity: ۳۰٪ Financing: ۷۰٪

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Introduction

Feasibility studies are expert studies that are carried out prior to the implementation of economic investment plans. In these studies, from the market, technical, financial and economic point of view, the plan is analyzed and its results used as a basis for investor decision making.

The present report is a feasibility study of Production and packaging of herbal essential oils. These studies have been prepared in the framework of feasibility studies methodology and according to the above methodology, the economic capacities and volume of investments required to execute the project will be estimated and presented so that investors and interested stakeholders can obtain all the information needed. Earn money and start investing in open-ended, open-minded economic investment. It is hoped that these auxiliary studies, however small, will contribute to the development of our country.

۱ -Product Introduction

First, essential oils were used as perfumes and aromas in the ancient Egyptian period, in aromatic baths and in religious ceremonies, rituals, and for the treatment of patients. They were used in perfumery, cosmetics and religious purposes, but the use of essential oils in the treatment of diseases today has decreased. The antibacterial properties of essential oils and resins were widely known by the Egyptians around ۳۰۰۰ BC. They used these materials in embalming their dead. In fact, the development and cosmetic use of these natural materials has started since then. Other nations such as the Chinese, Hindus, and Greeks have more or less paid attention to the therapeutic effects of aromatic plants. In the traditional medicine of Iran, attention has been paid to this issue, and for example, essential plant oils have been used to treat diseases.

Essential oils are aromatic compounds found in different organs of plants. They are generally colorless, especially when they are freshly prepared. But due to the passage of time due to oxidation and resinization, their color becomes dark. To prevent these changes, essential oils should be stored in a dry, cool and closed place, and the containers should be made of colored glass. Due to their evaporation due to proximity to air at normal temperature, they are called Volatile Oils or Ethereal Oils or Essential Oils. Essential oils are generally liquid and contain a mixture of often different compounds. The quantity and quality of essential oils that are produced by different types of plants have a direct relationship with the biosynthesis, metabolism and biological activities of the plant, which also depends on the climatic conditions of the plant's environment.

The location of essential oils in plants

Depending on the type of plant species, essential oils may accumulate in the following organs:
١ -secretory organs such as glandular hairs (in the mint family)
٢ -Altered parenchyma cells (in the color of pepper)
٣ -Essential oil tubes called Vittae (in the Chetrian genus)
٤-Lysogen channels (in pine and citrus trees)
In dark pine plants, essential oils may be present in all cells. But in roses, there are significant amounts of essential oils in the petals.
Physical characteristics of essential oils
-Essential oils have a specific smell, which changes noticeably in the vicinity of air and light due to the different components.
-The taste of essential oils is different. Some are sweet and mild and some are sweet, bitter or burning.
-In terms of solubility, essential oils are insoluble in water, but they mix with water to some extent and transfer their smell to water (aromatic waters).
-The specific weight of essential oils is less than water and they are lighter than water. Among medicinal essential oils, only cannel essential oil, gyrophyllum and saffron have higher specific gravity than water.
-Most essential oils are fresh and pure, colorless. Of course, the exception in this case is chamomile essential oil, which is blue.
-Essential oils become colored in the vicinity of air, such as mint yellow or brown in cinnamon essential oil.
The difference between essential oils and non-volatile (fixed) oil
-Essential oils can be evaporated and they can be obtained from different parts of the plant by distillation.
-Essential oils do not contain the composition of glycerol esters and fatty acids, and therefore do not produce a permanent oily stain on the paper and are not saponified by alkalis.
Unlike fixed oils, essential oils do not have a spicy taste, but they oxidize and become resinous due to contact with air.

Uses of essential oils
The most important use of essential plants and essential substances obtained from them is to make them fragrant. Essential oils also have medicinal, industrial and food uses. They are also used in cosmetics. A large number of essential oils have antiseptic properties.
Spices have been used with food since ancient times due to their anti-bacterial, anti-worm, protective and aromatic properties, and the presence of essential oils in spices prevents the rapid growth of microbes and food spoilage.
Factories producing detergents and cosmetics use large amounts of alpha-terpineol (which is obtained from jasmine flower essence) and large amounts of turpentine oil (which is obtained from the bene tree and contains alpha and beta pinene).
Turpentine essential oil is also used as a solvent to prepare shoe wax and also in the industry.

In perfumery, some essential oils are mixed together, and more than ٤ essential oils should not be mixed together.

Effects of essential oils

External use:

A) Effect on blood flow: essential oils stimulate and improve blood flow.

B) Anti-inflammatory effect: Some believe that this effect is applied by binding to the body's defense system, which is responsible for local inflammation, such as Matricine Chamazulene, in the chamomile plant.

c) Disinfecting effect of essential oils: This effect is due to the solubility of essential oils in fat and its penetration into the cells of microorganisms, which affects cellular metabolism. Their bacteriostatic effect can be caused by their effect on surface tension.

d) Anti-odor effect of essential oils: This effect has been reported in chamomile extract. Also, thyme essential oil has an anti-odor effect (removing the bad smell of wounds.(

e) Stimulating effect of granulosin: this effect is associated with anti-inflammatory and hypertensive effect and applies to chamomile essential oil.

f) Insecticidal effect and repelling insects: This effect is weak and has been seen in citronella, eucalyptus and clove essential oils.

Internal use:

A) Calming effects: valerian essential oil has calming effects due to the presence of Valepotriate.

b) Spasmodic effects: Black cumin, orange, and mint essential oils have this effect.

c) Stimulation of the secretions of digestive system glands: the effect of this group of essential oils is to stimulate appetite, increase bile secretion, increase gallbladder movements and anti-flatulence, and their action is similar to the use of spices in foods, such as anise, fennel, orange peel, mint, cinnamon essential oils. , chamomile, coriander, black cumin and basil.

d) Diuretic effect: essential oils are excreted less through the kidneys and because they do not have a direct effect on the kidneys, they have a real diuretic effect. Juniper berry extract has been shown to have no diuretic effects when its terpenes are isolated. While other research groups have claimed that terpene-free oils have a clear diuretic activity.

e) Stimulating effects of blood flow: This effect appears in high doses of essential oils, the result of which is an increase in the stimulation of blood flow inversely, which causes stimulation of brain, spinal, respiratory and heart centers.

f) Expectorant effect: The expectorant effects of essential oils are mostly due to secretomomatic and secretolyti effects and to a lesser extent, related to local bronchospasmolytic effects. Essential oils that have an expectorant effect include anise, pine, eucalyptus, fennel, and fir essential oils.

g) Anti-inflammatory and antiseptic effects: Chamomile essential oil has anti-inflammatory activity due to Matricine. Compounds containing this substance are used internally to treat gastritis, simple inflammation of the digestive system, and inflamed ulcers of the digestive system. Some essential oils

such as eucalyptus, thymol, and thyme essential oils are used in the treatment of colds and mouth inflammation through inhalation and gargling due to their antiseptic effects.

The mechanism of action of essential oils

The most obvious effect of essential oils is the strong stimulation of the sense of smell, and they have a direct effect on the brain just like a drug. Smell is undoubtedly more precise than our other senses and transmits nerve impulses quickly to the brain. The olfactory system is directly connected to the limbic system, and as we know, it is the brain's control center for our emotions, memory, and emotions, and is involved in controlling heart rate, blood pressure, stress, breathing, and hormonal balance.

The mechanism of antibacterial and antifungal effect of a number of essential oils in animal models includes the following three mechanisms:

۱- Dissolving in the cytoplasmic membrane and affecting the structure of the enzyme and destroying the microorganism.

۲- Creating a disorder in the electron transfer in the respiratory chain

۳- creating a break in oxidative phosphorylation

The mechanism of anti-inflammatory and antispasmodic effects of essential oils includes the following two hypothetical mechanisms:

۱- Inhibition of membrane transport of Ca

۲- Inhibition of prostaglandins

Storage of essential oils

Usually, the chemical reactions that take place after extracting the essential oil cause the quality of the essential oils to decrease or deteriorate.

