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FIQUE OR CABUYA
FURCRAEA SPP.

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Sustainable Materials for the Fashion Industry
Biodiversity/Ecosystems/Community Impact Review

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Guillermo Valles
Director
Division on International Trade
in Goods and Services, and Commodities

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Contents

I. INTRODUCTION

Natural fibre has been important for human civilization since prehistoric times. Traditional usages include clothing, housing, or as packaging material for personal belongings or agricultural products. With the emergence of the manufacturing of synthetic fibres with very specific properties, the demand of natural fibres has declined. However, since 1995 the growing interest in the use of renewable natural resources and their incorporation in green-label products has again produced an increase in market appetite for natural fibres (Corpoica, 2004, cited by the MinAgricultura–Cadefique, 2006). Today, countries such as the United States of America, Canada and Germany use materials reinforced with natural fibres in the automotive industry, manufacturing, construction, packaging and even in the aerospace industry.

In Colombia, *fique* has been cultivated and its fibre extracted since time immemorial. It has been and still is used for the production of hammocks, nets, strings, espadrilles, bags, sacks and saddles. The crushed *fique* leaves are also prescribed traditionally as therapeutic remedies to halt swelling; its roots are fortifiers and their infusions have cleansing properties. In some regions of the country, alcohol is produced by the maceration and fermentation of the juice of semi-mature leaves and *tapetusa* (liquor) of *fique* is then obtained by adding certain scents. The juice of the leaves is also used as a whitener for clothing. In veterinary medicine, the juice extracted from the leaves is used to control the common horse louse (mites). The bulbils are used – once the mucilaginous substances are removed–as pickles following preparation in oil, salt and vinegar. The stem is called *scape* or *maguey*, and it is often employed in the construction of houses, stairs or to sharpen knives (MinAgricultura –Cadefique, 2006).

A. Name and specifications

1. Taxonomy

Kingdom: *Plantae*.
Phylum: *Spermatophyta*.
Clade: *Angiospermae*.
Subclade: *Monocotyledonea*.
Order: *Liliflorae*.
Family: *Agavaceae*.
Genus: *Furcraea*.
Species 1: *Furcraea gigantean.*
Species 2: *Furcraea macrophylla*.
Species 3: *Furcraea cabuya.*
Species 4: *Furcraea castilla.*
Species 5: *Furcraea andina.*

2. Common names

Colombia, Costa Rica, Ecuador, Panama, Peru and the Bolivarian Republic of Venezuela: *fique*, *cabuya*, *penca*, *fique perulero*, *maguey*, *cabui*, *cabuya blanca*, *chuchao*, *cocuiza*.
Brazil: *piteira*,*pita*.
Mauritius: aloe, creole.

3. Name (etymology)

The etymology of the name *cabuya* or *fique* is unknown and has not been established.

B. Facts

1. Biological characteristics

The *fique* is a large, upright stem plant. Its height varies between 2 and 7 metres, with dense foliage of green radial-shaped leaves each 1 to 3 metres long. The leaves are narrow (10 to 20 centimetres), fleshy, pointed, channelled and spiny, toothed in some varieties, presenting lines or faint stripes of about 3 millimetres long (figure 1).

Young plants consist of a rosette of thick, fleshy bluish-green leaves and as the plant grows it develops a short trunk at the base which carries 75 to 100 sheets with lengths varying from 150 to 200 centimetres and widths of 15 to 20 centimetres at the widest part near the middle, narrowing to 10 centimetres near the base, which has a thickness of 6 to 8 centimetres. The *fique*

Figure 1. *Fique* leaves

Source: IM/*Editores*

has a very well-developed root system that spreads and grows deeply, making the species interesting for its anti-erosive properties. The plant's productive life for fibre production begins at between 3 and 6 years, depending on growing conditions.

Flowers (called *maguey* or *escapo*) are greenish white and blooms are produced only once during an individual plant's life cycle. The seeds germinate on the parent plant and the bulbils fall already formed to the ground. For this reason, *fique* is considered a viviparous plant. Plants of more than 50 years of age can be found, but the typical life span varies between 10 and 20 years.

