UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

SECTOR ASSESSMENT ON NATURAL INGREDIENTS FOR COSMETICS AND PHARMACEUTICALS IN COLOMBIA

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SECTOR ASSESSMENT

Natural Ingredients for Cosmetics and Pharmaceuticals in Colombia

PROEXPORT COLOMBIA

INSTITUTO HUMBOLDT COLOMBIA

Sector Assessment: Natural Ingredients for Cosmetics and Pharmaceuticals in Colombia.

Prepared by:

The BioTrade National Programme in Colombia, hosted by the Alexander von Humboldt Institute; in collaboration with Proexport Colombia. This publication was revised by the Dutch Centre for the Promotion of Imports from developing countries (CBI) and the United Nations Conference on trade and Development (UNCTAD)

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BioTrade Facilitation Programme (BTFP)

Through its BIOTRADE Initiative, the United Nations Conference on Trade and Development (UNCTAD) works with partners in developing countries to promote trade in biodiversity products and services. These countries' increasing need for hands-on assistance in export promotion has led to the creation of a special trade promotion programme: the BioTrade Facilitation Programme (BTFP) for biodiversity products and services.

The BTFP helps enterprises in developing countries (for example small, medium, and community-based enterprises) with export promotion. To achieve this, it joins several partners in developing and developed countries. The programme supports products that have market potential and can be produced with the participation of local communities, without harming biodiversity. To develop and trade these products, sector plans are formulated and then implemented through a set of practical trade promotion services, including market information collection, product development, quality improvement, certification, labelling, trade fair participation and matchmaking. Selected countries from Latin America (the Andean and Amazonian regions), Africa (the eastern and southern regions) and Asia are currently part of the BTFP.

Priority product groups include edible plant products (e.g. fruit and nuts); food ingredients (e.g. colouring and flavouring materials); cosmetic and pharmaceutical ingredients (e.g. medicinal plants, essential fatty and aromatic oils), fibres, latex, resins, gums and gum by-products. These products have high value-adding potential and can generate local income by involving local and indigenous communities while also contributing to the conservation of biodiversity.

This programme is an official partnership of the World Summit on Sustainable Development (WSSD), and counts with the financial support of the Governments of Switzerland and the Netherlands.

The International Trade Centre (ITC), a United Nations agency that assists developing countries with trade promotion, serves as the Programme's technical advisor. Other current BTPF partners include: PhytoTrade Africa, Programme Bolsa Amazonia, BIOTRADE country programmes, the Dutch Centre for the Promotion of Imports from Developing Countries (CBI), and the Swiss Import Promotion Programme (SIPPO).

More information can be obtained at www.biotrade.org
or at UNCTAD from Rik Kutsch Lojenga, kutsch@unctad.org

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Alexander von Humboldt Biological Resources Research Institute (IAvH)

Alexander von Humboldt Biological Resources Research Institute was created by 1993 as one of the entities for the scientific and technical support of the Ministry of the Environment. It is a non-profit organization, ruled by the norms of science and technology. Its mission is to promote, to coordinate and carry out research that contributes to the conservation and sustainable use of the biological diversity in Colombia.

More information can be obtained at: www.humboldt.org.co

Proexport Colombia

Proexport was launched in 1992 and stands under the support of the Colombian State. It helps small and medium sized companies in their international markets strategies to gain access to international markets by advising on market access procedures for products and services and also designing and implementing their export strategy, among other portfolio services.

Currently, the International Co-operation and Agreements division has developed a special project, in order to support the exports of Natural ingredients for Cosmetics and Pharmaceuticals in Colombia.

More information can be obtained at: www.proexport.com.co

Centre for the Promotion of Imports from Developing Countries (CBI)

CBI is an agency of the Netherlands Ministry of Foreign Affairs that was established in 1971 and operates within the policy framework set by the Minister for Development Cooperation. Its main objective is to contribute to the economic independence of selected developing countries by helping enterprises and trade promotion organisations (TPOs) to develop their export capabilities, and promote their exports of non-traditional goods and services to the European Union (EU). CBI has recently initiated a new Export Development Programme for companies that manufacture or produce natural ingredients for pharmaceuticals and/or cosmetics.

More information can be obtained at: www.cbi.nl

United Nations Conference on Trade and Development (UNCTAD)

UNCTAD is the focal point within the United Nations system for development and related issues in the areas of trade, finance, technology, investment and sustainable development. Its main goal is to facilitate the integration of developing countries and economies in transition into the world economy and to promote development through trade and investment. In pursuing its goals, UNCTAD carries out research and policy analysis, intergovernmental deliberations and technical cooperation, and interacts with civil society and the business sector.

UNCTAD's Conference, the highest policy-making body, is composed of the 192 member states and meets every four years. The tenth Conference was held in 2000 in Bangkok. The executive body is the Trade and Development Board, responsible for ensuring the overall consistency of UNCTAD's activities with agreed priorities.

More information can be obtained at : info@unctad.org

Abstract

This document provides an overview of the value chain of natural ingredients for cosmetics and pharmaceuticals in Colombia. It briefly assesses the current situation in this sector, touching upon market, social, technological, legal and ecological aspects throughout the whole value chain. It identifies market opening for this sector as well as barriers that need to be overcome to capture these opportunities. A short overview is provided of private and public sector actors that constitute the value chain for cosmetics and pharmaceuticals and their respective roles in further developing this sector. This document finally provides recommendations for the development of their value chain, based on which a strategy for development of the chain can be developed.

Keywords: value chain, natural ingredients for cosmetics and pharmaceuticals, Colombia, biodiversity, sustainable use, export.

CONTENTS

1 INTRODUCTION 1

1.1 BACKGROUND WORK OF THE CBI´S EXPORT DEVELOPMENT PROGRAMME (EXPORT DEVELOPMENT PROGRAMME) IN COLOMBIA 4

1.2 COMPANIES ACTUALLY PARTICIPATING IN THE CBI EXPORT DEVELOPMENT PROGRAMME 4

2 THE COLOMBIAN NATURAL PRODUCTS SECTOR 7

2.1 INTRODUCTION 7

2.2 USE OF TRADITIONAL MEDICINE IN COLOMBIA 8

2.3 BIODIVERSITY IN COLOMBIA 8

2.4 PRODUCTIVE CHAIN OF THE NATURAL PRODUCTS SECTOR 9

2.5 LEGISLATION ISSUES 16

3 RECOMMENDATIONS FOR THE DEVELOPMENT OF THE SECTOR. 18

4 INDICATORS TO MONITOR THE DEVELOPMENT OF THE SECTOR 20

5 ANNEX 22

5.1 ANNEX 1: ASSESSMENT METHODOLOGY 22

5.2 ANNEX 2. BTFP PRODUCT SELECTION MATRIX 22

5.3 SELECTION MATRIX FOR RAW MATERIAL 23

5.4 SELECTION MATRIX FOR NATURAL INGREDIENTS 25

5.5 SELECTION MATRIX FOR FINISHED PRODUCTS 27

5.6 ANNEX 3.- SERVICE PROVIDERS 28

5.7 ANNEX 4.- STATISTICAL INFORMATION 29

TABLES

TABLE 1.- NATURAL INGREDIENT FOR THE COSMETIC AND PHARMACEUTICAL INDUSTRY (PLANTS EXTRACTS, ESSENTIAL OILS, OLEORESINS, GUMS, ETC.) 7

TABLE 2.- FINISHED PRODUCTS: COSMETICS, NUTRITIONAL SUPPLEMENTS, NATURAL PHARMACEUTICAL PRODUCTS AND BIO-PESTICIDES. 7

TABLE 3.- SPECIES OR MEDICINAL RAW MATERIAL (FRESH, DEHYDRATED, PULVERIZED, ETC.) 7

TABLE 4.- INDUSTRY'S DEMAND FOR FRESH RAW MATERIAL. 14

TABLE 5.- PRICES FOR RAW MATERIALS. 15

1 Introduction

Since the end of 1990 medicinal plants and their derivatives have played an important role in the strategy for rural development in Colombia. This is mainly because of four main aspects: first, the great biodiversity of plants with medicinal characteristics that exists in the country (more than 6,000); second, the growing market for plant-based products; third the cultural importance attached to the use of plants by indigenous communities, and fourth the ecological relevance of medicinal plants.