In general, to store essential oils, we should minimize the presence of all the factors that reduce their quality, for example, we should store essential oils at lower temperatures as much as possible, or contact essential oils with air, which causes them to oxidize. We can reduce it.

Containers containing essential oils should be completely filled and their lids should be tightly closed so that air does not enter the container and its contact with the surface of the essential oil is not possible.

Some essential oils are decomposed by light, therefore, colored glass containers should be used to store such substances.

۱-۱-Product Name and Code (ISIC ۳)

ISIC code of medicinal plant essence ۲۴۲۳۵۱۶۰۸۰

ISIC code for the packaging of edible medicinal essential oil is ۷۴۹۵۴۱۲۳۸۸

ISIC code for non-edible medicinal essential oil packaging is ۷۴۹۵۴۱۲۳۸۷

۱-۲-Customs Tariff Number

According to the book of export and import regulations of ۲۰۲٤ and the service and information portal of industry, mining and trade, the product of this project is in the category of customs tariff code ۳۳۰۱.

۱-۳- IMPORT AND EXPORT CONDITIONS

Basic rights include customs duties, taxes, the right to register goods, various duties and other funds received from imported goods. The sum of these receipts and commercial profit, which is determined by the Cabinet of Ministers according to the relevant laws, is referred to as input rights. The entry fees for the products of this plan are as follows.

Heading, Subheading No.	Description	Remark	SUQ	Import duty
33 01	Essential oils (terpeneless or not), including concretes and absolutes; resinoids; extracted oleoresins; concentrates of essential oils in fats, in fixed oils, in waxes or the like, obtained by enfleurage or maceration; terpenic by-products of the deterpenation of essential oils; aqueous distillates and aqueous solutions of essential oils.			
	- Essential oils of citrus fruit:			
3301 12 00	-- Of orange		Kg	10
3301 13 00	-- Of lemon		Kg	5
3301 19 00	-- Other		Kg	5
	- Essential oils other than those of citrus fruit:			
3301 24 00	-- Of peppermint (*Mentha piperita*)		Kg	5
3301 25 00	-- Of other mints		Kg	5
3301 29	-- Other			
3301 29 10	--- essential oils of mohammadi's flower		Kg	5
3301 29 20	--- Medicinal plants essence		Kg	5
3301 29 90	--- other		Kg	5
3301 30 00	- Resinoids		Kg	5
3301 90	- Other:			
	--- Fragrant condenced water and dqueous solutions of essentialoils			
3301 90 11	---- water of mohammadi flower		Kg	55
3301 90 12	---- Other tradition naphtha		Kg	55
3301 90 19	---- Other		Kg	5
3301 90 90	--- Other		Kg	5

۱-٤- REVIEW AND PRESENTATION OF STANDARDS (NATIONAL OR INTERNATIONAL)

There is no direct standard for Electric converters (inverters) and controllers. The standards are similar to this plan as follows:

Standard Name	Standard Number	Description
National standard	۱۶۰۱۹	Essential Oils - General Guide to Chromatographic Profiling - Preparation of Chromatographic Profiles for Submission to Standards
National standard	۲۲۷۴	Essential oils - sampling
National standard	۲۲۷۴-۱	Essential oils - assessment of miscibility in ethanol
National standard	۲۲۷۴-۱۰	Essential oils (including alcohols of the third type) - determination of the amount of free alcohols by measuring the ester value after formylating in the cold - test method
National standard	۲۲۷۴-۱۱	Essential oils - determination of ester value before and after acetylation and evaluation of free alcohols and total alcohols - test method
National standard	۲۲۷۴-۱۲	Essential oils - determination of carbonyl value by free hydroxylamine method - test method
National standard	۲۲۷۴-۱۳	Essential oil - determination of freezing point - test method
National standard	۲۲۷۴-۲	Essential oils - measurement of acid value
National standard	۲۲۷٤-٤	Essential oils - measurement of residual substances after evaporation of the test method
National standard	۲۲۷۴-۶	Essential oils - measurement of refractive index - test method
National standard	۲۲۷۴-۸	Essential oils - measurement of residual substances after vacuum distillation - test method
National standard	۴۸۰۵	Natural essential oil of Mohammadi Rose of Kashan region - characteristics
National standard	۸۴۵۸	Essential oil - general rules for packaging and conditions of storage, storage and labeling
National standard	۱۶۰۱۹	Essential Oils - General Guide to Chromatographic Profiling - Preparation of Chromatographic Profiles for Submission to Standards

Source: http://www.isiri.org/

The international standards related to the title of this project are as follows:

Standard Name	Standard Number	Description
International standard	GACP	The harvesting and collection of medicinal plants, the purpose of which is to increase food safety and the correct implementation of quantitative

		and qualitative standards of herbal raw materials used in the herbal medicine industry, for the producers of medicinal plants.

۱-۵- REVIEWING AND PROVIDING NECESSARY INFORMATION ON DOMESTIC AND GLOBAL PRODUCTION PRICES AS WELL AS GLOBAL PRODUCT PRICES

The price of each kilogram in the world market is ۵۰ euro. The price in the country is about ٤۰ million Rials.

۱-٦- EXPLAIN THE USES OF THE PRODUCT

Essential oils are divided into the following groups based on application:

۱- Essential oils of food and pharmaceutical industries

۲- Essential oils for sanitary and cleaning industries

۳- Essential oils for cosmetic, perfume and cologne industries

In general, essential oils have many uses in today's world; These essential oils are used as natural preservatives, flavorings and fragrances in the food industry, aromatic substances in the production of cosmetics and health products, and precursors required by many chemical industries, while they are used in the preparation of various medical drugs and aromatherapy knowledge. Aromatherapy) is also used.

Today, the use of rose essential oil for health purposes goes back to ancient times, because in addition to its unique fragrance, the properties of this plant in moisturizing the skin, removing facial wrinkles, and treating skin, especially in sensitive and tender skin, are always considered. have been .

Today, rose water and natural essence of this flower are used in the health industry, especially in the production of soap, skin cleansing lotions, moisturizing creams and lotions. But the most important use of Mohammadi essential oil and rose water is in the perfume industry, so that the essential oil of this plant is used in the formulation of very famous and best-selling perfumes in the world.

۱-۷-EXAMINE ALTERNATIVE PRODUCTS AND ANALYZE THEIR EFFECTS ON PRODUCT CONSUMPTION

It is clear that substitutes for plant essential oils include a wide range of chemicals. But due to the side effects of these products, the tendency to use herbal products has increased, and in cases where the effectiveness of herbal essential oils has been proven, chemical alternatives are preferred.

۱-۸-STRATEGIC IMPORTANCE OF GOODS IN IRAN AND COUNTRIES OF THE REGION

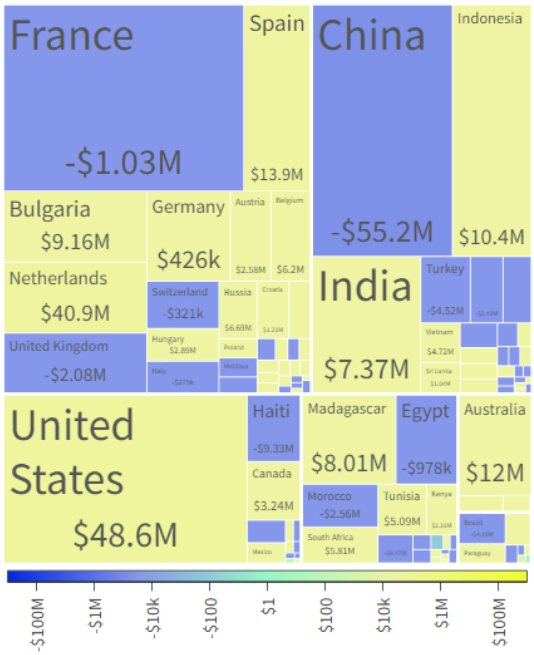
The essential oil industry is emphasized and paid attention to in the macroeconomic policies of the country because the products produced by this industry after the industrial revolution and the progress of the economic, social and cultural development of the countries, which has been accompanied by the increase in the wealth of many nations; It has been of special importance in the pattern of consumption and well-being of people in all developed and developing societies, and today this industry is often referred to as a fast-yielding and fast-growing industry to the point where the share of this industry in the gross national product is much higher in industrialized countries. It is from one percent and hence it is seen as an effective strategic industry in economic and industrial development.

