

## Ethno-knowledge and bioproducts market in Manaus-AM

Reinaldo Corrêa Costa<sup>1\*</sup> and Cecilia Veronica Nunez<sup>2</sup>

<sup>1</sup>Laboratório de Estudos Sociais – LAES, Instituto Nacional de Pesquisas da Amazônia – INPA, Av. André Araújo, 2936, 69060-001, Manaus, Brazil; <sup>2</sup>Laboratório de Bioprospecção, Instituto Nacional de Pesquisas da Amazônia, Av. André Araújo, 2936, Aleixo, Manaus, AM, CEP 69060-001.

**Abstract:** This study aimed to survey the peasants or family farm production, lead to the bioproducts market (cosmetics and herbal), its market structures in Manaus (Amazonas, Brazil), and how they form connections that result in a rural-urban spatiality. In each production process stage, there appear economic agents linked by raw material which also adds value to the goods with Science and Technology and includes also ethno-knowledge. For this, fieldworks were done with interviews, analyzing this information crossing with phytochemistry, pharmacognosy, biology and economics information, to determine the bioproducts geographic space identification and their dimensions. The raw materials used in the bioproducts market of Manaus came from other places. The peasant societies use the biodiversity on a quotidian manner in their ways of life (which produces and how produces), which form knowledge, economic and cultural uses of biodiversity spaces legacy from nature and who are territorialized on it with their own landscapes and characteristics. Through this a better understanding of their way of life policy, economic and cultural tool, to conserve and protect natural systems to produce biodiversity for social diversity, including health public policies could be achieved.

**Key words:** Bioproducts, market, family agriculture, raw material

### المعلومات العرقية والمنتجات الثانوية في ماناوس – أم

رينالدو كوريا كوستا<sup>1\*</sup> و سسيلييا فرونيكا نونس<sup>2</sup>

مختبر الدراسات الاجتماعية -- ايس، المعهد الوطني للبحوث الأمازون ، INPA ، افينيدا أندريه أراوخو 2936 ، 69060-001 ، ماناوس ، برازيليا؛ 2 مختبر التنقيب البيولوجي، المعهد الوطني للبحوث الأمازون، شارع أندريه أراوخو ، 2936 ، الكسي يو ، ماناوس ، أم CEP .001-69060

**المخلص:** تهدف الدراسة إلى عمل مسوحات للمزارعين وأسواق المنتجات الثانوية ( مستحضرات التجميل ) والبناء السوقي في ماناوس (منطقة الأمازون ، البرازيل) ومعرفة الاتصالات بين المناطق الريفية والحضرية . وتناولت الدراسة الميدانية مقابلات شخصية مع المزارعين لمعرفة أماكن وأبعاد المنتجات العضوية المنتجة . وتم معرفة البيانات الخاصة بالمواد الخام المستخدمة لإنتاج المنتجات الثانوية في ماناوس من مكان آخر . وتستخدم مجتمعات المزارعين التنوعات البيولوجية بطريقة تقترب من طرق ممارسة الحياة الطبيعية مثل ماذا ننتج ؟ وكيف ننتج ؟ وهذا يؤدي إلى تكوين معلومات اقتصادية وثقافية متنوعة تكون خاصة بأماكن ذات طبيعة خاصة.

\*Corresponding Author, Email: rei@inpa.gov.br; cecilia@inpa.gov.br

## Introduction

The biodiversity market is centered in Manaus (capital of Amazonas State) and it is where the economic and political structures are concentrated. The ethno-knowledge, a culturally constructed knowledge, from the producers groups, especially those located on inner agricultural areas in the state are a key element in the production process. With low technology level, ethno-knowledge as traditional knowledge is what allows the biodiversity social use for different potentialities of plant diversity. It is another type of production process with little use of technical and scientific knowledge and "this aggregation of knowledge and behavior is a cultural heritage that is passed from generation to generation" (Leveque, 1999).

Many of the herbal medicines sold were not studied for their applicability, which has medicinal plants as commercial matrix. The last decade is marked by the biodiversity trade growth that is being structured in Manaus, being biodiversity is the focus, way and product. In this economic logic, to Leveque (1999), "it contributes to the supply of many food products, industry raw materials, medicine, building materials and household". In this social and economic context, the plant diversity is the raw material and natural system are production ways that generates fresh goods, with the manufacturing process they are transformed into extracts and essential oils, the bioproduct base as a new social and economic biodiversity use.