In this context, in September 2000 the Ministry of Environment of Colombia, Biotrade Colombia (Alexander von Humboldt Institute) and TRAFFIC [1], organized a workshop entitled "Use and sustainable trade of medicinal plants in Colombia". Representatives of the private and public sectors involved in research on use and conservation of medicinal plants attended the workshop. It identified inputs for the development of an action plan aimed at the conservation and sustainable use of medicinal plants. The main points of this action plan were as follows:

- To define a normative plan for the regulation of the use, management, research and trade of medicinal plants;
- To consolidate, integrate and actualize the scientific knowledge of Colombia's medicinal flora;
- To support productive alternatives and the sustainable trade of medicinal plants, in order to generate additional options for income generation for local communities;
- To implement actions for the protection of specific medicinal plants;
- To promote education on and awareness of the value of medicinal flora as an economic, ecological and cultural resource;
- To promote inter-institutional cooperation and implementation of the action plan.

Colombia's Biotrade Programme "Biocomercio Sostenible" of the Alexander von Humboldt Institute [2] has focused its work on the third point of the action plan, namely: "To support productive alternatives and the sustainable trade of medicinal plants, in order to generate additional options for income generation for local communities". To address this objective, one of the key partners of Biocomercio Sostenible has been the Dutch Centre for the Promotion of Imports from Developing countries (CBI). In 2000, Proexport, CBI and Biocomercio Colombia organized a workshop, to introduce the CBI Export Development Programme for natural ingredients for cosmetics and pharmaceuticals. The workshop discussed the opportunities of the sector as well as its major needs, in order to develop a work plan to support SMEs working with natural ingredients.

[1] Trade Records Analysis of Flora and Fauna in Commerce.

[2] The Biocomercio Sostenible programme at Alexander von Humboldt Institute is the counterpart in Colombia of the Biotrade initiative of UNCTAD.

This started the work of the CBI Export Development Programme on Natural Ingredients for Cosmetics and Pharmaceuticals, in Colombia, and generated a new interest of local actors in this sector for the use of our biodiversity. This export development programme (that is currently being implemented with Biocomercio Sostenible and Proexport) prioritized support in market research at local and international levels, and support in the elaboration of business, export and management plans.

During 2001, the "Biocomercio Sostenible Programme" prepared a study entitled "Characterization of the Colombian market of medicinal plants". The study was carried out with the support of some natural product laboratories. Some interesting results were obtained:

- The most commercialized medicinal plants in Colombia were identified (around 156), but only 42 per cent of them are permitted by the Ministry of Health to be used in natural products.
- 14 per cent of the medicinal plants used by laboratories are collected from the wild, 16.7 per cent are either collected or cultivated, and 39.7 per cent are only cultivated.
- Colombia lacks a representative natural products sector association; which means that there is no political representation for the sector.

After the characterization of the mapping of the natural products sector, the next step was to work together with the companies in the consolidation of a sector association. This was given priority, because it would permit the development of work with a wider impact regarding the sustainable use of medicinal plants. It would also give the companies more political leverage.

During the second half of 2001, Biocomercio Sostenible, CBI, UNCTAD and Proexport, held a workshop in Bogotá to train companies in quality and technical aspects of distillation and drying of raw materials. This workshop also supported the process for the association of companies producing natural products. This association was required for the development of programmes with environmental and social impacts, aimed at the conservation and sustainable use Colombias's medicinal flora.

After six months of work, the sector union was finally consolidated under the coordination of ACOPI [3]. It was named USENAT[4]. In December 2001, Biocomercio Sostenible, supported the leaders of the natural products sector in the development of a work-plan that included the identification of the main actors, problems and weaknesses of the chain. USENAT showed the officials of the Ministry of External Trade the economic potential and the environmental relevance of the sector.

During January 2002, the Ministry of External Trade with the organizational and technical support of Biotrade Colombia, brought together all the private sector leaders of the chain of natural products (raw material suppliers, transformers, distributors and

[3] Colombian association for the small and medium sized industries.
[4] Sectorial Union of health product companies.

retailers) and the public sector entities and defined the problems of the chain, a sector plan and the commitments of the actors in the sector development process.

During February 2002, representatives of the private and public sectors met to establish activities and commitments for all the actors in the chain, in preparation for the signing of the Agreement on Competitiveness, which was signed by the President of the Republic of Colombia in April 2002. The topics included in this competitive chain agreement are as follows:

1. Legislation

- To prepare specific legislation for the regulation of natural products;
- To create a specialized group inside the competent authority for the analysis, handling and regulation of natural products;
- To enlarge the list of permitted plants with therapeutic action and to list plants with traditional use;
- To speed up the issuing of sanitary registrations ;
- To develop and to implement legislation for national products, according to international legislation;
- To harmonize the norms of exploitation, production, commercialization and certification of ecological products;

2. Integration of the chain

- To carry out a characterization study and analysis of competitiveness of the chain;
- To carry out a joint census of farmers;
- To organize supply systems on the chain;

3. Research and technological Development

- To identify the institutions that are doing scientific research, and to coordinate their efforts.

4. Quality issues and certification

- To design and implement certification systems;
- To adopt GMP along the chain.

5. Information system

- To design an information system for the chain that involves information regarding production, markets, prices, regulation and legislation, research, etc.

6. Opening of markets

- To create international alliances for the commercialization of the products of the chain;
- To negotiate commercial preferences with partners with more potential.

7. Financing

- To create a pool of associative projects, focused on the production and commercialization of products of the chain, and that serves as base for investment and international cooperation funds.

During 2002, all the committees of the competitive chain agreement worked on a proposal for changing the current legislation related to natural products. Biotrade Colombia worked on the identification of raw material suppliers that comply with sustainability criteria.

1.1 Background work of the CBI´s Export Development Programme (Export Development Programme) in Colombia

The objective of this programme is to promote the export of natural ingredients (i.e. essential oils, oleoresins, oils, etc.) to the EU market, using biodiversity resources in a sustainable way. The programme supports companies in the elaboration of business and export plans, environmental management plans and market entry strategies.

Initially, seven companies (mainly natural products laboratories) are part of the first stage of the "Natural Ingredients Export Development Programme". To date, the companies have elaborated their export and business plans, have attended a training seminar in Rotterdam (Netherlands), have attended trade fairs in Europe and are working on the implementation of good manufacturing practices and environmental management plans. With all this, the companies have obtained enough information to get ready to reach European markets. The next step for these companies is the strengthening of their (sustainable) supply, which allows them to compete in international markets with quality and quantities.

1.2 Companies actually participating in the CBI Export Development Programme

The companies participating in the CBI Natural Ingredients Export Development Programme are some of the most significant companies in the natural products sector. They are the companies with the best possibilities of exporting natural ingredients in the medium term.

Most companies have: a) elaborated a business plan and an export plan with the support of Alexander von Humboldt Institute and Proexport; b) attended to CBI´s EXPRO seminar in Rotterdam in June 2002, In-cosmetics in April 2003, Latinpharma in July 2003 and CphI in October 2003; and c) are currently working on an assessment of their situation regarding good agricultural practices, conservation practices, and good manufacturing practices. Having benefited from all the abovementioned events and the

support of Biotrade Colombia/Alexander von Humboldt Institute, Proexport, CBI and UNCTAD, these companies have a good vision of the international markets for natural ingredients and are now working on sustainable supply and on quality control processes.

Name of company	**Product**	**Contact Information**	**Competitive advantages**	**Specific needs**
Ecoflora Ltda	Oleoresins of capsicums Cardamomum essential oil Natural colorants from native plants	Nicolás Cock www.ecoflora.com tel: 57-4-5618227 Medellín	The company has been doing community work in the Pacific region of Colombia. This is aimed at the future implementation of a network of raw material suppliers of native plants and native fruits. The company has new machinery for the distillation of essential oils and oleoresins. Experience in the production of botanical pesticides made from plants and in its commercialization in national markets	Chemical analysis of new ingredients in European research centres or institutions New technology and technical assistance
Labfarve	Natural plants extracts from native plants	Gustavo Urrea www.labfarve.com Bogotá	Experience in the production and commercialization of finished products for the national market. This company is one of the first natural laboratories funded in Colombia with experience in exporting native plants and finished products to The United States.	Financial support for implementing good manufacturing practices Technical assistance and new technology assistance
Morenos Ltda	Essential oils made from native plants	Roberto Moreno www.morenos.com.co Bogotá	The company has its own crops with the possibility of expansion. Experience with exports of fresh and dried plants to Europe and The United States. At present, the company is working with a university in the development of a	Technical assistance for starting the pilot plant Support in the implementation and co-financing EUREPGAP certification

			protocol for the extraction of essential oils from specific plant species.	
Phitother	Dehydrated extracts of native plants	Luz Helena Nuñez phitother@yahoo.com Bogotá	Although this is a small company, its main strength is the technical team and the quality control procedures. It is doing research into specific native plants.	Financial resources for the construction of a pilot plant
Medick Ltda	Natural plants extracts of native plants	Juan Manuel Olarte info@labmedick.com Medellín	Experience in the production and commercialization of finished products for the national market.	New products analysis in European universities Support in the implementation of good agricultural practices (GAP)
Asprome	Vegetable oils	Matthias Jagger asprome@emcali.net.co Cali	This company has a very good sustainable supply (organic certification), achieved through work with rural communities in Valle del Cauca and Cauca.	Chemical analysis of new products
Naturcol Ltda	Natural plants extracts	Hugo Martinez www.naturcol.com Bogotá	Experience in the production and commercialization of finished products for the national market	Technical assistance for the implementation of good manufacturing practices (GMP) Financial support for assistance to trade fairs

2 The Colombian natural products sector

This section provides a short overview of the natural products sector in Colombia and its context. Use has been made of the BTFP matrix to map the sector (see annex 2).