With the increase in awareness and well-being of the people of the world, the field of natural food and medicine will be one of the three most prosperous economic fields. The trade volume of the medicinal plant market is expected to grow rapidly and reach $۵ trillion ($۵ trillion) by ۲۰۵۰ (based on reports from the Food and Agriculture Organization of the United Nations, FAO, relevant authoritative conferences and databases financialexpress). Meanwhile, the current trade volume of these products is about one percent of this amount. All these numbers mean a large and rapidly growing market, the topic of today's business.

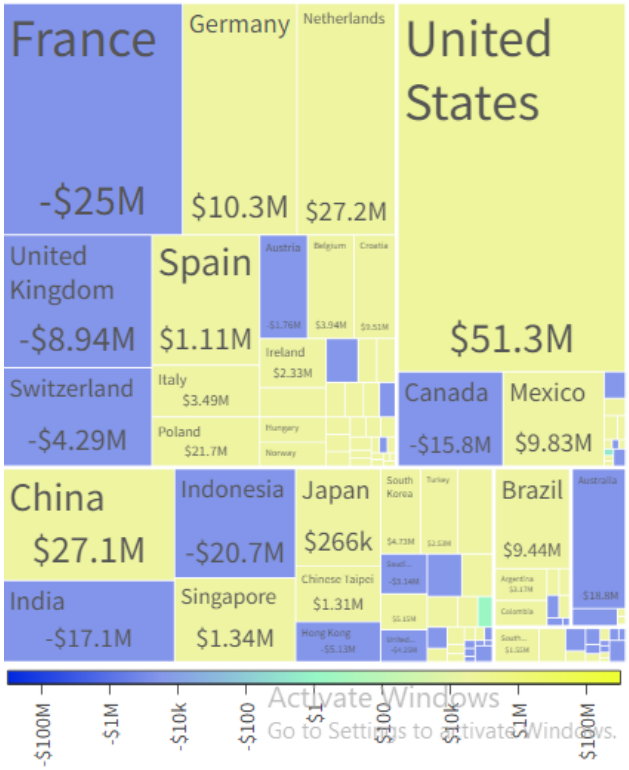
The essential oil industry is one of the job-creating industries that has a high added value and in the current situation when the country is facing the problem of unemployment, if it is planned properly, it can be the basis for employment in the country.

۱-۹-MAJOR MANUFACTURING AND CONSUMER COUNTRIES

The largest producing country:

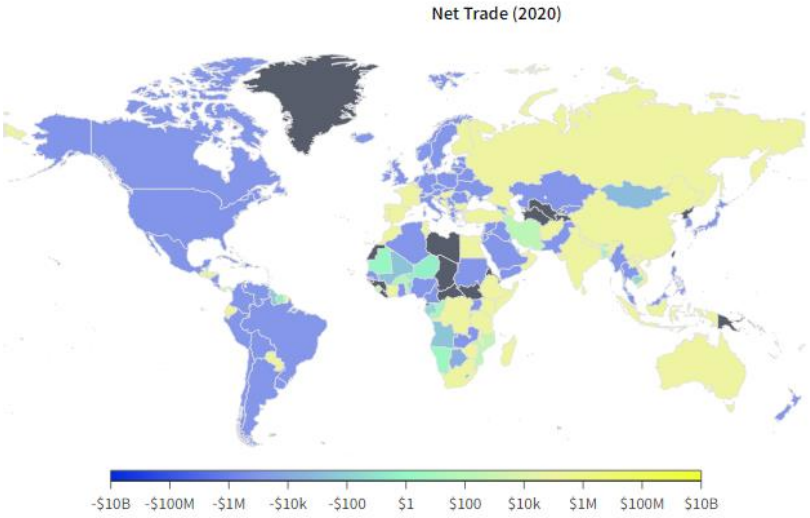


The largest importing countries:



Activate Windows
Go to Settings to activate Windows.

Essential oil trade in the world:



The list of some manufacturing companies in the world is shown in the following table:

Company Name	Revenue in USD
· Cargill	$٤،٥١٥,٩٧million
· Adani Wilmar Limited	$٤،١٠٦,٨٣ million
· Wilmar International Limited	$٥٠ Billion
· Bunge Ltd	$٤١ Billion
· Conagra Brands, Inc.	$١١ Billion
· The Manischewitz Company	$١٤ Million
· Waitrose & Partners(UK)	$١١ Billion

۲- SUPPLY AND DEMAND SITUATION IN IRAN AND COUNTRIES IN THE REGION

۲-۱-AN EXAMINATION OF EXPLOITATION CAPACITY AND PRODUCTION PROCESS FROM THE BEGINNING OF THE THIRD DEVELPOMENT PLAN TO NOW

The following figure and table show the specifications and capacity of units active in the field of Production and packaging of herbal essential oils based on the statistics of the Ministry of Industry, Mines and Trade:

Code: ٢٤٢٣٥١٦٠٨٠

Province/City/Region	Number of units	capacity (tons)
Kohgiloyeh and Boyerahmad	٢	٦,٠٠١
Esfahan	١	٥٠٠
Lorestan	٢	١٠٨
Total	٥	٦,٦٠٩

Source: Ministry of Industry, Mining and Commerce - Statistics and Information Center

CODE: ٧٤٩٥٤١٢٣٨٨ -٧٤٩٥٤١٢٣٨٧

Province/City/Region	Number of units	capacity (tons)
Kohgiloyeh and Boyerahmad	٢	٤،٠٠٠
Central	١	٢،٩٠٠
Khorasan Razavi	١٥	٢،٨١٧
Alborz	١٢	٢،٤٦٨
Fars	٥	٢،٠٠٦
Chabahar Free Zone	١	١،٠٠٠
Anzali Free Zone	١	٨٠٠
East Azarbaijan	٣	٦٢٩
Qom	٣	٦٢٠
Tehran	٤	٤٦٩
Mazandaran	٢	٣٥٠
Esfahan	٤	٢٤١
Special Economic Zone	٢	٢٠٠

Province/City/Region	Number of units	capacity (tons)
Hamedan	۲	۲۰۰
Semnan	۱	۱۲۰
Chaharmahal va Bakhtiari	۳	۱۱۰
Qazvin	۱	۱۰۰
Khuzestan	۱	٤۰
Kurdistan	۱	۳۰
Lorestan	۱	۱٤
Kerman	۲	۱٤
southern Khorasan	۲	۸
Golestan	۱	۱
Total	۷۰	۱۹،۱۳۷

۲-۲-CHECK THE STATUS OF NEW PROJECTS AND ONGOING DEVELOPMENT PLANS

By referring to the industrial database of the Ministry of Industry, Mines and Trade, the status and specifications of new projects creating Production and packaging of herbal essential oils have been collected and entered in the following table:

Code: ۲٤۲۳۵۱٦۰۸۰

Province/City/Region	Number of	capacity (tons)
Western Azerbaijan	۲	۵،۰۰۰،۱۰۰
Kohgiloyeh and Boyerahmad	۱	۱،۰۰۰،۰۰۰
Qom	۱	۱۰۰،۰۰۰
Lorestan	۱	۱۰۰،۰۰۰

Province/City/Region	Number of	capacity (tons)
Golestan	١	١٠٠،٠٠٠
Kermanshah	٣	٥٢،٥٠٠
Tehran	١	٥٠،٠٠٠
Yazd	١	١٦،٠٠٠
Semnan	٢	١٥،٠٠٠
North Khorasan	٢	١٠،٠٠٠
Central	١	٩،٠٠٠
Khorasan Razavi	٢	٦،٠٠٠
Mazandaran	١	٥،٠٠٠
Special Economic Zone	١	٥،٠٠٠
Chaharmahal va Bakhtiari	١	٤،٠٠٠
Ardabil	٢	٢،٠٠٠
Qazvin	١	١،٠٠٠
Esfahan	٢	٤٤٠
Fars	٢	٤٠٠
southern Khorasan	١	٣٠٠
Khuzestan	١	١٠٠
Alborz	١	٥
Total	٣١	٦،٤٧٦،٨٤٥