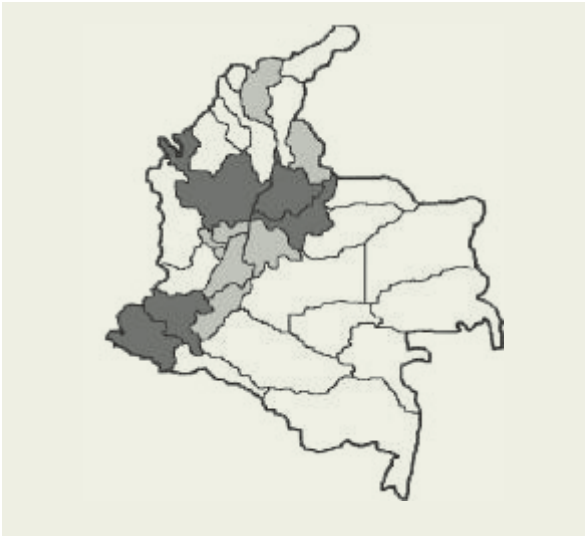
2. Distribution

The *fique* is deemed to produce the Colombian natural fibre by excellence. This fibre is derived from the leaves. The plant originates from the tropical area in the Andean region of Colombia and the Bolivarian Republic of Venezuela. The species has spread to the eastern coast of Brazil and throughout the West Indies. In the seventeenth century the Dutch took it from the State of Pernambuco (Brazil) to Mauritius, where it has become sub spontaneous (growing and spreading naturally).

Fique is by nature a tropical plant and its cultivation is only possible in regions where tropical conditions prevail during most of the year. It is a rustic plant that adapts to diverse agro-ecological conditions.

In Colombia, *fique* is cultivated, transformed and commercialized in 13 departments (figure 2) and it is estimated there are 72 "*fiquero*" municipalities, the main ones being Santander, Antioquia, Cauca, Nariño and Boyacá, which account for 99 per cent of the national production and the harvest area (CORPOICA – IICA, 2004 cited by Biogestion–Cadefique, 2009).

Figure 2. Departments with fique production in Colombia



Source: STN Cadefique. MADR. 2010.

3. Habitat

The *fique* is a xerophytic plant, tolerant to arid conditions and soils poor in nutrients, but it requires semi-humid conditions, warm temperature and exposure to sunlight for good development.

In Colombia, this plant grows in almost all climates, from coastal plains to elevations above 3,000 metres, but it achieves its best development and productivity in specific environmental conditions of climate and soil. In Colombia this is found in the coffee producing zones of the country (see table 1).

Table 1. Environmental conditions (climate and soil) for the cultivation of *fique*

Variable	Parameters	Value
Weather	Average precipitation	2016 millimetres
	Average temperature	15.5°C
	Sunshine	4.18 hours per day
	Altitude (average)	2 350 metres above sea level
Soil	Texture	Sandy
	pH	5.1–5.4
	Phosphorous Calcium Magnesium	Low
	Boron	High
	Organic matter	High
	Effective depth	42 centimetres

Source: MinAmbiente – MinAgricultura – Cadefique, 2006.

II. MARKET OVERVIEW

The current world market demands products that are natural, not polluting, free from chemical substances, biodegradable and non-noxious to the health of the consumer. This has led to a renewed and growing demand for natural derived inputs and products, many of which had been previously replaced by artificial manufactured products that were lower in cost but less environmentally friendly.

Fique has been recovering its market potential as a natural fibre for the global market. This has been due not only to its natural competitive advantages as a raw material for the production of biodegradable products, but also because of its potential for product diversification and the opening of new market niches.

Colombia is the world's largest producer of *fique* fibre. Other countries producing smaller amounts include Ecuador and Costa Rica. Table 2 provides a classification of textile fibres according to their origin. *Fique* gives a hard fibre the characteristics of which have provided certain competitive advantages over other fibres that can be found in the market for items such as packaging, ropes and textiles.

A. Sourcing insights

In the world market for natural fibres, the direct competitors of *fique* have a current production of more than 3 million tons per year with an upward trend in most of the producer countries; this production is concentrated (approximately 81 per cent) mainly in two countries, India and Bangladesh, dominated by the cultivation of jute. Similarly, the production of other countries in Asia such as Thailand and Myanmar has shown an upward trend, reaching 36,000 and 43,000 tons respectively over the period from 2005 to 2006. Other producers that are increasing production include Nepal and Viet Nam. In contrast, over the past decade the production of jute and kenaf in China has shown a downward trend. However, China has become a significant importer (Food and Agriculture Organization (FAO), 2007), which is reflected in its important participation in the export market of finished products made from these fibres.

According to the Ministry of Agriculture and Rural Development of Colombia, the world market of vegetable fibres decreased in production and international trade during the last three decades of the twentieth century, with a rate of annual decline of -3.1 per cent for fibres such as *fique*. On the other hand fibres such as jute saw a stable positive growth rate of around 0.7 per cent per year and a relatively constant production. In recent years, the world production of natural fibres has been growing, stimulated by the increase in the price of polypropylene and by the importance that is being given to the use of natural rather than synthetic products. This can be confirmed with figures from FAO (2007), according to which, in the season of 2005–2006 the world production of jute, kenaf and related fibres rose by more than 12 per cent.