2.1 Introduction

When talking about the natural product sector we are referring to companies in different stages of the productive chain:

- Raw material suppliers (collectors or growers);
- Natural ingredients producers;
- Finished products producers.

Because this sector is relatively a young sector, it is not specialized yet. This sector assessment incorporates not only the natural ingredients producers but also the raw materials and the finished products producers, as government and non-governmental institutions are working on the consolidation of the whole productive chain (supporting specialization in some stages of the chain). Below is a brief description of the sector based on the HS codes:

TABLE 1.- Natural ingredient for the cosmetic and pharmaceutical industry (plants extracts, essential oils, oleoresins, gums, etc.)

Harmonised System Code	Description
13.01	Gums, resins, oleoresins
13.02.19	Other vegetable saps and extracts
13.02.31	Agar – agar
13.02.32	Mucilages and thickeners derived from locust beans.
13.02.39	Mucilages and thickeners derived form vegetable products
3301	Essential oils
3203	Colouring matter of vegetable or animal origin

TABLE 2.- Finished products: cosmetics, nutritional supplements, natural pharmaceutical products and bio-pesticides.

Harmonized System Code	Description
30.04.90.90.06	Pharmaceutical products based on vegetable raw materials
33.04.99	Other cosmetic preparations (make- up)
21.06.90	Others food preparations

TABLE 3.- Species or medicinal raw material (fresh, dehydrated, pulverized, etc.)

Harmonized System Code	Description
12.11.90	Other plants, parts of plants, seeds and fruits used in perfumery, medicine or similar
12.12.20	Seaweed and algae

Each product has different opportunities and obstacles, depending on the target market: finished products have a potential market in the Andean Community Countries (Bolivia, Ecuador, Peru, Colombia and Venezuela), and natural ingredients have a potential market in European countries. However, to support the export development of Colombia, it is necessary to work on the consolidation of companies with high quality standards and sustainable supply chain management. This can be done by strengthening all the actors involved in the productive chain.

2.2 Use of Traditional Medicine in Colombia

In Colombia, the use of medicinal plants is linked to cultural traditions. This, in combination with the fact that conventional (synthetic) medicines tend to be very expensive or inaccessible to lower social classes or rural communities, has made medicinal plants and natural products a very interesting alternative.

Most Colombian companies are focused on the production of finished products (cosmetic, nutritional supplements, phytopharmaceuticals) for consumers in local markets. There is not much export of these products; almost every laboratory produces its own ingredients for its own finished products. That is why BIOTRADE Colombia has two areas of action: a) to support the consolidation of companies in local markets, and b) to access international markets with the natural ingredients.

Although the country has a substantial medicinal flora, current legislation permits [5] the use of only a few plants (around 96, most of them being non-native). This context only allows for the development of products with the permitted plants, disregarding possibilities for research and development with new and native plants. The result is that although there are many interesting plants to work with, there is little scientific research to make industrial developments possible. The main challenge of the sector, therefore, is to achieve export development by using Colombian endemic plants in a sustainable way.

2.3 Biodiversity in Colombia

Colombia is one the most bio- diverse countries in the world and some statistics state that is the second one after Brazil. On average, one of ten fauna and flora species in the world are in Colombia. It has approximately 50, 000 species of plants (a third of them are endemic), 2, 890 species of land vertebrates (third place in the world), 1, 721 species of birds (20 per cent of the total of birds species in the world) and 358 species of mammals (7 per cent of total mammals in the world).

However, as Colombia's biological diversity is very vulnerable, there is a high risk of massive fauna and flora extinctions due to the destruction of habitats (in part because of intensive use without management plans), deforestation and contamination. The list of endangered plants is nearly one thousand species.

[5] This prohibition is due to the non- existence of guarantees regarding the toxicity and effectiveness of the plants.

Although Colombia is a mega-diverse country, most flora with medicinal properties are not used commercially. There are has two main reasons for this: first, there are very few organized companies and community initiatives producing raw materials or collecting them from the wild in a sustainable way, and second, the legislation does not permit the use of most endemic or native plants in finished products.

Important goals are to involve indigenous and rural communities in the production chain of natural ingredients, and to start using endemic plants. If this is done, it could have a considerable impact at the social, economic and environmental level.

The development of the natural products sector represents an opportunity for the improvement of the standard of living of rural communities and for the conservation of zones rich in biodiversity. Colombia's endemic plants are mainly found in the countryside in high biodiversity zones, and there, through the use and trade of plants and the integration of productive chains, rural and indigenous communities could derive important economic benefits.

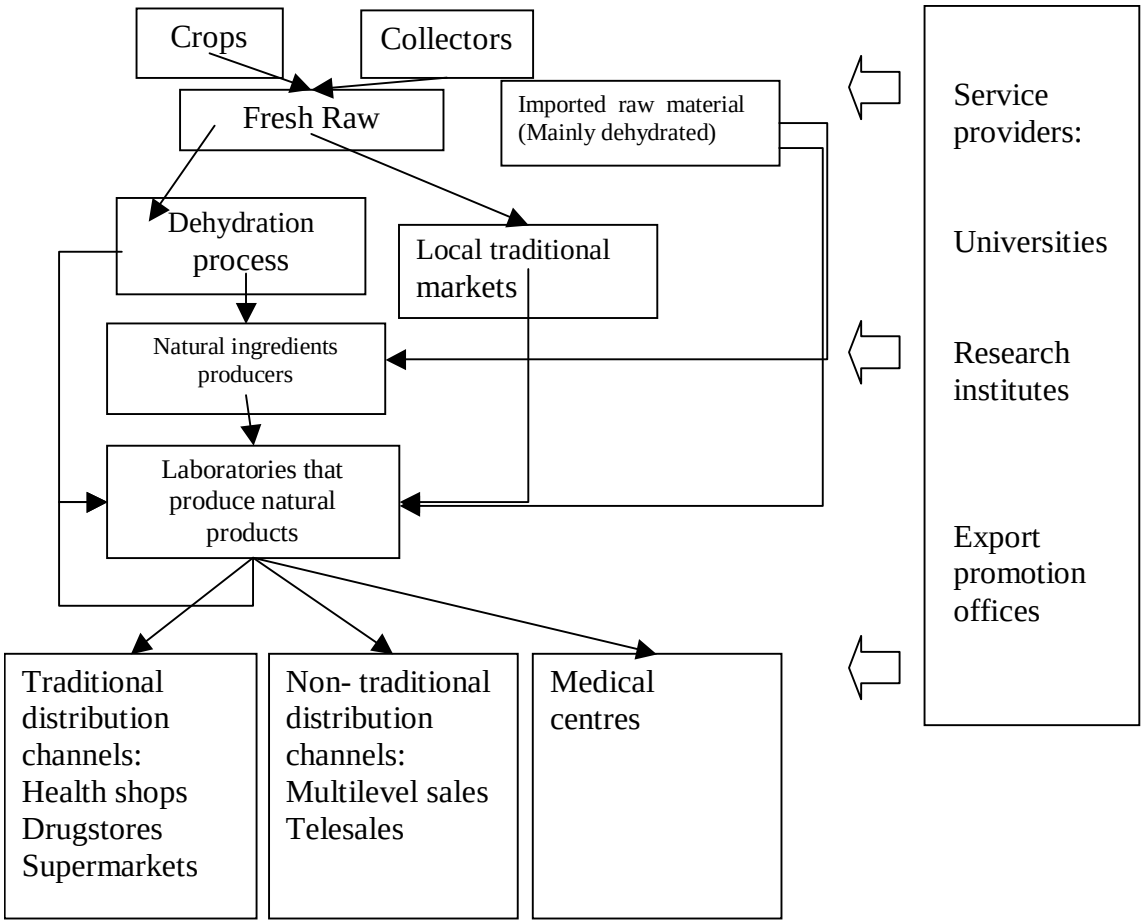
At the economic level, the natural products sector has interesting opportunities in international and regional markets. There is a common interest in the discovery of new products and new uses; and this represents an opportunity for the sector in Colombia. Although legislation is an obstacle for the development of local markets, it is not for the development of international markets. This means that although it is not possible to use endemic plants for the production of finished natural products to be sold in Colombia with a natural product registration, it is possible to use these plants for the manufacture of natural ingredients for international markets. Nevertheless, changes in Colombian legislation are required and would be very useful as a basis for positioning of the products abroad.