CODE: ٧٤٩٥٤١٢٣٨٨-٧٤٩٥٤١٢٣٨٧

Province/City/Region	Number of units	capacity (tons)
Tehran	٢٤	٦،٧٧٠
Alborz	١١	٣،٠٢٥
Qom	٢	٢،٣٠٠
Semnan	١٨	٢،٢٧٠
Esfahan	٦	١،٧٧٠
Khorasan Razavi	٦	١،٦٥٠
Kerman	٣	١،٠٠١
East Azarbaijan	٣	٩٥٠
Kohgiloyeh and Boyerahmad	٢	٥٠٠
Special Economic Zone	٢	٤٠٠
Western Azerbaijan	٦	٣٨٠
Khuzestan	٥	٣٤٧
Fars	٣	٢٦١
Yazd	٢	٢٥٠
Mazandaran	٢	١٥٠
Lorestan	١	١٠٠
Guilan	١	١٠٠
Chaharmahal va Bakhtiari	٤	٧٧
Kurdistan	١	٣٠
Central	١	٢٠
North Khorasan	٢	٢

Province/City/Region	Number of units	capacity (tons)
Total	۱۰۵	۲۲،۳۵۳

۲-۳-REVIEWING THE PROCESS OF PRODUCT IMPORTATION

According to the Chamber of Commerce, Industries, Mines and Agriculture, the import statistics for the last five years are as follows:

Year	Weight (kg)	Rial value	Dollar value
۲۰۱۹	۲۸۵،۰۴۳	۸۳۷،۶۱۴،۱۲۵،۰۰۰	۶،۷۰۱،۸۲۱
۲۰۲۰	۲۹۰،۲۵۶	۲۸۲،۴۷۳،۸۲۳،۶۲۱	۶،۷۲۵،۶۳۳
۲۰۲۱	۵۰۸،۹۳۸	۴۱۹،۹۰۸،۷۸۶،۳۶۴	۹،۹۹۷،۸۳۸
۲۰۲۲	۲۴۷،۶۰۰	۱،۵۰۸،۲۵۱،۶۹۵،۷۵۹	۶،۶۹۳،۸۹۱
۲۰۲۳	۲۷۶،۸۲۶	۲،۴۳۰،۲۹۱،۷۴۰،۵۱۰	۸،۵۲۱،۵۵۱

Source: Tehran Chamber of Commerce, Industries, Mines and Agriculture

۲-٤-MONTORING CONSUMPTION TRENDS

According to the latest statistics available in ۲۰۲۳, the amount of import was small and about ۲۷۷ tons, and the amount of export was about ۳ thousand tons, and we had about ۲۵ thousand tons of production. The consumption of this product has been increasing in recent years due to the industrial development of the country and it is expected to reach ۳۵ thousand tons per year in the near future.

۲-۵-INVESTIGATE THE EXPORT PROCESS OF THE PRODUCT AND THE POSSIBILITY OF ITS DEVELOPMENT

According to the Chamber of Commerce, Industries, Mines and Agriculture, the export statistics for the last five years are as follows:

Year	Weight (kg)	Rial value	Dollar value
۲۰۱۹	۴،۸۸۱،۴۵۳	۱،۰۸۸،۹۱۸،۸۹۸،۴۱۷	۸،۷۰۸،۷۵۵
۲۰۲۰	۵،۲۶۱،۴۸۹	۱،۲۹۶،۹۴۳،۵۰۹،۵۰۶	۶،۳۴۵،۶۰۷
۲۰۲۱	۴،۱۰۶،۵۰۶	۹۹۲،۲۵۸،۸۶۶،۱۸۷	۴،۲۷۲،۲۱۷
۲۰۲۲	۳،۰۹۸،۱۹۹	۱،۱۲۷،۲۶۸،۹۸۴،۶۱۶	۳،۸۷۹،۱۸۲
۲۰۲۳	۲،۹۸۴،۶۵۵	۱،۱۱۸،۱۱۱،۱۳۸،۱۸۰	۲،۹۲۲،۰۴۵

Source: Tehran Chamber of Commerce, Industries, Mines and Agriculture

۲-٦- PRODUCT REQUIREMENT CHECK WITH EXPORT PRIORITY

Many countries that have been able to travel the path of progress and development in the contemporary period, especially in the past few decades, have implemented certain economic, social and political programs in a precise manner, and after going through programs in the medium or long term, Progress and development have been achieved.

The latest development plan (sixth development plan) was approved by the Islamic Council in March ۲۰۱۵.

In many advanced countries, export is the main axis of development and is very important in the presence of that country in the world markets. Domestic production and its arena in the global competition market or in other words export is one of the factors that can make countries independent. The importance and necessity of the presence of a country's products in the world market and the international economic environment is one of the most important development factors. The role of export is so important that many experts consider export to be the only successful path to the economic development of a country in the world market.

The most important issue for any country like Iran is to achieve economic development and have a productive and export-oriented economic system. To achieve this, first of all, it is necessary to meet the domestic needs of the country and to develop the export of goods and services in excess of domestic consumption. In order to reach a society where there is no poverty, unemployment and backwardness, efforts should be made for its economic growth. Along with economic growth, justice and empowering the people of the society to manage their lives should also be done. Export plays an important role in production and employment, so it requires a lot of attention to expand and actively participate in global markets. Exporters in the economic field should also be encouraged. Currently, we can see a very good export of vegetable essential oil. Because there is a lot of demand in different countries and each of them is trying to communicate with the first-hand producers. This issue can greatly help Iran's non-oil exports and boost production in the country.

Considering that the raw materials of this project are abundant in the country, and on the other hand, the cost of other production inputs such as manpower and energy also have more suitable costs in our country. Therefore, it seems that the production of this product in our country has an advantage. Therefore, for the export of these products, there will be attractiveness in the export markets. Therefore, here, while proving the ability to export in the coming years, it can be said that in case of marketing and adopting appropriate strategies, there is a possibility of exporting even more than the expected amount.

۳-OVERVIEW OF TECHNOLOGY AND METHODS OF PRODUCTION AND SUPPLY IN THE COUNTRY AND COMPARISON WITH OTHER COUNTRIES

((distillation)) or Distillation is the conversion of water vapor into water droplets, which changes and changes under the influence of cold air flow. Distillation is one of the oldest methods of converting liquid water vapor.

Complete processing line by distillation method

This line consists of ٤ parts as follows:

First Distillation: Each of these devices is able to receive ٥٠٠ kilos of fresh petals of raw materials every time and produce the first essential oil with the highest quality at a speed of ٢٥٠ liters per hour within a maximum of ٣ hours. The metal material of these devices is steel or copper.

٢- Borj Boland Distillation: this device is capable of distilling ١٥٠٠ liters of the first product from the first distillation devices every hour, and from that two types of products, one concentrated with a concentration of ٩٠٠ mg/liter and the other diluted with a concentration of ٦٠ mg/liter to produce This section is all steel.

٣- Extraction of phenylethyl alcohol: this device is able to produce the valuable substance phenylethyl alcohol with a purity of ٩٥ to ٩٨٪ from the product produced in the previous step. This section is all steel.

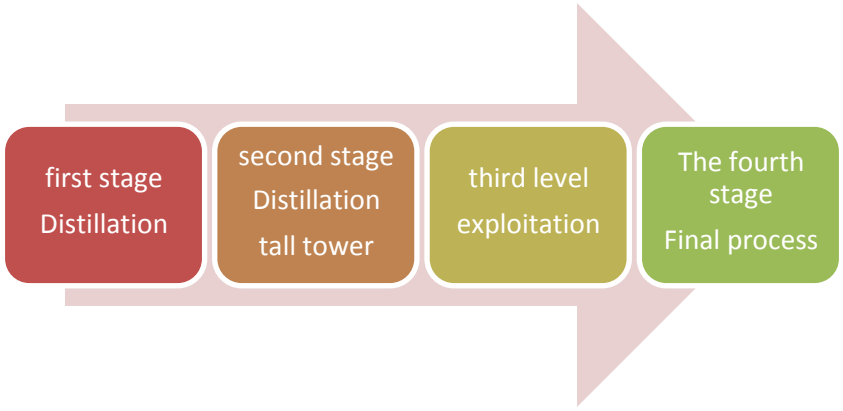
٤-Final process: This device is able to dilute the thick product of the second stage to the desired concentration and after mixing, filtering and pasteurization, it is ready for packaging. This section is all steel.