## Material and Methods

In order to obtain information about bioproducts geographic space identification and their dimensions, field works with interviews were conducted and analyzed the information by crossing with phytochemistry, pharmacognosy, biology and economic aspects.

## Results and Discussion

Natural systems (climate, soil, among others) form the plant diversity, which are in turn bioproducts raw material. The social and economic use of biodiversity is exploited in the form of trade, no longer handmade. The financial and industrial processes are

considered as components of the process, i.e., they make the society-nature relationship to be mediated by natural resource, which is used in goods manufacture, by using techniques and technologies. The raw material (vegetable oil) used by some companies are coming from COOPFITOS, a cooperative in the municipality of Manaquiri (Amazonas), which works with the extraction of some oils such as babaçu and andiroba, which are processed on the cooperative to form the raw material in nature. When the bioproducts were worthless for trade and incentive policies, they were handmade produced. After the installation of a policy for the sector, machinery and equipment were installed for extraction. For that an agreement was made with public banks, agriculture development institutions, research institutions and SEBRAE (Brazilian Service to Support Micro and Small Enterprises - AM).

The specific policies for the production of bioproducts are not only the facilities but also the obligations, as the rules of hygiene and public health in the production process and final product. Traditional knowledge is not enough for the existing reality, the use of the applicability of academic knowledge is crucial. Because the processes are different, and are realized with other types of efficiency (linked to regulated markets), with rules and hygiene practices and adequate time to transformation of raw materials into bioproducts, value-added installed in the process of commercialization to consumers.

With industrial process more bioproducts are entering to the markets at different prices for different types of consumers. It increases the possibilities of consumption of bioproducts with strong commercial appeal to preserve the natural environment and effective products derived from nature. The market for biodiversity in Manaus is not consolidated yet, a lot of the planned products for global and national scale and structure are only for local or inter-city trade.

According to entrepreneurs interviewed, the market is not yet consolidated in Manaus. There should not be confusion between national economic growth in recent years,

which allowed investments in bioindustries. With this consolidation, the number of industries in the formal economy regularized an increase in recent years. This fact was only possible by the state economic policies that allowed and encouraged the formation and installation of micro-enterprises of bioproducts in the Industrial District of Micro and Small Enterprises in Manaus (DIMP) Center for Business Incubation and Development (CIDE) created territorial production units. This favors the inclusion of companies in fairs, exhibitions and shops to commercialize and publicize the bioproduct. The industries in Manaus that make the processing of raw materials do not have market dominance. This is because the few investments are directed to the bioproducts production process sectors (from raw material to final product) and not for merchandise circulation. The state economic policies invested to reproduce and consolidate this type of market on a local scale. Three years ago, with DIMP and CIDE presence, there was the installation of several institutions to organizing work space from handmade to industrial scale with product constancy, to keep market and business requirements. For this it is essential to create economic viability with raw material economic space movement to State of São Paulo, which is a bioindustry cluster, forming a bioproduct territory with multinational companies that dominate the market circulation in Brazil. The merchandise, semi-elaborated and not yet finalized, performs a pendulous movement returning to Manaus, the gravitational center of bioproducts in the Amazon, this in relation to other producing municipalities in the state.

This production process generates interference in prices and values (use and exchange) of goods and only some economic agents appropriate the merchandise profit. According to Martins (2000), "is the movement of goods that says how much does it cost and not only or mainly their production process, because it is in circulation that the value contained within it is revealed", and this is not just related to the price/value of final product. According to one interviewed middlemen, they

followed the "rules of the people who buy" (sic). Also in the collection process, for example, Uxi plain yellow, the bark size when it comes to commercialization in Manaus they have to be like the customer wants. For collecting it, sometimes it is need to knock the tree down, such as carapanaúba, the interviewee cites. "it is bad to take it, you have to knock the tree down", he refers to the tree's bark because the one from the top is better. So you have to knock it down, and when it occurs, it is paid about R\$ 100.00 (one hundred reais, which is around US\$ 58) to the land owner where the tree is. After collection, medicinal plants need to be sun dried, so in the rainy period it is a problem. When it rains, he has to cover them up quickly, being one of the difficulties. He searches medicinal plants across the state, buying from farmers (paying for amount or per tree), highlighting that in winter it is more complicated (rainy period). "Not all together", he refers to often have to go from lowland to mainland, or vice versa (Carvalho et al., 2010).