2.4 Productive chain of the natural products sector

The productive chain of natural products begins with the suppliers of raw material. The raw material can be either imported or obtained in the country (local traditional markets and small direct suppliers in small volumes). It is not common for laboratories to import raw material directly. Specialized agents who grind and pulverize the plants according to the buyer's needs carry out these imports. All the imported raw material for the natural products sector is dehydrated, while the national materials could be fresh or dried.

Because it is not a very specialized sector, laboratories buy the raw material, apply the necessary treatments (drying, disinfections, etc.) and make their own extracts (hydro-alcoholic, glycolic extracts, etc.) for their own finished products (cosmetic, pharmaceuticals, food supplements). They buy either fresh or dehydrated raw material, depending on product specifications.

Finally, these products use very particular commercialization channels. Most of the laboratories sell their products through multiple channels, such as telesales, health shops, drugstores, supermarkets concessionaries, and medical centres.



Source: Alexander von Humboldt Institute.

a. Natural finished products manufacturers

Most of the Colombian natural products laboratories are small and medium-scale companies. The oldest are around thirty years old, but there are only a few of these. According to the sector association (USENAT), in Colombia (in the main cities) there are around one hundred laboratories producing natural products and more than 2,500 shops commercializing their products. It has been estimated that this sector generates approximately 8,200 direct and indirect jobs [6].
As mentioned before, in general, Colombian manufacturers have little exporting experience. This implies two things:

1. They produce finished products for national demand (small volumes): Because they have not required large volumes of raw material, there are no associations or companies that could possibly produce raw material in the right volumes and with the right quality for exporting. The supply aspect is a critical aspect for the export development of the sector.

2. Very few companies have the infrastructure and equipment needed to reach international markets. However, little by little, companies have started to implement

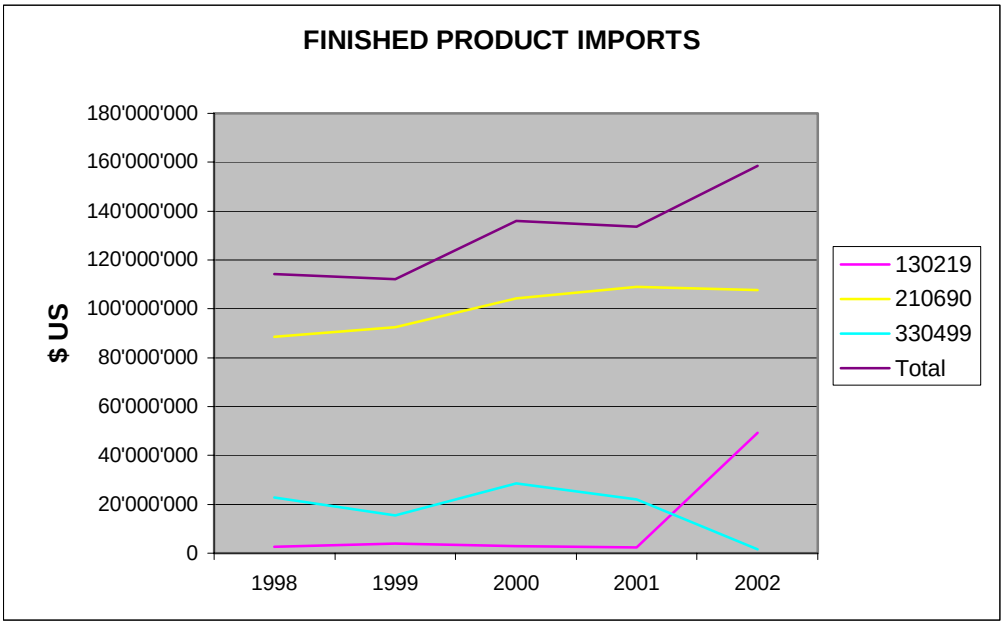
[6] In "Situación actual del sector naturista", USENAT, 2001.

ISO standards and good manufacturing practices, consistent with what is permitted by national legislation.

Legislation is another big obstacle for the companies. As has already been said, although Colombia is a mega-diverse country, the national legislation only permits the use (in pharmaceutical products from herbal resources) of around 95 plants. This is an obstacle for the development of the sector as the permitted plants are the ones that other countries can produce more efficiently.

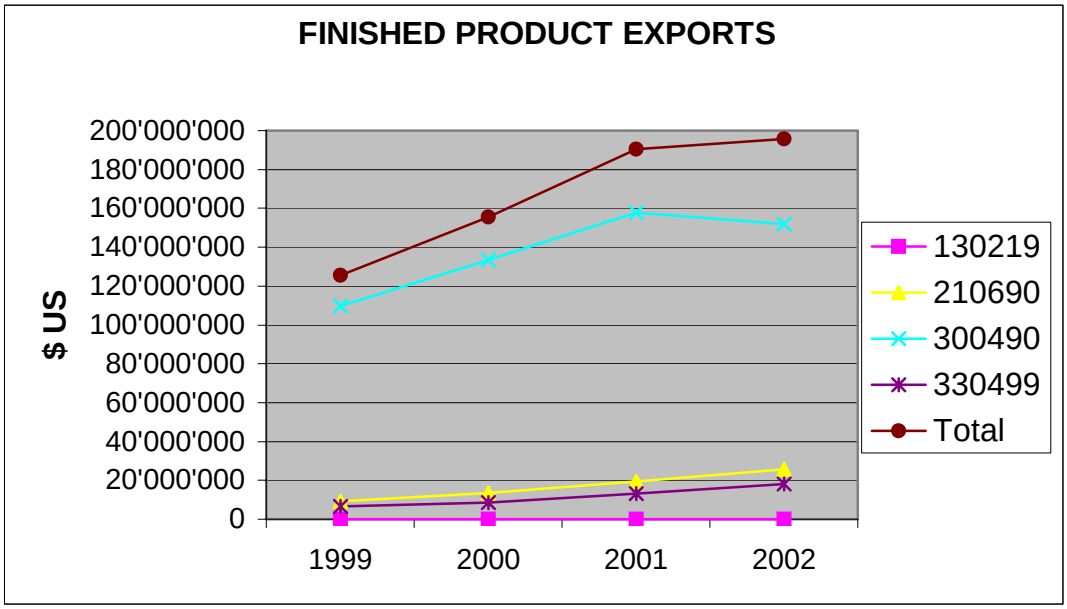
According to the companies, given the market trends and the need for new and natural products, the sector is financially feasible. However, at present Colombian companies are not ready to compete with bigger international companies. The scale of production is very small and the financial capacity for scaling up is moderate.

In the graph below, we see a steady growth trend in the imports of finished natural products (according to the HS codes listed before) for the last five years. However, it is clear that most of the increase in imports is due to the steady increase in other food preparations (HS code 210690) and other saps and extracts (HS code 130219) since 2001. On the other hand, imports of natural pharmaceutical products (HS code 330499) have decreased in the last five years.



Source: Mincomex.

The exports of finished products also show a steady growth trend (see graph below). It is clear this growth up to 2001 was led by the strong growth in exports of products classified under HS code 300490, which covers amongst others finished natural pharmaceutical products. As from 2001, total growth of finished products exports has been taken up by 210690 (Other food preparations) and 330499 (Other cosmetic preparations).