. The total of the above four parts includes the complete processing line of production and packaging of all kinds of herbal essential oils by the distillation method, which is the latest technology in this regard, and is capable of distilling with the best quality and the most excellent products with diverse and desired quality and the valuable substance phenylethyl. produce alcohol from it.

Summary of the process: After the initial extraction of essential oils in the first distillation, which contains many aromatic substances, it is directed to the Borj Boland distillation machine, and the

second essential oil is extracted and combined with the first essential oil and sold as a complete essential oil.



٤-DETERMINING THE STRENGTHS AND WEAKNESSES OF CONVENTIONAL TECHNOLOGIES IN THE PRODUCT MANUFACTURING PROCESS

The main advantages of this production line compared to similar devices currently operating in the country are as follows:

١- The possibility of obtaining various products, including the first essential oil, the second essential oil, the complete essential oil, etc., according to the standards of the world

٢- The possibility of extracting one kilogram of essential oil for every three and a half tons of fresh plant matter. The machines in the best conditions extract one kilogram of essential oil from every ٤ to ٦ tons of flowers.

٣- Full compliance of the quality of the essential oil produced with the mentioned standards available for it

٤- The possibility of the country obtaining herbal essential oil as a product with much more added value and more diverse applications as the current common product in the country.

٥- INVESTIGATE AND DETERMINE THE MINIMUM ECONOMIC CAPACITY, INCLUDING ESTIMATING THE VOLUME OF FIXED INVESTMENT IN RIAL AND FOREIGN CURRENCY

explanation: euro exchange rate based on the national exchange – dated: september ٢٠٢٤ - amount: ٥٤٩٠٠٠ rials

Project Investment Schedule:

Description	Cost (Million Rials)	Cost (Euro)
Land	۷۵۰۰۰	۱۳۶,۶۱۲
Landscaping	۵۰۰۶۰	۹۱,۱۸۴
Construction	۱۹۲۳۰۰	۳۵۰,۲۷۳
Production line machinery and equipment	۷۹۲۰۰	۱۴۴,۲۶۲
laboratory equipment	۳۰۰۰	۵,۴۶۴
Utilities	۱۳۷۰۰	۲۴,۹۵۴
transportation	۳۴۰۰۰	۶۱,۹۳۱
Office equipment	۴۰۷۰	۷,۴۱۳
Miscellaneous and unforeseen	۲۲۵۶۷	۴۱,۱۰۶
Total	۴۷۳۸۹۷	۸۶۳,۲۰۰

The ground specification of the project implementation is as follows:

Description	Area (m ۲)	Unit Price (Rials)	Total (Million Rials)	Total (Euro)
Land	۵۰۰۰	۱۵/۰۰۰/۰۰۰	۷۵۰۰۰	۱۳۶,۶۱۲

The cost of landscaping is as follows:

Description	Area	Unit Price (Rials)	Total (Million Rials)	Total (Euro)
Digging and leveling	۵۰۰۰	۹۰۰۰۰۰۰	۴۵,۰۰۰	۸۱,۹۶۷
Fencing	۳۰۰	۸۰۰۰۰۰۰	۲,۴۰۰	۴,۳۷۲
Asphalt and pavement paving	۲۴۰	۶۵۰۰۰۰۰	۱,۵۶۰	۲,۸۴۲
Green space and lighting	۲۰۰	۵۵۰۰۰۰۰	۱,۱۰۰	۲,۰۰۴

Total			۵۰,۰۶۰	۹۱,۱۸۴

Building Information:

Description	Building type	Area	Unit Price (Rials)	Total (Million Rials)	Total (Euro)
Production	Niches	۱۲۰۰	۹۰۰۰۰۰۰۰	۱۰۸,۰۰۰	۱۹۶,۷۲۱
Raw materials and supplies	Niches	۴۰۰	۹۰۰۰۰۰۰۰	۵۴,۰۰۰	۹۸,۳۶۱
Office building and services	Official	۱۵۰	۱۵۰۰۰۰۰۰۰	۲۲,۵۰۰	۴۰,۹۸۴
Utilities	Niches	۴۰	۱۲۰۰۰۰۰۰۰	۴,۸۰۰	۸,۷۴۳
Guard		۳۰	۱۰۰۰۰۰۰۰۰	۳,۰۰۰	۵,۴۶۴
Total		۱۸۲۰		۱۹۲,۳۰۰	۳۵۰,۲۷۳

Utilities:

Description	Cost (Million Rials)	Cost (Euro)
Power Supply	۴۰۰۰	۷,۲۸۶
Water and Wastewater	۱۲۰۰	۲,۱۸۶
Fuel	۱۵۰۰	۲,۷۳۲
Heating and cooling equipment	۳۵۰۰	۶,۳۷۵
Protective equipment and security system	۱۰۰۰	۱,۸۲۱
Compressed air supply	۲۵۰۰	۴,۵۵۴
Total	۱۳۷۰۰	۲۴,۹۵۴

Transportation:

Description	Technical Specifications	Cost (Million Rials)	Cost (Euro)
Forklifts	۵ ton	۲۲۰۰۰	40,073
Pickup	Nissan	۶۰۰۰	10,929
Riding	Samand	۶۰۰۰	10,929
Total		۳۴۰۰۰	61,931

Equipment and Machinery:

Explanations regarding the specifications of the machines: The above machines are very suitable for the expected production of this production line and have a fairer price and good quality. All production processes have been clearly, systematically and operationally taken into account, so that the capacity and ability to produce products with quality and in accordance with the expected specifications have been taken into consideration, and in this matter, the following points have been taken into account:

- Sufficient building and space
- Appropriate equipment and services
- Proper transportation process between machines
- Approved guides and instructions

Number	Name	Required amount	Currency (Euro)	cost (million rials)	Rial sum (million rials)	supply (domestic foreign)
١	shredder system	٢	٩،٨٣٦	٢٧٠٠	٥۴٠٠	Local-Foreign
٢	Sorting system	٢	١٣،١١٥	٣۶٠٠	٧٢٠٠	
٣	Tanks	٨	١٣،١١٥	٩٠٠	٧٢٠٠	
٤	Distillation	٢	٢٥،١٣٧	۶٩٠٠	١٣٨٠٠	
٥	Filters	٣	٦،٥٥٧	١٢٠٠	٣۶٠٠	
	Evaporator	٢	٧،٦٥٠	٢١٠٠	۴٢٠٠	
	Mixer	٣	١٤،٧٥٤	٢٧٠٠	٨١٠٠	
	dryer	٢	١٩،٦٧٢	٥۴٠٠	١٠٨٠٠	
	grind	١	٥،٤٦٤	٣٠٠٠	٣٠٠٠	
	Essential oil extraction system	١	٩،٢٩٠	٥١٠٠	٥١٠٠	
	Packing machine	١	٦،٥٥٧	٣۶٠٠	٣۶٠٠	
٦	other	١	١٣،١١٥	٧٢٠٠	٧٢٠٠	
Total (million rials)				٧٩٢٠٠		
Total (Euro)				١۴۴,٢۶٢		

laboratory equipment:

Number	Name	Currency (Euro)	Rial Cost (Million Rials)	Rial sum million) (rials
١	laboratory equipment	٥،٤٦٤	٣٠٠٠	٣٠٠٠
٢				
Total		٣٠٠٠		

Office equipment:

Number	Name	The required amount	Currency (Euro)	Rial cost per unit	Rial Cost (Million Rials
١	All kinds of tables and chairs	١٥	٤،٠٩٨	١٥٠	٢٢٥٠
٢	All kinds of computers, printers and scanners	٤	١،٠٩٣	١٥٠	٦٠٠
٣	Phone and fax	٤	٣٦٤	٥٠	٢٠٠
٤	Fingerprint attendance device	١	٢١٩	١٢٠	١٢٠
٥	Wireless network and internet equipment	١	١٢٨	٧٠	٧٠
٦	Office stationery	٤	١٤٦	٢٠	٨٠
٧	Central control system	١	٤٥٥	٢٥٠	٢٥٠
٨	other	-	٩١١	٥٠٠	٥٠٠
Total (Million Rials)		٤٠٧٠			
Total (Euro)		٧٤١٣			

Working Capital Costs:

Name	Description	Cost (Million Rials)	Cost (Euro)
Raw materials and packaging	٦٠ Days	٧٥٠٠٠	١٣٦,٦١٢
salary	٣٠ Days	٧١٠٧	١٢,٩٤٥
Energy costs	٣٠ Days	١١٥٩	٢,١١١

revolving fund	۱۵ Days	۴۱۳۳	۷,۵۲۸
Total		۸۷۳۹۹	۱۵۹,۱۹۷

Production costs:

Description	Cost (Million Rials)	Cost (Euro)
Cost of raw materials and packaging	۴۵۰۰۰۰	۸۱۹,۶۷۲
Salary Cost	۸۵۲۸۰	۱۵۵,۳۳۷
Energy costs	۱۳۹۱۱	۲۵,۳۳۹
Cost of maintenance	۲۴۵۳۰	۴۴,۶۸۱
Unforeseen cost of production	۴۵۱۰	۸,۲۱۵
Administrative and sales costs	۵۷۸۲	۱۰,۵۳۲
Costs of financial facilities	۵۸۴۰	۱۰,۶۳۸
Insurance costs	۴۷۳۹	۸,۶۳۲
Depreciation cost	۵۰۰	۹۱۱
Depreciation expense before operation	۲۴۵۳	۴,۴۶۸
Total	۵۹۷,۵۴۵	۱,۰۸۸,۴۲۴

۶-THE AMOUNT OF RAW MATERIAL NEEDED ANNUALLY AND WHERE IT IS SUPPLIED

Number	Description	Consumption per unit product	Unit of consumption	Amount of Consumption Required for Total Capacity	Currency prices (Euro)	Rial equivalent (per unit)	Place of supply	Cost (Million Rials)
۱	Plant material	۱	Kg	۸۰۰۰۰	۷	۳۷۵۰۰۰۰	Local	۳۰۰۰۰۰

۲	Other required additives	۱	Kg	۴۰۰۰	۶۸	۳۷۵۰۰۰۰۰	Import	۱۵۰۰۰۰
Total (Million Rials)								۴۵۰۰۰۰
Total (Euro)								۸۱۹,۶۷۲

۷-RISK ANALYSIS OF PROJECT IMPLEMENTATION

Studies show that in the next year the market will be in short supply and there will be a greater need for imports. So it can be said that the implementation of new projects in this field is not very risky because in addition to the domestic market there is easily good potential to export this product to neighboring countries and if for any reason the applicant intends to undertake this plan, it is necessary to act with caution and superiority over other industrial units and by examining further the weaknesses and strengths as internal factors as well as opportunities and opportunities. Threats as external factors minimize project risk.

۸- HUMAN RESOURCES AND NUMBER OF JOBS

One important aspect of any industrial unit is its job creation, which is thoroughly examined in the market segment. Due to the nature of the industry and the need for ۲ shifts to work, it has been attempted to select the number of personnel in a manner that addresses the production needs of the two shifts. It has also been tried to use related specialties in different parts of production.
To calculate the amount of annual salaries and benefits, three shifts and other benefits have been added to the annual salary. For this purpose, the annual salary is set at ۱۶,٤ months per year

.

Description	Gender	Number	Monthly salary per person (Million Rials)	Monthly salary (Million Rials)	Annual salaries (Million rials)	Annual salaries (Euro)
Managing Director	Man	۱	۴۰۰	۴۰۰	۶۵۶۰	۱۱,۹۴۹
financial manager	Man	۱	۲۲۰	۲۲۰	۳۶۰۸	۶,۵۷۲
Marketing Manager	Man	۱	۲۲۰	۲۲۰	۳۶۰۸	۶,۵۷۲
Financial, sales and	Female	۱	۱۶۰	۱۶۰	۲۶۲۴	۴,۷۸۰

administrative personnel						
warehouse keeper	Man	۱	۱۵۰	۱۵۰	۲۴۶۰	۴,۴۸۱
Line Administrator	Man	۲	۱۵۰	۳۰۰	۴۹۲۰	۸,۹۶۲
skilled worker	Man	۲	۱۳۰	۲۶۰	۴۲۶۴	۷,۷۶۷
Semi-skilled worker	Man	۴	۱۲۰	۴۸۰	۷۸۷۲	۱۴,۳۳۹
worker	Man	۷	۱۰۰	۷۰۰	۱۱۴۸۰	۲۰,۹۱۱
Service	Female	۱	۹۰	۹۰	۱۴۷۶	۲,۶۸۹
Guard	Man	۲	۱۰۰	۲۰۰	۳۲۸۰	۵,۹۷۴
Driver	Man	۱	۱۲۰	۱۲۰	۱۹۶۸	۳,۵۸۵
Secretary	Female	۲	۹۵	۱۹۰۰	۳۱۱۶۰	۵۶,۷۵۸
Total		۲۶			۸۵۲۸۰	۱۵۵,۳۳۷

۹- CHECK AND DETERMINE THE AMOUNT OF WATER, ELECTRICITY, FUEL AND ...

Description	Unit	annual consumption	Cost per unit in Rials	Total Cost (Million Rials)	Total Cost (Euro)
Power Consumption	KWh	۱/۱۰۰/۰۰۰	۵۰۵۲	۵۵۵۷	۱۰،۱۲۲
Water Consumption	Cubic meters	۷۰/۰۰۰	۳۳۶۲۲	۲۳۵۴	٤،۲۸۸
Gas	Cubic meters	۱/۲۰۰/۰۰۰	۵۰۰۰	۶۰۰۰	۱۰،۹۲۹
Total			۱۳۹۱۱		۲۵،۳۳۹

۱۰- Conditions of economic and commercial support

۱۰-۱- Customs Tariff Support (Products and Machines) with Global Tariffs

The customs tariff support includes two parts of the import tariff for machinery and materials required by the export customs rights plan for the products of the production unit, which should be selected and applied for the growth of the industry. the import duty of foreign machines required by the project is about ۱۰٪, like most industrial machines, which is a suitable tariff and does not impose a high cost on investors. on the other hand, in recent years, the government has provided incentives for products that have the ability to compete in international markets and can be exported abroad, and gives export

awards to these units, this has caused the volume of non-oil exports to increase. the country has enjoyed good growth in recent years despite the problems and obstacles. therefore, in the case with good quality and reasonable price, you can benefit from government incentives.

۱۰-۲- Financial support (existing units and plans) of banks - investor companies

Financial support for production units includes the granting of bank facilities and how to repay them, as well as tax exemptions, which, if appropriate, facilitate the implementation of the plan and provide conditions for the investment of entrepreneurial people. Some of these conditions are discussed below.

-One of the important banking facilities for production units is the payment of bank loans up to ۷۰٪ of fixed investment by the country's state banks. This amount can be increased for deprived areas.

-The interest rate of riyal facilities in the industrial sector is ۱۲٪, and for some cooperative companies and units built in deprived areas, a part of the facility interest is paid by the government to the banks as a subsidy.

-The repayment period of long-term bank facilities, according to the nature of the production plan, the type of technology and the possibility of exporting the product, is up to ۸ years.

-Another important banking facility is short-term bank loans (٦ to ۱۲ months) to be used as working capital needed to carry out production processes, which the banking network provides up to ۷۰٪ of. Obtaining short-term facilities up to this amount depends on winning the trust of the operating banks and having a favorable record in repaying the previously received facilities.