In 2005, Colombia contributed only 1 per cent to the global production of natural fibres through *fique* (see table 3).

Table 2. Classification of textile fibres

Vegetables (cellulose)	From leaves	Fique, henequen, cantala, guapilla, pineapple, leafhemps, sanseviera, sisal, esparto, iraca, cumare, moricha, raffia, etc.
	From stems	Linen, jute, stemhemps, abaca, banana, ramie, guaxima, bamboo, etc.
	From seeds	Cotton, kapok
	From fruit	Coconut
	From root	Rice root or zacaton
Animals (keratin)	Wools	Fibres lining the sheep skin.
	Hairs	Alpaca, vicuña, cashmere, mohair, rabbit, huarizo, llama, horse, guanaco, camel, etc.
	Filaments	Silk
Minerals	Asbestos, chrysotile, crocidolite	

Source: MinAmbiente – MinAgricultura – Cadefique, 2006.

Table 3. World production of natural fibres by country, 2005

Position	Fibre	Country	Production (thousands of tons)	Global participation (per cent)
1	Jute	India	1 900 000	57
2	Jute	Bangladesh	800 000	24
3	Sisal	Brazil	191 103	6
4	Abaca	Philippines	70 356	2
5	Jute	China	68 000	2
6	Sisal	Mexico	41 856	1
7	Abaca	Ecuador	27 194	1
8	Jute	Myanmar	26 169	1
9	Sisal	Kenya	25 000	1
10	Fique	Colombia	22 000	1
Total			**3 350 437**	**100**

Source: Minagricultura – Biogestión – Cadefique, 2009.

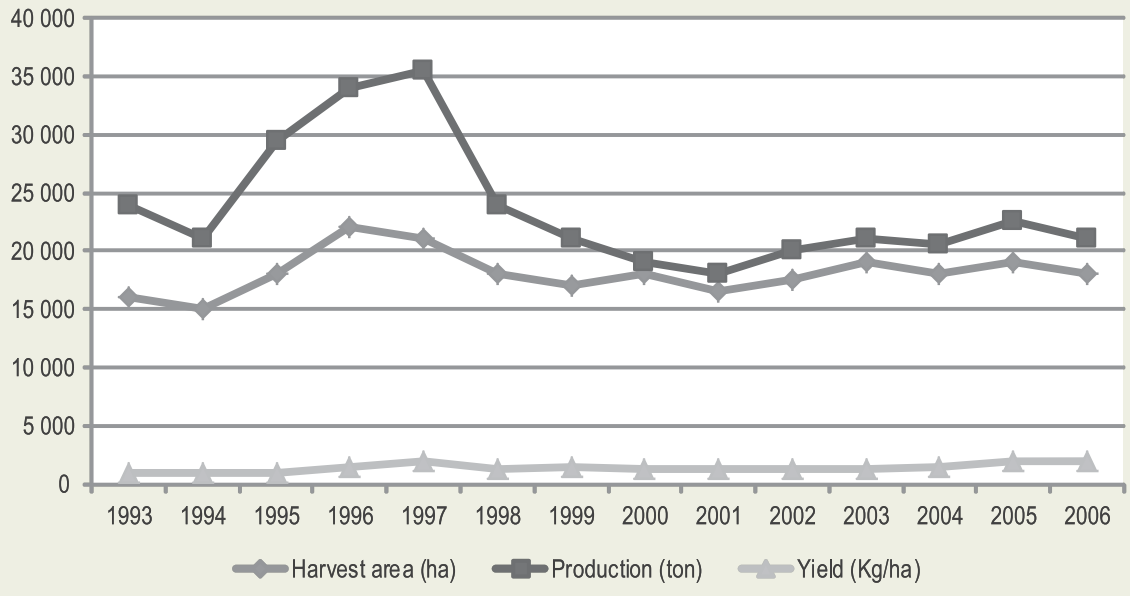
Figure 3 presents the sector dynamics in terms of harvest area of *fique*, production and performance in Colombia for the period between 1993 and 2006.

1. Parts and derivatives in trade

Fique fabrics have markets in different economic sectors such as artisanal, decorative and metallurgical. However, quantities traded during the period from January to August 2008 barely exceeded 102,000 kilograms (table 4).

Table 5 presents the components of the physical structure of the *fique* leaf, the percentage of its useful area and its most common uses. In the transformation of the leaves only 4 per cent is used for fibres, while the other 95 per cent of the material has great economic potential as a source of new products for the construction, agriculture and pharmaceutical industries.

Figure 3. Variation of harvest area for *fique* (hectares), production (tons) and yield (kilograms/hectare) in Colombia for the years 1993–2006



Source: Minagricultura – Biogestión – Cadefique, 2009.