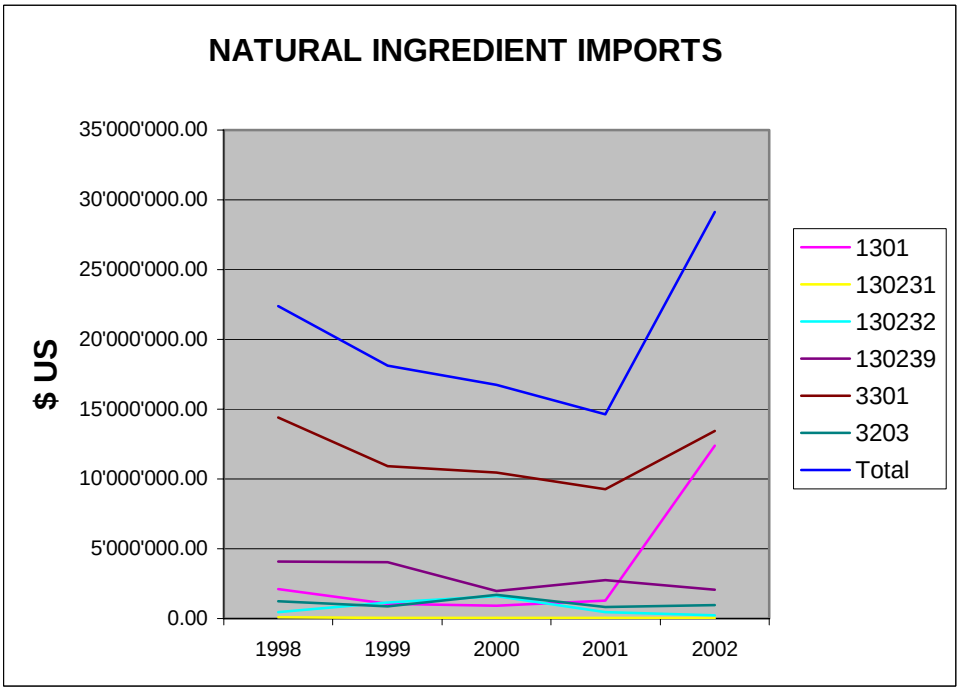


Source: Mincomex.

Natural ingredients producers

Some laboratories produce their own extracts and ingredients for their finished products (cosmetic and pharmaceutical natural products), but most of them import the extracts they need because of quality and volume requirements.

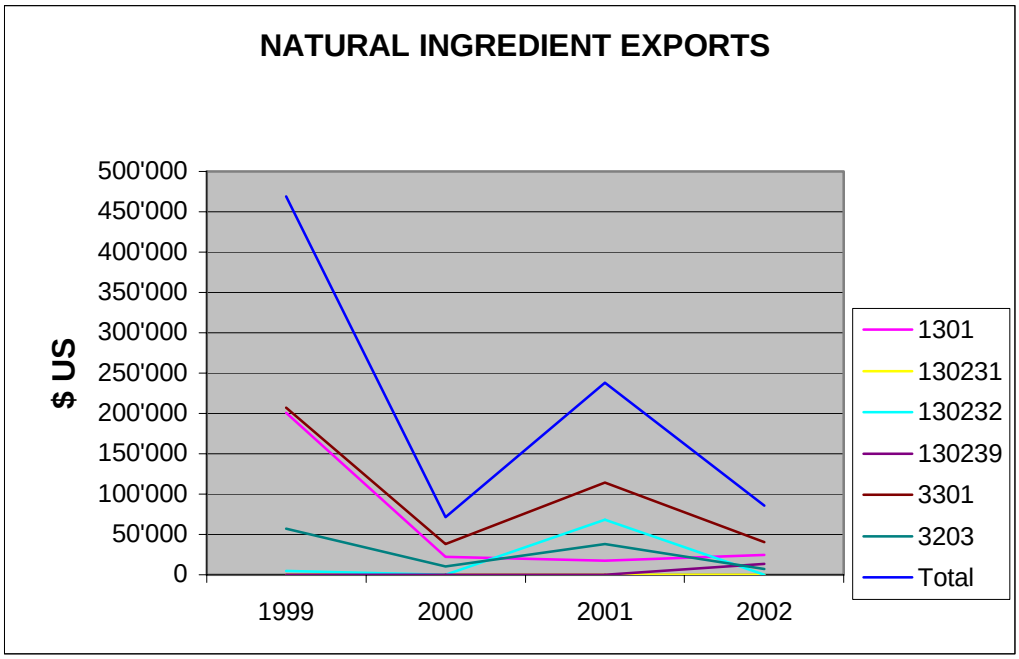
There is an interesting market for vegetable extracts in Colombia. It is worth mentioning that the demand for this type of products comes not only from natural products laboratories but also from other chemical industries.



Source: Mincomex.

As can be seen in the graph above, 2002 shows a strong increase in the imports of natural ingredients, mainly of the products classified under the HS code 1301 (Gums, resins, oleoresins) and 3301 (Essential oils).

The exports of natural ingredients on the other hand (as shown below) show a markedly fluctuating trend, steeply declining in 2000, rising again slightly in 2001 to return to the 2000 level in 2002.



Source: Mincomex.

Raw material suppliers

This group includes growers, collectors and importers of raw material, and sellers of dehydrated and ground raw material.

Medicinal plant growers and collectors in Colombia are mainly indigenous communities, rural communities and small growers from around the country, mainly in the Andean, Amazon and Pacific regions (see map below). They do not make a living from the plants trade [7]. All these areas are characterized by their high biodiversity and by their distance from the main cities.

[7] In general, supplying raw material is only one of the subsistence activities of the rural and indigenous communities in Colombia.

The trade of raw material is not linked to any planning activity, firstly, because there is no infrastructure for drying plants, and secondly, because there is no certainty about the demand for them. This creates a vicious circle as the laboratories that produce natural products can neither plan a bigger production nor have certainty about the supply of raw material.

Another important issue regarding the raw material supply is the quality issue. As there is no planning culture for plants production or collection, and therefore quality requirements from laboratories are hard to satisfy (they take the risk of buying without quality certification) there are no management plans. The result of this situation is that the laboratories do not have any quality guarantee for the raw material they buy and use in their processes.

As can be seen in the table below, the industry's demand for fresh raw material has been decreasing in the last few years. This is due to the increase in the demand for semi-processed materials (pulverized plants and extracts). This is related to the fact that nowadays laboratories with good manufacturing practices or ISO standards are asking for detailed information about the materials they are buying.

TABLE 4.- Industry's demand for fresh raw material.

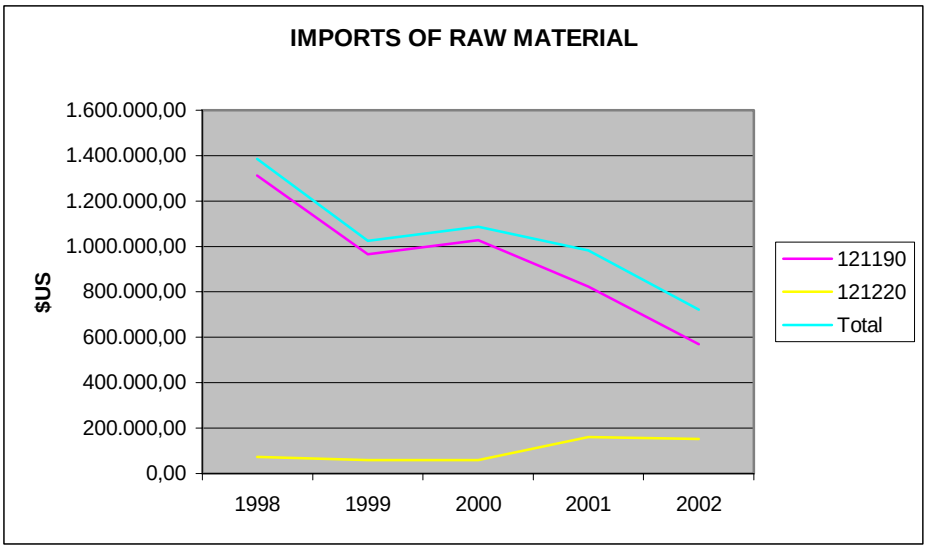
Sector	Industry demand ($ million pesos)[8]				Growing rate 1997-2000 (%)
	1997	1998	1999	2000	
Leaves and flowers	41	49	38	27	-14.8
Medicinal herbs	1,915	1,535	1,430	1,423	-9.6

[8] In 2000, $ 1 = 2, 087 pesos.

Medicinal flowers and leaves	0	7	1	35	175
Medicinal cortices	270	331	256	243	-5.8
Total	2,226	1,922	1,725	1,728	

Source: Annual Industry Survey, DANE 2000.

As is shown in the graph below, there has also been a decrease in the Colombian imports of the products included under HS code 121190 (Other plants, parts of plants, seeds and fruits used in perfumery, medicine or similar), and an increase in the imports of seaweed and algae (HS 121220).



Source: Mincomex.

This situation could be in part because of the increase in vegetable extracts imports, and shows an opportunity for those medicinal plant-based products with an added value (extracts, etc.).

The quality of raw material is very important to define its price. Laboratories that produce natural products are willing to pay slightly more for raw materials that have all the information related to the production process. It is also important to mention that the prices of raw material with a transformation process are considerably higher than fresh raw material.

TABLE 5.- Prices for raw materials.

Product	US $/Kilo
Fresh medicinal herbs	0.5
Dehydrated and ground herbs	3.5
Extracts	5

Source: Alexander von Humboldt Institute.