There is not a significant portion of economic output of bioproduct identified in the Gross Domestic Product (GDP) of the Amazon. In 2007, there was a movement of goods (bioproduct) in this economic sector "equivalent to R\$ 19.6 billion" (FIEAMNotícias, 2008), according to the Brazilian Association of Personal Hygiene, Perfumery and Cosmetics (ABIHPEC). The bioproduct has an economically important role in the so-called "beauty market", which is advertising the consumption of a "natural product" of a product originating from the "Amazonian biodiversity" with an environmental theme. Indeed, this commodity has a value in use for medical purposes and / or aesthetic, according to the advertisement. The use of a product carried with use and trade value as result of production process which determined cost was defined by different economic and social agents in their production chain (Ferreira et al., 2010).

The production chain formation process creates the spatiality of the bioproduct formed from the local or national market need, the

workforce reality, infrastructure and biotechnology. In our study in Manaus, this process with the bioindustries that transform raw materials into bioproduct is diverse, can basically be: (1) in nature or crude raw material, ie, fruits, seeds, barks, leaves and roots of a plant and (2) processed raw material, corresponding to herbal extracts, essential oils and vegetable oils. The oils can be sub-classified as: crude oil (first extraction) and refined oils (after the chemical analysis, the biotechnology).

It was not identified the presence of monopoly or companies monopolies, characterized by Krugman and Wells (2007) as:

*“The only (or almost the only) goods producer. The monopolists have a different behavior form producers in a perfectly competitive sectors, while the producers in perfect competition accept the price at which they can sell their product, the monopolist knows that their actions affect market prices and take this effect into account when deciding how much to produce.”*

The bioindustry in Manaus is in economic growth, there is still dependence on other states, like São Paulo. Companies of São Paulo did not monopolize the market for bioproduct. Many companies do not invest in improving their products, often they expect that universities or public research institutes to do

research for free so they get the final result. There are some companies that agree to participate in scientific projects, such as those funded by FINEP, they are in fact exceptions. Most Brazilian companies are waiting for state funding, for tax cuts and now for the “incubators” aiming for quick and easy profit and with minimal return to the government and farmers.

There are several facilities to obtain in natural raw material in Amazonas, because the Amazon biodiverse forest and for the existing peasant workforce. But there is low quantity of capital invested objectively in this activity, the triad land (biodiverse forest), work (peasant) and capital (industries) in each one of his elements has densities unequal acting more over the forest, mainly, on the peasant work.

What occurs is that the bioproducts productive chain includes industries from São Paulo, located 3.000 km away from the raw material, which later returns as semi-elaborated to be transformed for final consumers. So the bioindustry productive process compresses space and joints (contradictorily) different territorialities which composes their respective landscape structures, in different cities as Manaquiri, Careiro Castanho, São Paulo or Manaus; the multidimensionality of the biodiversity in our quotidian (production of geofacilities in our day by day, see table 1).

**Table 1. Natural products and their utilization in Manaus market.**

Natural product	Genera	Family	Use
Açaí	<i>Euterpe oleracea</i>	Arecaceae	Styling Cream, aromatizer environment, hand cream, facial scrub, exfoliating body, hair mask, cuticle coat, facial tonic lotion, shampoo, conditioner, energizing, skin exfoliating, moisturizing creams, body oil, cuticle coat for hair, liquid and bar soap
Acerola	<i>Malpighia marginata</i>	Malpighiaceae	Bath salts
Alfavaca	<i>Ocimum basilicum</i>	Lamiaceae	Antibiotic, healing
Amor crescido	<i>Portulaca pilosa</i>	Portulacaceae	Antibiotic, healing
Andiroba	<i>Carapa guianensis</i>	Meliaceae	Shampoo, conditioner, moisturizer, body oil, exfoliating oil, medicinal soap, shower gel, massage cream to comb (hair)
Arnica	<i>Lychnophora ericoides</i>	Asteraceae	Cooling gel, oil for the legs, muscle massage lotion, Anti-inflammatory, healing, analgesic, gel for massage,