Table 4. Industrial products, final market and approximate quantities sold in the period January–August 2008

	Fabric	Yarn	Sacks	Ropes	Plush	Agro-textile
Market	Construction, handicrafts, decoration, metal mechanics	General	General	Naval, construction, stockbreeding handicrafts, decoration	Mattresses	Civil work
Quantity (kg approx.)	102 000	320 000	3 340 000	62 000	630 000	80 000

Source: Minagricultura – Biogestión – Cadefique, 2009.

Table 5. Physical structure of the *fique* leaf

Component	Percentage in the leaf	Useful percentage	Uses
Fibre	5	4	Textiles and packaging
Juice	70	40	Steroids extraction
Oakum	8	3	Paper pulp
Bagasse	17	10	Construction material and fertilizers

Source: MinAmbiente – MinAgricultura – Cadefique, 2006.

Products that are exclusively made from long fibre are listed below (MinAmbiente - Cadefique, 2006):

- Bags or material for packaging: used for harvesting, packing, storage and transport of agricultural crops;
- Crafts: traditional products made mainly in Santander, Boyacá, Cundinamarca and Huila using hand weaving techniques, crochet and macramé, among others;
- Ropes: formed by three strands with a twist that guarantees the firmness and durability needed in activities of the agricultural, industrial and maritime sectors;
- Banana rope: *fique* rope is as strong as its competitors made of synthetic material, with the additional advantage of being biodegradable;
- Threads: threads are used mainly for mooring and crafts;
- Woven fabrics: biodegradable, decorative, easy to handle, they can be manufactured in different qualities and dimensions with good shine and lustre.

2. Illegal trade

There are no indications of illegal trade in fabrics and threads from Colombia.

3. Actual or potential trade impacts

Major trends in the use of natural fibres show a certain focus on handbags, rugs, toys for pets and home linings with innovation in designs, colours and finishes, as well as in the development of multipurpose fabrics. With regard to the use of fabrics for packaging purposes, trends indicate an increase of its use for the packing of grains as a response to the demand for biodegradable products. In this context, there is also an increase in the use of this fibre for the production of designed grocery bags that are replacing plastic bags.

B. Harvest overview

Figure 4 outlines the production process of the *fique* fibre. The long fibre has already an existing market while the juice and pulp are only in the research and development phase, and these last two are not treated in detail in this study.

The estimated national yield for *fique* dry fibre is 2 kilograms/plant/year and 2 tons per hectare, which for the year 2011 represented close to 21,000 tons and an approximate value of US$15 million.

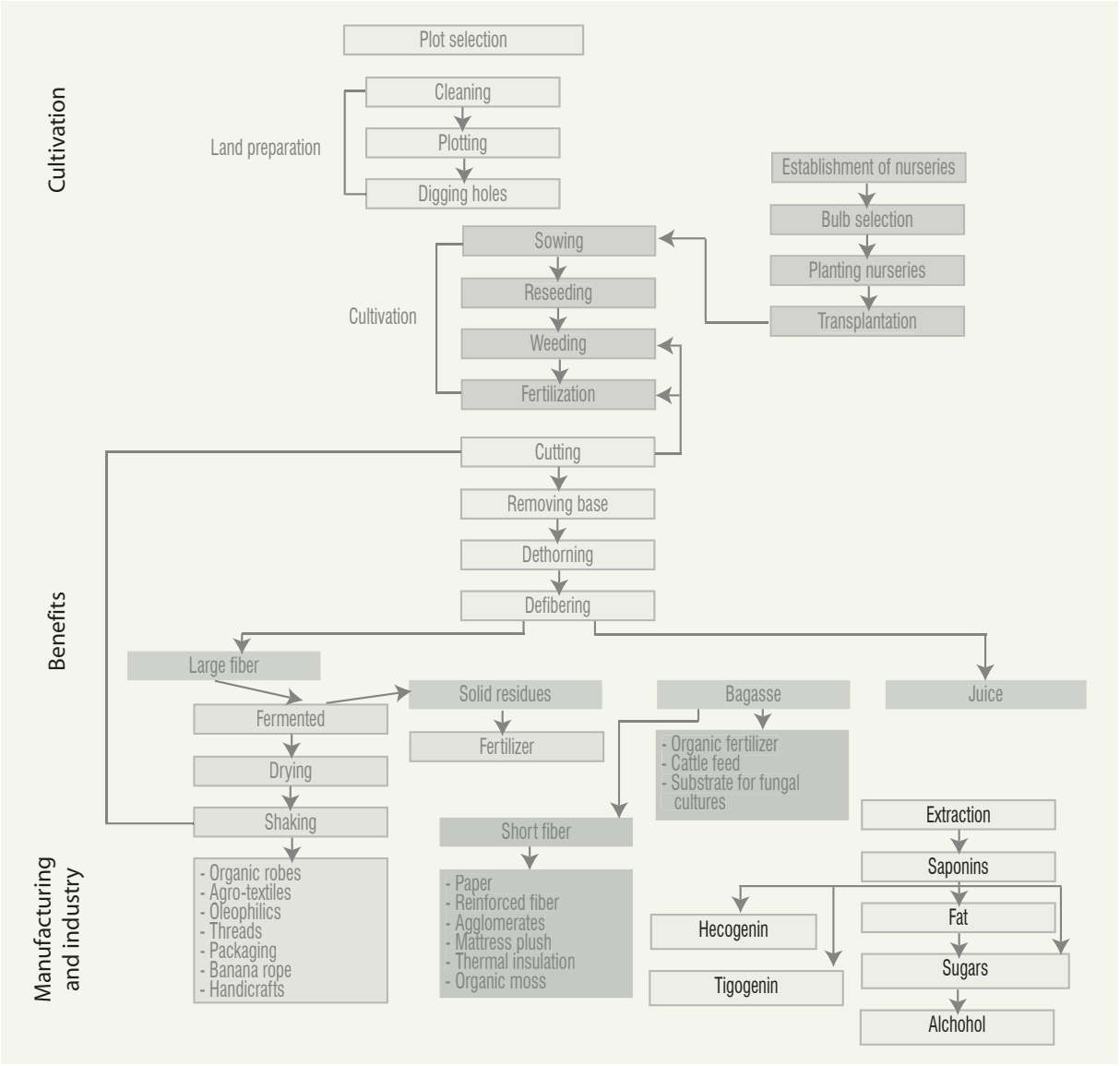
Waste from the extraction process constitutes 96 per cent of the weight of the plant, which totalled 518,400 tons in 2003.