Another important issue regarding raw material is the possibility of using new plants. Around 156 medicinal plants are used in Colombia, but only around 60 per cent are allowed to be used in finished products.

Of these permitted plants around 40 per cent are native. This shows that the Colombian natural products sector is not making much use of the potential of the biodiversity [9].

Other Actors in the Chain

- Traders

There are three main types of commercialization agents:

- Traditional sales channels: Health shops, drugstores, supermarkets, and specialized shops.
- Non-traditional sales channels: multi-level sales, telesales.
- Medical centers: through alliances with doctors and specialized medical centers.

- Service providers

There are three types of service providers (see annex 4):

- Research institutes (universities, agronomical development centers, biotechnology development centers). These institutions support the sector by the development of scientific research. This includes any kind of chemical analysis (physical and chemical analysis, bromatological analysis, chromatographic analysis, mass spectrometry analysis, etc.).
- Business support organizations (Alexander von Humboldt Institute, Proexport, SENA, Corporación Innovar, NGOs). These institutions support companies in the development of business plans; export plans management plans, market studies, trade fair visits and entrepreneurial training.
- Certifiers. There are at least three companies in Colombia certifying good manufacturing practices, organic production, and good agricultural practices.

2.5 Legislation Issues

Regarding sector legislation there are two issues worth mentioning:

1. Permitted plants list

INVIMA is the governmental authority responsible for checking food and medicine quality. This institution defined a positive list of plants for use in finished products (pharmaceutical). The list currently includes around 95 plants, although national laboratories use more than 150 plants. Most of the plants on the list are non-native plants, and this represents a major obstacle for the use of local biodiversity.

2. Quality requirements for the production of natural products

[9] J.A. Díaz ed.2003. Informe Técnico. Caracterización del Mercado Colombiano de plantas medicinales y aromáticas. Instituto Alexander von Humboldt – Ministerio del Medio Ambiente Vivienda y Desarrollo Territorial, Bogotá, Colombia.

National laboratories complain about the absence of rules for evaluation of the achievement of quality standards. They say that approval of their quality standards depends on the evaluator criteria, and not on specific requirements.

These two issues are the basis for the discussion on the legislation component of the competitive agreement.

3 Recommendations for the development of the sector

To support the work of sustainable productive chains

- As seen throughout this document, the natural products sector is a relatively young sector with insufficient specialization. By supporting the work of sustainable productive chains, there will be a chance to consolidate the specialization of the actors in the chain, improving the quality and the quantity of raw material supply and guaranteeing environmental sustainability.

- Actors in the chain should be trained to consolidate and strengthen the chain
  Raw material producers must be given capacity in good agricultural and conservation practices and organic agriculture methods; transformers, in good manufacturing practices, quality standards and technology; and traders, in market access norms and regulations.

- It is important to work with rural cooperatives and associations in the field.

To support the development of coordinated scientific research

- To discover new uses for our biodiversity and to use it sustainably in an economic, environmental and social way, scientific research has to be coordinated according to private sector needs.

- The universities have a key role in the development of the natural products chain. It is important to close the gap between producers and researchers through strategic alliances that permit research to be carried out according to the needs of the companies. Specific projects that integrate technological, agro- industry and research should be promoted.

- Identify all the people or institutions that are doing scientific research regarding the sector.

- Generation of ethno-botanical studies to involve rural communities in research into, and discovery of, new plants with medicinal properties in our regions.

- It is important to create germoplasm banks in universities, as a first step in the development of new research on native plants.

- It is important to develop agricultural protocols for native plants.

To support the development of legislation in line with the international norms regarding natural products

- Legislation is a big obstacle for the commercial development of the sector. It has to be revised in the context of the World Health Organization (WHO) and the Andean community (CAN)

To support the commercial development of the sector through the realization of buyers-sellers meetings at national, regional and international levels.

- It is necessary to generate business opportunities for companies.

- It is important to strengthen local producer's capacities, and to strengthen the national supply chain and local markets.

To promote the implementation of good manufacturing practices, good agricultural practices and environmental management plans:

- Without the right quality standards it will be impossible to reach international markets. It is necessary to develop programmes for quality assurance and to develop tools to make it easier for companies to develop and implement quality standards.

4 Indicators to monitor the development of the sector

In order to monitor the development of the natural products sector over the coming years the sector has been summarized by means of a set of criteria. Similar criteria are used in different countries in which the BTFP is working.

General Issues	Indicators	Current situation
Institutional support / favourable environment to promote sectors / sector organization	Positive development in national legislation, policies and strategies for natural products	There is no legislation for natural products. At the present times, rules for natural products are the same as the rules for synthetic pharmaceuticals.
	Number of projects financed by international institutions	International institutions finance around five projects: Inter- American Development Bank (IDB), World Bank, USAID, Chemonics and GTZ.
		Master plan for medicinal and aromatic plant chain exists, but implementation is weak.
	Priority given by the Government, semi-governmental organizations, academia, NGOs, etc.	The medicinal and aromatic plants chain is one of the chains prioritized by the Government. However, the actors in the chain are not well coordinated and implementation is insufficient.
		"Green markets" programme of Ministry of Environment included in national development plan, but this programme still pays little attention to the NICPs sector.
	Number and effectiveness of associations	Currently, USENAT and FENAT are the biggest sector associations legally organized in Colombia. However, they have little political power to influence the development of the sector.
	Number of companies participating in the sector association	Currently, 20 companies are part of USENAT and 5 companies are part of FENAT.
	Increase in the number of regions where USENAT is active.	FENAT only works with companies from Bogotá. USENAT is working in Medellin and Cali, to bring in more companies.
	The companies working in the CBI natural ingredients EDP will be actively promoting the sustainable supply chain.	Companies participating in the programme have just started to design their management plan, and training in good agricultural practices. With this information, they will be able to guide their new raw material suppliers.
	Existence of effective support organizations	The Alexander von Humboldt Institute and Proexport Colombia are the most active support organizations in the country.
		An inventory is being made of services provided by universities. There is not integration of the universities into the productive chain.

Trade of natural products made according to sustainability criteria	Increased number of exporting companies using sustainability criteria	At the moment, there are no companies exporting natural ingredients. There are 4 companies very advanced in the export development process with sustainability criteria
	Number of NICP companies implementing management plans	One company has a sustainable management plan and implements this.
	Increase in volume of trade in NICPs (quantity and sales)	Currently, exports of NICPs are zero.
Raw material sourced in areas rich in biodiversity	Increase in sustainable material sourcing in areas rich in biodiversity	At the present time, participating companies are sourcing from suppliers working in rich biodiversity areas (mainly the Andean region).
	There is a list of six medicinal native plants prioritized through expert meetings, taking into account supply capacity, ecological availability, etc.	Currently, there is a long list of "promissory" products in Colombia. However, this list has never been assessed and revised to prioritize the most promissory plants.
Social developments	Increased number of rural communities, producer groups or associations involved in productive chain activities.	At the present time, there are no communities or associations systematically linked to productive chain activities. Almost all the exporters buy the raw material they need from two big plant growers.

5 ANNEX

5.1 ANNEX 1: Assessment methodology

In order to make a very complete and precise sector assessment, the Alexander von Humboldt Institute elaborated an analysis, starting from the criteria defined in the BTFP Product Selection Matrix. This analysis was made taking into account similar assessments that were done before, in the context of the natural products competitive chain, led in Colombia by the Ministry of External Commerce. The results of the analysis were discussed with some laboratories, producers of natural products, USENAT, and people involved in the productive chain. These people made interesting comments regarding aspects that were not included in the matrix.

Other aspects highlighted by company managers:

- *Legal requirements*

According to the companies, there is a big obstacle in the development of the sector: the legislation referring to the plants that are allowed by the national law to be used in products for human use limits the possibilities of taking advantage of Colombian Biodiversity.

- *Financing sources*

There are not many organizations willing to finance community-based entrepreneurial initiatives. This is a bottleneck for the development of the productive chain.

- *Local market development*

It is very important for the companies to become consolidated in local markets. There are currently many business opportunities at a local level for national companies (mainly for finished products). In this context, it is necessary to develop market information sources and to develop buyer-seller meetings at local levels.

- *Trade promotion*

The only trade promotion initiative that has worked in the sector is the one led by CBI, the Alexander von Humboldt Institute, Proexport and UNCTAD Biotrade/BTFP. This initiative exists in the context of the competitive chain of the Ministry of External Commerce.

- *CBI EPP/ BTFP*

One of the most important programmes supporting the activities developed in the framework of the competitive chain for natural ingredients for cosmetics and pharmaceuticals the CBI EPP/BTFP export promotion programme.