Artemisia	<i>Artemisia absinthum</i>	Asteraceae	ointments
Arruda	<i>Ruta graveolens</i>	Rutaceae	Antiinflammatory, Arbot, shampoo, conditioner, soap
Babaçu	<i>Orbignya phalerata</i>	Palmaceae	Bath salts, vegetable soap, essence, cream to comb (hair), moisturizer, shampoo, conditioner
Banha de tartaruga	Animal source		Shampoo, conditioner, hair mask, soap, moisturizer, scrub
Breu-branco	<i>Tetragastris panamensis</i>	Burseraceae	Facial moisturizer
Buriti	<i>Mauritia flexuosa</i>	Arecaceae	Perfume, bath water, pulp moisturizer, cologne, soap, aroma of environment
Cacau	<i>Theobroma cacao</i>	Malvaceae	Styling Cream, aromatizer environment, hand cream, facial scrub, exfoliating body, hair mask, cuticle coat, bath salts, body oil, soap
Capim santo	<i>Cymbopogon densiflorus</i>	Poaceae	Shampoo, conditioner, lipstick, moisturizer
Copaíba	<i>Copaifera langsdorfii</i>	Fabaceae	Bushing glycerol
Crajiuru	<i>Arrabidaea chica</i>	Bignoniaceae	Massage gel, shampoo, conditioner, soap, anti-inflammatory, antibiotic ointments, gels, massage
Cumaru	<i>Dipteryx</i> sp.	Fabaceae	Intimate soap, dyes, soaps, shampoo, conditioner, anti-inflammatory, tanner
Cupuaçu	<i>Theobroma grandiflorum</i>	Malvaceae	perfume, hand cream, oil biphasic, syrup, moisturizing body
Guaraná	<i>Paullinia sorbilis</i> and/or <i>Cupania americana</i> .	Sapindaceae	Shampoo, conditioner, moisturizer, pulp, soap, bath oil powder, firming mask, bath salts, butter, cream to comb, aromatizer environment, hand cream, facial scrub, exfoliating body, hair mask, cuticle coat
Maracujá	<i>Passiflora alata</i>	Passifloriaceae	Shampoo, conditioner, energizing, soap, syrup, oil, moisturizer
Mulateiro	<i>Calycophyllum spruceanum</i>	Rubiaceae	Moisturizers, soap, shampoo, conditioner
Patchouli	<i>Pogostemon</i> sp.	Lamiaceae	Medicinal soap, shampoo, moisturizer, conditioner, special cream for skin cream for revitalizing skin, revitalizing anti-wrinkle cream, exfoliating
Pau rosa	<i>Aniba rosaeodora</i>	Lauraceae	Soap, perfume, moisturizer, deodorant, shampoo, conditioner, scrub, aromatize the environment
Pripioca	<i>Cyperus articulatus</i>	Cyperaceae	Astringent, essence, soap
Tucumã	<i>Astrocaryum vulgare</i>	Arecaceae	Soap, bath water
Unha de gato	<i>Uncaria tomentosa</i>	Rubiaceae	Shampoo, almond butter, suntan oil, hand cream, exfoliating cream
Urucum	<i>Bixa orellana</i>	Bixaceae	Tablets multiervas, muscle massage gel, anti-inflammatory, analgesic, antiviral, diuretic
Uxi amarelo	<i>Endopleura</i> sp.	Humiriaceae	Paraffin suntan
			Tea

In general terms there is a conflict to the knowledge which is understood as: a) inheritance of all mankind, for all and it cannot be monopolized and; b) knowledge to be protected as belonging to each people that have created it and uses a cultural property.

With the growth of this market, it is needed to develop and disseminate new techniques/technologies, mainly for the

essential and vegetable oils extraction. The raw materials that the entrepreneurs consider as the major production cost, because of the few industries in Manaus able to perform it.

## Conclusion

1 - The bioproducts market in Manaus-AM is growing. Among the bioproducts, phytotherapies and phytocosmetics are more

commercialized; 2 - Many raw materials transformed (extracts, essential and vegetable oils) needed in the bioproduct production are made outside Amazonas, because there is not an industrial infra-structure in the state that provides the production. For this, the crude raw material is exported and comes back as semi-elaborated, base of the bioproducts industry; 3 – The land income extraction process and capital gain, in this case occurs for the intensities of the technologies used, which add a plus for the merchandise which does not arrives to the peasant; 4 – When the product gets out of the peasant, it became merchandise with trade value, and with a price that dynamize the circulation (uneven and territorial) of money in the geographic space; as much as the bioproduct circulates in the geographic space more value is add.

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