1. Production processes

Within the *fique* fibre production process, the elements which require greatest attention are those of the removal of fibres and of fermentation. This consists of separating the *fique* fibre found inside the leaf from the cortex of the leaves.

This is normally done with a portable shredder which needs to be maintained and tuned. The shredding knives must be well balanced and have flat edges to avoid chopping the fibres (Compañía de Empaques

Figure 4. Production process for *fique* fibre



Source: MinAmbiente – MinAgricultura – Cadefique, 2006.

S.A. et al., 2004). The shredder is then calibrated in function of the type of removal process as follows:

- The extracted leaf is inserted into the shredder by the thick part and in this step up to a quarter of the leaf is processed;
- The leaf is then inverted and inserted from its other end and the rest of the fibre is removed, making sure not to leave any cellulose particles.

In many cases the fibre removal is done manually, in which case the *fique* plant is grated by hand using tools such as machetes, special scissors, sticks and reeds following traditional indigenous and colonial practices. The manual process is used mainly for handicrafts as this method obtains the longest, softest and best quality fibre. However, it does have a lower yield than the mechanical process and a higher cost added to the limited number of trained craftsmen available.

The fermentation process is key to obtaining a higher-quality fibre, as the action of microorganisms and yeasts increases the temperature, organically decomposing the material. In addition, the chemical compounds of the *fique* provoke the detachment of cellulose residues left between the fibres.

The fermentation process involves the following steps (see figures 5–7):

Figure 5. Removal of the fique fibre

Source: Compañía de Empaques S.A.

Figure 6. Removal of the fique fibre

Source: Compañía de Empaques S.A.

Figure 7. Fermentation of the fique

Source: Compañía de EmpaquesS.A.

- A dry tank is filled with green *fique*, stretching it throughout the length and width of the tank;
- Water is added until the *fique* is covered;
- The material is trampled, squeezed and/or macerated inside the tank; this process contributes to the elimination of any gravel which may have remained on the leaves.

2. Characteristics and composition

Each strand is made up of elementary fibrils that are superimposed to form multicellular filaments along the leaf. These form the *fique* fibre.

The extracted fibre only constitutes a maximum of 4 per cent of the total weight of the leaf. This fibre is the main structure of the cell walls of the plant tissue, and basically consists of cellulose and some minor elements such as lignin and pigments.

Both its physical characteristics and chemical composition (table 6) vary depending on the class of the plant and its growing conditions.