5.2 ANNEX 2. BTFP product selection matrix

The product selection matrix was filled out for each of the main actors in the sector: raw material, natural ingredients and finished products producers.
In this way, it is easier to define the specific needs of each step of the production chain.

5.3 Selection matrix for Raw Material

5.3.1 Market criteria assessment

Criteria	Scale	Explanation	Qualifiers
Extent and quality of existing market information	Uncertain	There is not enough specific information about suppliers of raw materials (native and non- native) in Colombia.	The market information regarding raw material availability and suppliers could be obtained by: ▪ Carrying out very specific (primary sources based) market research. ▪ Assistance to trade fairs at local and regional levels.
Actual and projected market demand	High	There is a positive trend in the local demand for high quality medicinal plants for the production of natural ingredients and finished products.	This information comes from informal talks with the managers of some laboratories.
Scale of production	Small	The scale of production of raw material is very small. This aspect is limiting the development of natural ingredients and finished products production.	The problem could be tackled by organizing the suppliers, training them and giving them the right infrastructure. The Ministry of Environment and the Ministry of Agriculture should be in charge of this.
Market readiness of product	Already in market	There is a niche for raw material at local, regional and international levels.	
Competition (for retaining market niche)	Moderate	There is no competition at all in the commercialization of native raw material. There is intense competition with imports of conventional plants from Europe and India.	
Financial viability assessment	Completed, good returns	At a national level, some financial viability assessments have been undertaken for big companies, and they predict good returns. Financial viability assessments for community projects have not been done.	Assessments could be carried out by "Corporación Innovar" or any other entrepreneur incubator.
Quality standards	Moderate	At the present time, very few producers are implementing good agricultural practices or any other quality standard in the production of medicinal plants.	The Ministry of Agriculture, certifiers and Biocomercio programme could help in the development of good agricultural practices and management plans.
Fair trade potential	High	Most of the medicinal plants are located in rural community areas. This is an aspect that is worth taking into account for the development of market strategies.	The Alexander von Humboldt Institute and the Ministry of Environment should support activities for the development of the fair trade potential.
Organic certification/ eco labelling	High	There is an important niche for ingredients made with organic certified raw	The Ministry of Environment, CCI and other certifiers could support those producers with possibilities of obtaining a certificate.

potential		material. This is an important issue, as a large amount of plants come from wild collection processes.	

5.3.2 Ecological criteria assessment

Criteria	Scale	Explanation	Qualifiers
Conservation status of raw material species	Abundant	As companies are focused on local markets (which are rather small), there is currently no ecological threat for medicinal plants. Should large amounts of raw material be required, management plans should be implemented.	The Alexander von Humboldt Institute and SINCHI Institute should be responsible for generating information regarding the conservation status of the resources.
Regenerative / domestication potential	Moderate	Depending on the species, there could be high or low regenerative potential. Agricultural protocols should be developed for native plants. In any case management plans should be implemented.	Universities, Corpoica and CAB should be responsible for generating this type of information.
Existence of a natural resource management system	Does not exist	There are currently no management systems being implemented. The Alexander von Humboldt Institute is working on some developments regarding this aspect.	The Ministry of Environment, CAB and the Alexander von Humboldt Institute should be responsible for generating this information.
Availability of a suitable environmental certification mechanism	Does not exist	There is no suitable environmental certification for wild collected raw material, but there is some certification for organic and for good agricultural practices processes.	For organic certification CCI could provide assistance. CBI and SIPPO could provide information regarding wild collection certification procedures.
Potential for organic products	Exists, but not in use	Medicinal plants production in Colombia is mainly dominated by small farmers. For these people, the cost of certification is very high and the economic returns make it unprofitable. Because of this, there are plans for working as a production chain.	The Ministry of Agriculture, CCI and the Alexander von Humboldt Institute could provide assistance with organizing organic production.

5.3.3 Socioeconomic criteria assessment

Criteria	Scale	Explanation	Qualifiers
Suitability for raw material production by community - based producers	High	Most raw materials are highly suited to community-based production. There are very few initiatives in Colombia at the present time, but one of the objectives of the competitive chain work is to involve communities in the production process.	The coordination of community-based initiatives should be necessary to increase quality raw material production. USENAT, the Ministry of Environment and Biocomercio Sostenible should take the responsibility for coordinating this work.
Experience with products	Moderate	Some communities have a great deal of experience in the use of medicinal and aromatic plants. However, they do not have much experience in production (with quality standards) or in the commercialization process.	The Ministry of Environment could take the responsibility for transferring these experiences.
Opportunities for value-adding by	High	There are a few initiatives in Colombia, where communities grow plants, and sell them after a dehydration process.	The Alexander von Humboldt Institute could assist some initiatives in the opportunities for value

community base producers		More advances in the value adding process could be achieved only in specific community projects with a great deal of experience in the production process. This would need very close follow- up.	adding.
Employment creation potential	High	There are ample opportunities for creating meaningful work alternatives in rural communities.	
Additional indirect benefits to communities	High	There is a major economic crisis in rural communities at the present time. The promotion of this sector will bring communities new economic alternatives for subsisting.	

5.3.4 Technological criteria assessment

Criteria	Scale	Explanation	Qualifiers
Processing technology requirements	Moderate	In rural communities there is a need for very simple technology that is not accessible at all (dehydrators, distillers, etc.).	
Quality control requirements	High	There are high standards for raw material. To achieve those standards, communities need considerable support with machinery and training. It is possible to meet the quality standards in rural communities, but it will need close follow- up.	The Alexander von Humboldt Institute, Ministry of Environment, CBI, CCI and ICONTEC, could support a training process for small producers.
Infrastructure status	Low	There is a great need for production infrastructure in rural communities.	
Human Resources	Limited	It will be necessary to train some people in good agricultural practices and in the elaboration of management plans (sustainable supply management).	Public universities and SENA should be responsible for ensuring capacity building.
Technical support skills	Moderate	If effective technical support is to be given, some technical skills will have to be imported from elsewhere.	Public universities and SENA should be responsible for ensuring technical support.

5.4 Selection matrix for Natural Ingredients

5.4.1 Market criteria assessment

Criteria	Scale	Explanation	Qualifiers
Extent and quality of existing market information	Uncertain	There is not enough specific market information about natural ingredients made with native Colombian plants. There have been a few contacts made by Colombian companies that attended to trade fairs in Europe, which show the interest of European companies in new products.	The market information regarding natural products could be obtained by: ▪ Carrying out very specific (international primary sources based) market research. ▪ Attendance at trade fairs at a regional and international level.
Actual and projected market demand	Moderate	There is information regarding a positive trend regarding the use of natural ingredients for cosmetics and pharmaceuticals.	This information comes from secondary information sources (www.cbi.nl)
Scale of production	Small	Producers of natural ingredients and natural products (cosmetics, pharmaceuticals and food supplements) in Colombia are mainly focused on local markets. The only aspect	

		limiting the scaling- up process is raw material availability.	
Market readiness of product	Already in market	There is a niche for natural ingredients at an international level.	
Competition (for retaining market niche)	Moderate	At an international level, there is no competition for natural ingredients made with Colombian native plants.	
Financial viability assessment	Completed, good returns	Very few Colombian companies have exported natural ingredients, but there are some good financial expectations regarding native products sales at an international level.	
Quality standards	Moderate	As Colombian companies are mainly focused on local markets, the quality standards are not yet those required to reach European markets. At the present time, companies participating in the CBI – EDP are working on the implementation of pilot plants and good manufacturing practices.	CBI, Biotrade and the Alexander von Humboldt Institute could assist companies in developing quality standards for exporting.
Fair trade potential	High	There are specific fair-trade niches for natural ingredients in Europe.	CBI and SIPPO could help companies in the process of identifying fair-trade niches.
Organic certification/ eco labelling potential	High	There is an interesting market niche for ingredients made with organic certified raw material.	CBI and SIPPO could help companies in the process of identifying fair-trade niches.