-In addition to the bank facilities that exist for the construction of new production units, to encourage investors and guide them to build factories, the following tax exemptions have been considered:

- Tax exemption for up to ۱۰ years for project implementation in deprived areas
- Tax exemptions for up to ٤ years for project implementation in industrial towns
- The tax for normal areas is defined as ۲٥٪ of gross profit.

۱۱-ANALYZING AND PRESENTING FINAL CONCLUSIONS AND PROPOSALS FOR THE CONSTRUCTION OF NEW UNITS

According to the details of the studies, it can be concluded that the creation of new units for the production of this product is justified, the causes of which can be stated as follows:

- The market situation in the future is evaluated as a lack of supply.
- Every year, a part of the country's needs is met through imports.

- In the past years, exports have enjoyed a good increasing trend, and therefore it is expected that the amount of exports can continue to increase in the coming years due to the existence of a relative advantage in our country compared to some countries in the region.

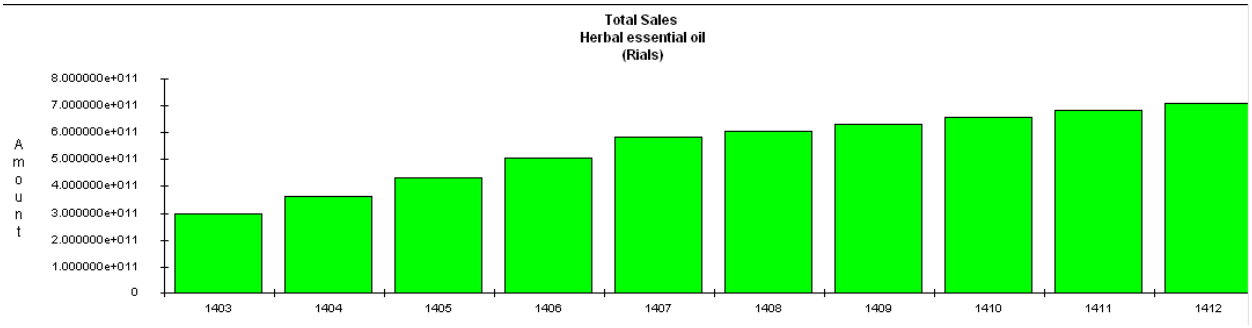
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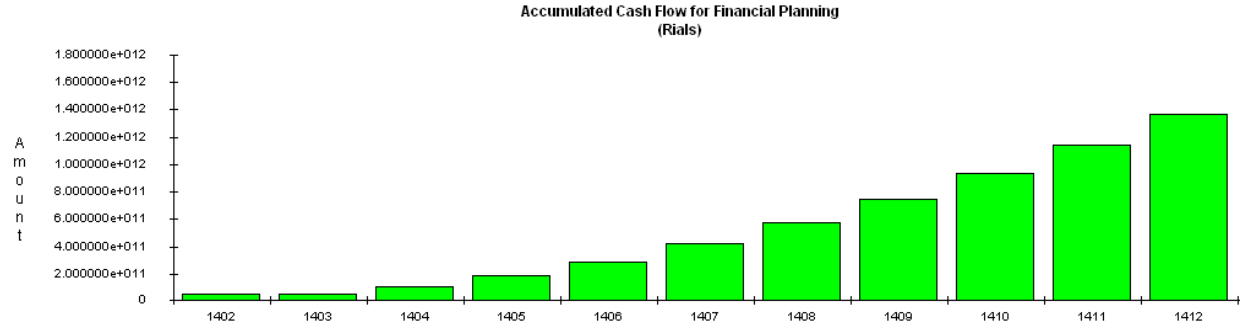
- The plan is to start operating at ٦٠ percent capacity in the first year and increase below capacity in the following years, respectively.

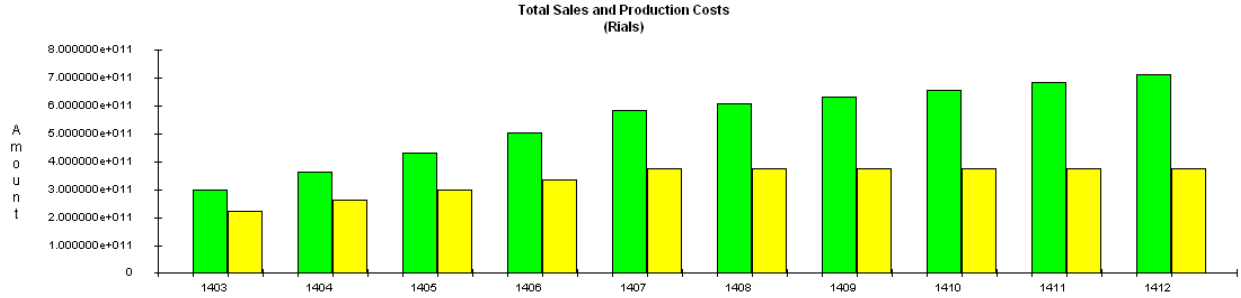
Year	First Year	Second Year	third year	forth year	Fifth year
Capacity(%)	٦٠ %	٧٠ %	٨٠ %	٩٠ %	١٠٠ %
Production capacity (ton)	١٢٠٠٠	١٤٠٠٠	١٦٠٠٠	١٨٠٠٠	٢٠٠٠٠

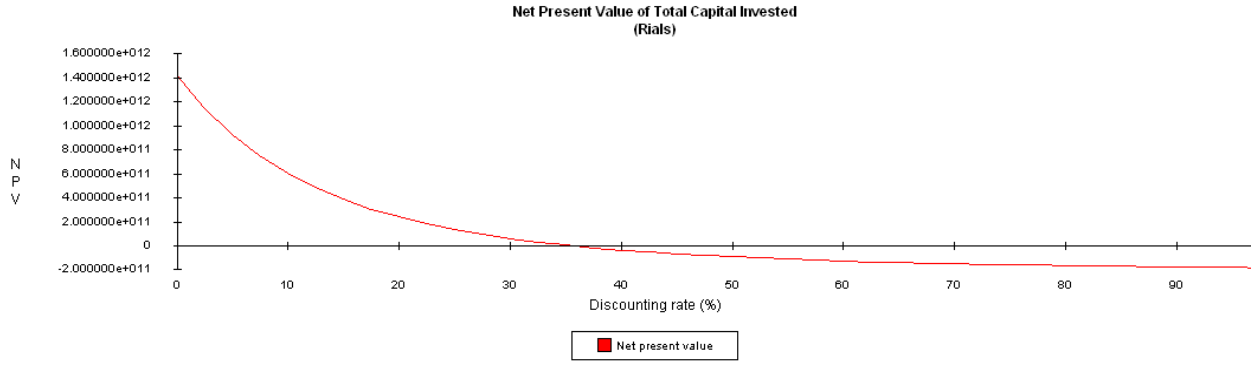
prime cost	٣٠ million rials/Per kg –٥٥ Euro
Selling prices of products	٤٠ million rials/Per kg – ٧٣ Euro
Total Sales (Million Rials)	٨٠٠٠٠٠ million rials - ١,٤٥٧,١٩٥ euro
Percentage of sales at the point head to head	٧٠
Profit (Million Rials)	٢٠٠,٠٠٠ million rials - ٣٦٤,٢٩٩ euro
Gross Value Added (Million Rials)	٢٣٨٧٠٤ million rials - ٤٣٤,٧٩٨ euro
Net Value Added (Million Rials)	٢١٤١٧٤ million rials - ٣٩٠,١١٧ euro
Ratio of gross value added to total sales	٠/٣٠
Ratio of net added value to total sales	٠/٢٧
Ratio of gross value added to investment	٠/٣٨
Return of capital	٣