3. Exporters

Materials such as agro-textiles and packaging sacks for coffee exports are mainly concentrated in three national processing companies: Compañía de Empaques S.A., Coohilados del Fonce Ltda and Empaques del Cauca S.A. Exports of fabrics, yarn, and handicrafts are led by the Empresa Cooperativa de Fibras Naturales de Santander – Ecofibras Ltda., Comercializadoras Internacionales and the Entidad Artesanías de Colombia S.A. This latter company is an entity attached to the Ministry of Trade, Industry and Tourism which supports the handicraft sector in product design and export promotion.

4. Dyeing

One dyeing option widely used is carrying out both the dyeing and etching procedure in on single phase (Ecofibras Ltda and Pronatta - MARD, 2000). Two types of dyeing materials are used, natural and chemical. The latter fixes the fibre better and allows a more homogeneous colour. It also allows for working with a defined colour chart and the final colours are brighter and usually more desirable for the final consumer. However, there are some environmental concerns about the use of chemical dyeing materials and because of this, Ecofibras Ltda and other similar companies use synthetic chemical biodegradable dyes that have a lower environmental impact (figure 8).

Natural dyeing processes using seeds, leaves, soil

Table 6. Chemical composition of the *fique* leaf

Fibre (%)		Juice	Bagasse	
Ashes	0.7	Chlorophyll	Ashes	12.20%
Cellulose	73.8	Carotenoides	Essential elements	3.64%
Resins, waxes and lipids	1.9	Saponins	Proteins	9.84%
			Nitrogen elements	71.29%
Lignin	11.3	Sugars	Calcium	21.65%
Pentosans	10.5	Resins	Phosphorous	0.09%
		Flavonoids	Magnesium	0.20%
TOTAL	**98.2**	Organic acids	Potassium	1.81%
		Tars	Sodium	0.04%
		Water	Copper	14 ppm
		Lignin	Iron	647 ppm
		Calcium	Manganese	33 ppm
		Lipids	Zinc	17 ppm
		Phosphorous		

Source: MinAmbiente – MinAgricultura – Cadefique, 2006.

and the like, show a clear colour variation. This is due to the fact that identical dyeing materials can never be used since they depend on the soil, climate, age and the time of collection of the plant or tree. In Colombia, the natural dyeing material is produced by each company directly.

The mordant is a mixture of inorganic salts of alum $KAl(SO_4)_2$ – potassium aluminium sulphate), iron sulphate ($FeSO_4$) and copper sulphate ($CuSO_4$), dissolved in water. It has become essential to use this in dyeing with natural dyes since the treatment obtains a better fix of the dye. An excess of mordant during dyeing can cause the fibre to become opaque, hard, rough and brittle (Ecofibras Ltda. & Pronatta - MARD, 2000).

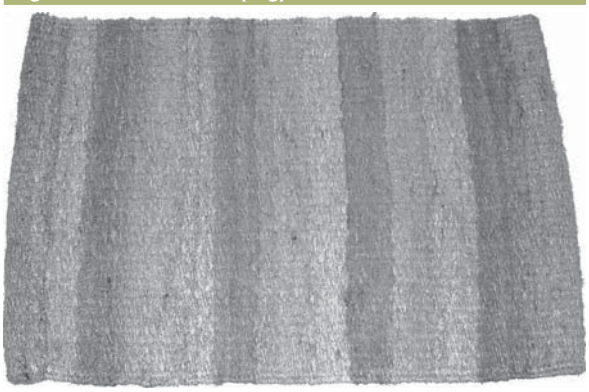
Figure 8. Dyeing of fique fibre

Source: Ecofibras Ltda. 2006.

Figure 9. Handicrafts (shoes and fabrics)

Source: http://images03.olx.com.co/ui/20/74/01/1337908178_50597301_7-Artesanias-en-Fique-.jpg

Figure 10. Handicrafts (rug)



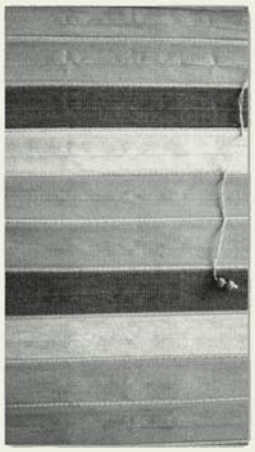
Source: Ecofibras Ltda.