5.4.2 Technological Criteria Assessment

Criteria	Scale	Explanation	Qualifiers
Processing technology requirements	Moderate	The laboratories that are producing natural ingredients for the cosmetics and pharmaceutical sectors needs assistance and financial help for improving the machinery for the elaboration of essential oils. The equipment needed is not very complex, but is not easily available at a local level.	
Quality control requirements	High	The market requires high quality standards. To achieve this standards, laboratories need to work together with herbariums specialized in tropical plants and universities with expertise in phytochemistry and analytical processes.	The Alexander von Humboldt Institute, CBI, CCI and ICONTEC, could support a training process for small producers.
Infrastructure status	Low	There is a great need for infrastructure. At the present time there is a need for information and access to the right machinery for the production of essential oils, vegetable oils and oleoresins. This infrastructure could be prohibitively costly.	
Human resources	Limited	It will be necessary to train some people in: Taxonomy (identification of species), Phytochemical analysis, technical processes regarding obtaining of essential oils, oleoresins and vegetable oils marketing / exporting basics	Public universities and SENA should be responsible for ensuring capacity building.
Technical support skills	Moderate	If effective technical support is to be given, some technical skills will have to be imported from elsewhere.	Public universities and SENA should be responsible for ensuring technical support. CBI could provide support with some technical assistance

5.5 Selection Matrix for finished products

5.5.1 Market criteria assessment

Criteria	Scale	Explanation	Qualifiers
Extent and quality of existing market information	Uncertain	There is not enough specific market information about finished products.	The market information regarding finished products could be obtained by: ▪ Carrying out very specific (primary sources based) market research in Central America and the Andean countries. ▪ Attendance at trade fairs at a regional level.
Actual and projected market demand	Moderate	There is information regarding a positive trend relating to the use of natural products (cosmetics and pharmaceuticals). Although there are very high standards for finished products in European markets (which make it an inaccessible market) there are market possibilities in Andean countries and Central American countries.	This information comes from secondary information sources (www.cbi.nl)
Scale of production	Small	The scale of production is very small. Natural products producers (cosmetics, pharmaceuticals and food supplements) are mainly focused on local markets. The only aspect limiting the scaling- up process is raw material availability.	
Market readiness of product	Already in market	There is an interesting niche for finished natural products at national and regional levels. There are a very few companies exporting finished products to Central America and The United States (Miami).	
Competition (for retaining market niche)	Moderate	At a national level, there is strong competition for finished products. This competition comes mainly from large multinational companies, and national illegal companies. At an international level, there is no competition for Colombian products made with native plants.	
Financial viability assessment	Completed, good returns	There are some good financial expectations regarding native products international sales.	Assessments could be done by "Corporación Innovar".
Quality standards	Moderate	As Colombian companies are mainly focused on local markets, the standards are not yet those required to reach European markets.	CBI, Biotrade and the Alexander von Humboldt Institute could assist companies in developing quality standards for exporting.
Fair trade potential	High	Most of the medicinal plants are located in rural community areas. This is an aspect that is worth taking into account for the development of market strategies.	The Alexander von Humboldt Institute and the Ministry of Environment should be responsible for realizing the fair trade potential.
Organic certification/ eco labelling potential	High	There is an interesting market niche for ingredients made with organic certified raw material. This is an important aspect, as a large amount of plants come from wild collection processes.	CCI would be responsible for realizing the organic certified potential.

5.5.2 Technological Criteria Assessment

Criteria	Scale	Explanation	Qualifiers

Processing technology requirements	Moderate	The laboratories that are producing natural ingredients for the cosmetics and pharmaceuticals sectors need assistance and financial help for improving the machinery for the elaboration of extracts and essential oils.	
Quality control requirements	High	The market requires high- quality standards. To achieve this standard, laboratories need to work together with universities specialized in phytochemistry and quality control processes.	Alexander von Humboldt Institute, CBI, CCI, ICONTEC and could support a training process for small producers.
Infrastructure status	Low	There is a great need for infrastructure. At the present time there is a need for information and access to the right machinery for the production of natural products.	
Human Resources	Limited	It will be necessary to train some people in Quality control analysis Phytochemical analysis Technical processes Quality standards (BPM) Marketing / exporting basics	Public universities and SENA should be responsible for ensuring capacity building.
Technical support skills	Moderate	If effective technical support is to be given, some technical skills will have to be imported from elsewhere.	Public universities and SENA should be responsible for ensuring technical support. CBI could help with technical assistance.

5.6 ANNEX 3.- Service providers

5.6.1 Public sector

- Convenio Andrés Bello (SECAB)
- INVIMA (National Institute of Medicines and Food Surveillance) www.minsalud.gov.co: Regulates the production of goods for human consumption.

- Universidad de Antioquia (Medellín), Universidad Industrial de Santander, Universidad Nacional (Bogotá) and other public Universities: Research in different aspects: Agronomical and Phytochemical research, chromatographic analysis, botanical and taxonomical identification.

- Alexander von Humboldt Institute (www.humboldt.org.co/biocomercio): Supports companies in the development of business plans with social and environmental criteria. Also helps companies in the development of management plans.

- Proexport Colombia (www.proexport.com.co): Supports companies in the export process.

- Corpoica (www.corpoica.gov.co): Agronomical Research Institute: soil, biotechnology, agroforestry.
- Colciencias (www.colciencias.gov.co): Finance research activities.
- SENA (Servicio Nacional de Aprendizaje): Supports companies in the elaboration of business plans.
- ICONTEC (Colombian institution for normalization): Creates norms and certifies good manufacturing practices (GMP).
-

5.6.2 Private Sector

- ACOPI (Colombian Association of Small Industries): Supports companies in the legal aspects and offers training programmes for companies.
- USENAT (Sector Unit of Health Industries): Private Universities: Supports companies in the administrative organization process.
- BIOTROPICO, BIOLATINA, CORPORACIÓN COLOMBIA INTERNACIONAL: The first two certifiers can only give certifications (organic) for international markets. Their seal is not accredited by national accreditation institutions. The third one, certifies organic, Eurepgap, HACCP, for national or international markets.

5.7 ANNEX 4.- Statistical information

5.7.1 Colombian imports of natural ingredients

HS code	1998	1999	2000	2001	2002
1301	2,098,807.42	1,076,440.08	933,952.26	1,304,018.29	12,376,743.02
130231	68,958.49	64,887.65	29,847.93	40,381.14	39,595.32
130232	472,414.40	1,157,335.20	1,618,817.75	436,253.58	216,557.94
130239	4,096,082.57	4,050,359.78	1,991,510.92	2,758,412.24	2,073,318.92
3301	14,409,781.52	10,925,066.71	10,473,314.49	9,284,131.25	13,440,626.46
3203	1,241,171.69	849,919.25	1,695,700.51	810,463.31	973,686.63
Total	22,387,216.09	18,124,008.67	16,743,143.86	14,633,659.81	29,120,528.29

U.S. FOB value *Source*: Mincomex.

5.7.2 Colombian exports of natural ingredients

HS Code	1999	2000	2001	2002
1301	200,446.00	22,463.00	17,629.00	24,426.00
130231	0.00	118.00	0.00	0.00
130232	4,427.00	0.00	67,900.00	170.00
130239	0.00	77.00	54.00	13,153.00
3301	206,763.00	38,202.00	114,406.00	40,730.00

3203	57,509.00	10,354.00	38,050.00	7,498.00
Total	469,145.00	71,214.00	238,039.00	85,977.00

U.S. FOB value *Source*: Mincomex.

5.7.3 Colombian imports of finished products

HS Code	1998	1999	2000	2001	2002
130219	2,660,208.27	4,056,248.35	2,819,458.43	2,427,937.46	49,304,174.78
210690	88,622,537.41	92,560,797.99	104,386,959.53	109,088,089.86	107,624,900.18
330499	22,828,801.89	15,476,508.77	28,686,280.44	21,982,728.94	1,532,582.31
Total	114,111,547.57	112,093,555.11	135,892,698.40	133,498,756.26	158,461,657.27

U.S. FOB value *Source*: Mincomex.

5.7.4 Colombian exports of finished products

HS Code	1999	2000	2001	2002
130219	9,389.00	1,969.00	17,574.00	28,922.00
210690	9,100,447.00	13,345,546.00	19,532,574.00	25,636,593.00
300490	109773455	133535999	157665442	152017466
330499	6,649,434.00	8,704,145.00	13,205,902.00	18,186,805.00
Total	125,532,725.00	155,587,659.00	190,421,492.00	195,869,786.00

U.S. FOB value *Source*: Mincomex.

5.7.5 Colombian imports or raw material

HS code	1998	1999	2000	2001	2002
121190	1,313,482.52	965,142.63	1,028,122.78	822,359.38	568,521.71
121220	71,836.00	60,544.23	60,453.50	161,139.28	151,822.69
Total	1,385,318.52	1,025,686.86	1,088,576.28	983,498.66	720,344.40

U.S. FOB value *Source*: Mincomex.

5.7.6 Colombian exports or raw material

HS Code	1999	2000	2001	2002
121190	1,077,119.00	614,038.00	629,955.00	845,155.00
121220	1,750.00	680.00	1,252.00	264.00
Total	1,078,869.00	614,718.00	631,207.00	845,419.00

U.S. FOB value *Source*: Mincomex.

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