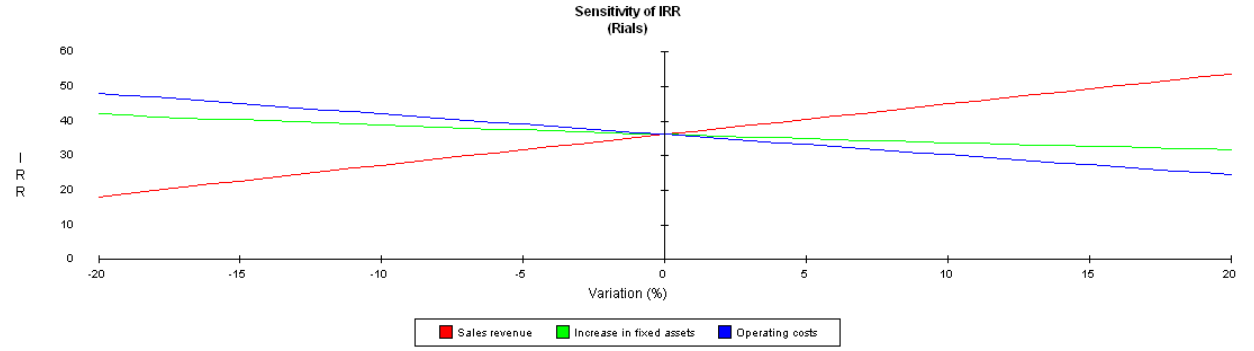
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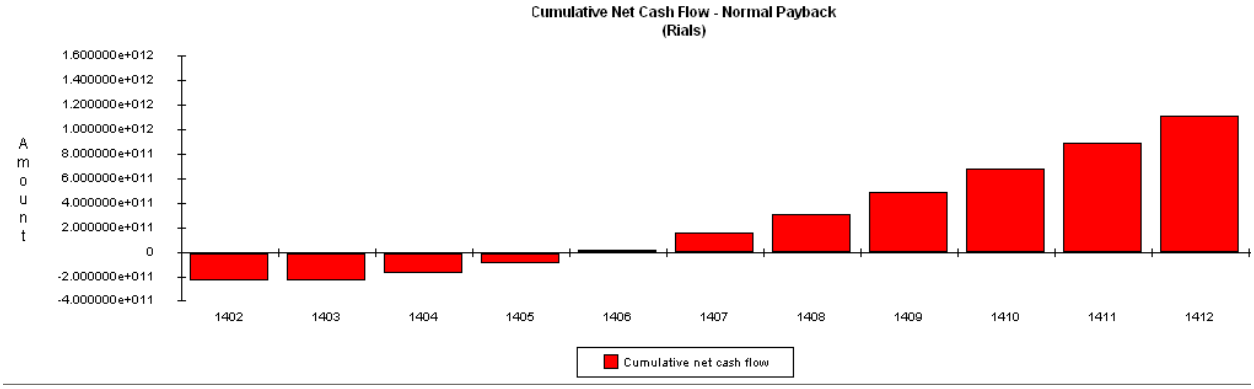

Total Sales
Herbal essential oil
(Rials)
Amount
8.000000e+011
7.000000e+011
6.000000e+011
5.000000e+011
4.000000e+011
3.000000e+011
2.000000e+011
1.000000e+011
0
1403
1404
1405
1406
1407
1408
1409
1410
1411
1412

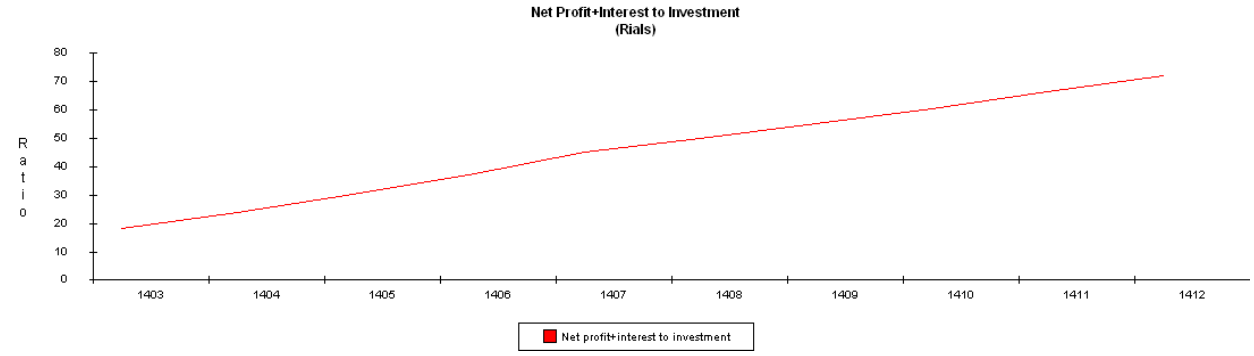

Accumulated Cash Flow for Financial Planning
(Rials)
Amount
1.800000e+012
1.600000e+012
1.400000e+012
1.200000e+012
1.000000e+012
8.000000e+011
6.000000e+011
4.000000e+011
2.000000e+011
0
1402
1403
1404
1405
1406
1407
1408
1409
1410
1411
1412

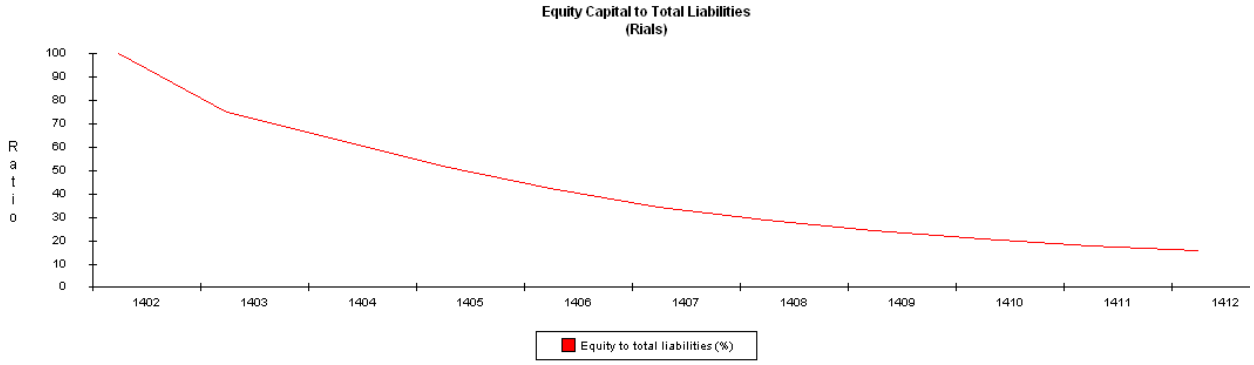

Total Sales and Production Costs
(Rials)
Amount
8.000000e+011
7.000000e+011
6.000000e+011
5.000000e+011
4.000000e+011
3.000000e+011
2.000000e+011
1.000000e+011
0
1403
1404
1405
1406
1407
1408
1409
1410
1411
1412


Net Present Value of Total Capital Invested
(Rials)
NPV
1.600000e+012
1.400000e+012
1.200000e+012
1.000000e+012
8.000000e+011
6.000000e+011
4.000000e+011
2.000000e+011
0
-2.000000e+011
0
10
20
30
40
50
60
70
80
90
Discounting rate (%)
Net present value


Sensitivity of IRR
(Rials)
IRR
60
50
40
30
20
10
0
-20
-15
-10
-5
0
5
10
15
20
Variation (%)
Sales revenue
Increase in fixed assets
Operating costs


Cumulative Net Cash Flow - Normal Payback
(Rials)
Amount
1.600000e+012
1.400000e+012
1.200000e+012
1.000000e+012
8.000000e+011
6.000000e+011
4.000000e+011
2.000000e+011
0
-2.000000e+011
-4.000000e+011
1402
1403
1404
1405
1406
1407
1408
1409
1410
1411
1412
Cumulative net cash flow





	Production 1403	Production 1404	Production 1405	Production 1406	Production 1407	Production 1408
Sales to total capital investment	1.10	1.28	1.47	1.67	1.87	1.94
Investment to personnel cost	12.17	10.93	9.86	9.04	8.39	8.41
Inventory to sales	0.24	0.22	0.21	0.20	0.19	0.19
Net cash flow to total sales	-0.00	0.15	0.19	0.21	0.23	0.26