Table 7. Handicraft products, clients, markets and approximate quantities of products sold

Product	Clients	Market	Annual sales (approximate)
Fique yarn	Artisans and warehouses	National and international	12 000 kilograms
Fique fabric and fibre blended with cotton	Shoes and leather goods producers	National and international	10.000 x 1.50 meters
Rugs	Decoration warehouses	National and international	3 000 square metres
Hats	General public	National	2 000 units
Bag packs	Warehouses	National and international	2 200 dozen
Curtains	Decoration warehouses	National	1 500 square metres
Bags	Warehouses	National and international	1 200 dozen
Others	Exporters	International	

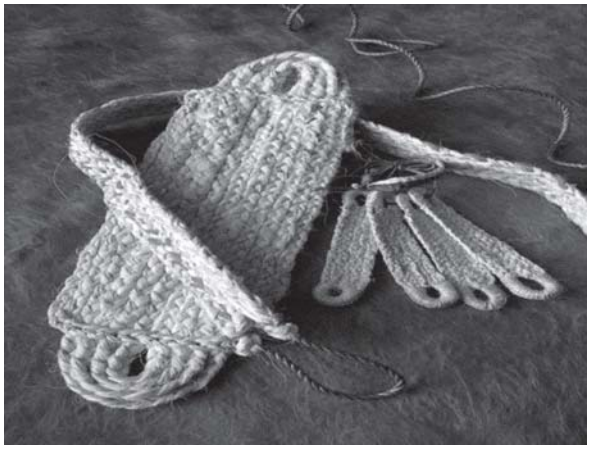
Source: Minagricultura – Biogestión – Cadefique, 2009.

Figure 11. Handicrafts (curtain)



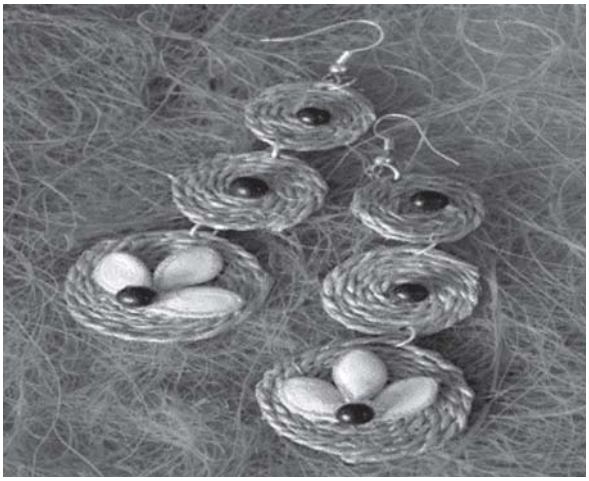
Source: Ecofibras Ltda.

Figure 12. Fique accessories



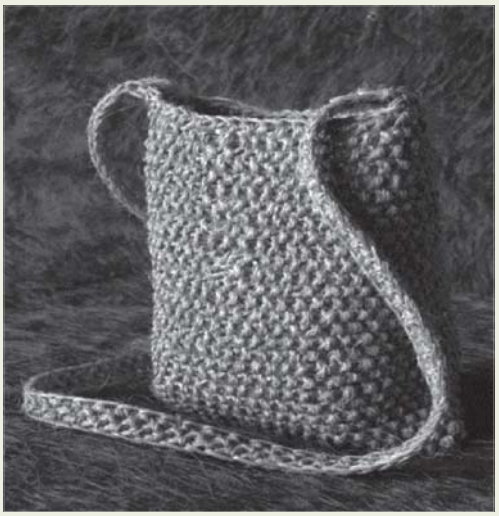
Source: IM/Editores.

Figure 13. Accessories in fique and seeds



Source: IM/Editores.

Figure 14. Fique fibre bag



Source: IM/Editores.

C. National utilization

Colombia produces a wide range of products derived from *fique* such as yarns, fabrics, rugs, hats, bags, curtains, among others. These products have been sold at the national and international markets as shown in table 7.

1. Commercial applications

The artisans of Colombia made fibers dyed and finished products. Working decorative items and accessories (key chains, lamps, panels, mats and cots), bags and backpacks, linen curtains (also ropes and braids), hats, footwear, carpets and fabrics, among others (Figures 9-14).

2. By-products

Oakum and bagasse: the rest of the by-products of the process for removing the fiber are composed of fibrils and vegetable pulp. Fibrils, known as "ripio", can be removed by physico-chemical treatments of waste to be used in the manufacture of pulp for paper, while the product remaining, known as bagasse, is used as organic fertilizer for the same crops.

Constituents of *fique* leaf are known in a qualitative way, these are basically water, cellulose, organic matter and minerals and have the following values:

- 85 per cent humidity;
- 6 per cent cellulose (D-glucose);
- 8 per cent part organic and amorphous; this last can be sucrose, proteins, nitrogen, phosphorous, calcium, potassium, saponin and sapogenin.
- 1 per cent mineral.

Industrial products derived of *fique* juice have an important market potential. For example, the international price of derivatives of extracted hecogenin and tigogenin is very high. One gram of hecogenin costs between US$6 and US$124 on the international market, depending on the degree of purity. Tigogenin, used for brain and kidney cell restoration, can cost up to US$200 per gram. The unmet global demand for hecogenin is 5,000 tons per year.

D. Trade policies

1. National legislation

- Article 108 of the Law 9 of 1983 and its regulatory decree No. 3107 of 1985 (*Fique* Promotion Fund).
- Resolution 224 of the Ministry of Agriculture 2007 – Technical Regulation No. 2 for use of agricultural packaging.
- Ministry of Environment Resolution 1083 of 1996: use of sacks and agrotextiles made out of natural fibres for engineering, conservation of soils, slopes and erosion control work.
- Resolution No. 1385 of 2010 of the Ministry of Transport, Ministry of the Environment and Ministry of Agriculture: use of geotextiles (fabrics), of natural *fique*fibre for control of erosion, re-vegetation and landscaping.
- Resolutions 122/10 and 357/10 of the Ministry of Agriculture: incentives to the storage of *fique* to the departments of Nariño and Cauca.
- Colombian Technical Norm ICONTEC No. 5517/07 and 5637/08, through which the Colombian environmental seal is granted for industrial and artisanal products of *fique*.

2. International regulations

According to the joint meeting of the thirty-sixthsession of the FAO Intergovernmental Group on Hard Fibres and the thirty-eighthsession of the Intergovernmental Group on Jute, Kenaf and Allied Fibres, gathered in Salvador de Bahia, Brazil, in November 2011,[1] there are no international regulations with application to Colombian *fique* fibre.

3. Law enforcement

According to the Colombian Agricultural Institute, *fique*fibre does not require special permissions or application of specific legislation for its export and/or national use.

III. BIODIVERSITY-BASED MATERIAL AND ENVIRONMENTAL IMPACT REVIEW

The ongoing development of *fique*fibre in fashion design and textiles strengthens the research effort for the comprehensive utilization of *fique* and reduction of the environmental impact with fibre production.

Public and private investment is generating new technologies for the sector and the private sector is also investing in the development of certifications. This is also having positive impacts on advancing the use of cleaner production practices by creating centres in the main *fique* regions. This allows the granting of a green seal for those companies that have participated in training programmes aimed at strengthening the culture of protection of the environment and social responsibility.

A. Conservation overview

1. Legal status

Fique is not on the red list of the International Union for Conservation of Nature and it is not a species protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

2. Principal threats

In the main regions where *fique* is harvested and processed it is very common that washing of the fibres by peasants leads to water contamination. This has serious consequences for biodiversity in the regions concerned due to the harmful effects of the high content of sugars, mainly sucrose, glucose and fructose, proteins, steroids and minerals found in the juices on fish and aquatic organisms.

B. Sustainable use

1. Management (Centros de Beneficio Comunitario)

The development centres for environmental performance seem to be an effective way to improve the management of the *fique* fibre process. Within these centres, production processes for cutting, fibre removal, fermenting, drying, tying and transporting could be improved using time and movement methodologies. In addition, this could result in a reduction of production costs and a decrease by two thirds of water used during the fermentation process. The introduction of crop diversification in the harvest area would also be a beneficial measure. This could include farm crops such as berries, beans, coffee, pea, lulo and tomato, among others.

C. Ecosystem and habitat impact

1. Role of the species in its ecosystem

According to some studies, it has been confirmed that *fique* has characteristics that protect the soil and contribute to the rehabilitation of land. The *fique* has a root system which is well developed, deep and very rich in nitrogen, therefore, the soil around the root system is enriched in this element as the dead roots accumulate. In semi-desert lands it has been observed that the formation of agricultural land is faster and more accentuated with *fique*cultivation than with any other plant group.

2. Habitat trends

There is no evidence of a threat to the habitat as a result of the cultivation of *fique* in Colombia.

3. Habitat conservation benefits

An experimental plot of *fique* in marginal/semi-desert terrain has been able to create farmable soil in 10 years, while other types of plants would have needed far longer. According to the National Council of Fique, *fique* can be used as an agro-ecological cultivation, as it is protective of soils, possesses good water storage capacity and has a pulp which can be used as fertilizer.

D. Access benefit sharing/community benefits

Approximately 70,000 families depend economically on *fique*. Most of this population is located in marginal areas of the country and forms the most neglected social group of Colombia. *Fique* cultivation is very important for employment generation in the country; however, producers live well below the poverty line.

Most of *fique* activity is carried out in places where the soil is poor and where economic marginalization is evident. The employment that *fique* cultivation generates is an important instrument for regional development and provides concrete opportunities to sustainably use these marginal areas for the agro-industrial exploitation.

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Notes

1 See http://www.fao.org/economic/est/est-commodities/jute-hard-fibres/jute-hard-fibres-meetings/en/ (accessed 19 August 2013).

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