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PHYTOMEDICINES: HOW TO UNLOCK THIS PRODUCTIVE CHAIN STARTING WITH FAMILY FARMING

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PHYTOMEDICINES: HOW TO UNLOCK THIS PRODUCTIVE CHAIN STARTING WITH FAMILY FARMING

Contents

1. A locked market from end to end

Bottle and dropper with essential oil. Photo: Liudmila Chernetska

The world phytomedicine market was evaluated as reaching USD216.4 billion in 2023[1]. In the foregoing year, 2022, the sector's turnover in Brazil had only reached 0.1% of that figure (USD173 million)[2].

Such weak development of phytomedicine in Brazil highlights a paradox: the country with one of the largest biodiversity reserves on the planet - and which would therefore have great potential to offer phytomedicine solutions to the world - is a traditional net importer in all segments of this production chain, with increasing trade deficits[3]. From supply of raw materials for research to the sale of these products in pharmacies, the phytomedicine production chain in Brazil is locked from end to end.

At the root of the problem - among other challenges – lies a demanding legislation and the high costs of regularizing products and manufacturing units. This study draws attention to the current scenario and proposes actions for this chain to begin gaining economic traction based on the interests of its primary suppliers: family farmers.

The popular herbal pharmacopoeia is still the main source of information applied in scientific research, generating technological advances that help solve different health problems faced by the society. On the other hand, the lack of a view in the context of the small producers and their traditional knowledge, has been limiting the contribution that family farming - once it overcomes informality and the challenge of adding value to products - can make to the expansion of the phytomedicine chain.

It is worth noting here that the Action Plan for Neo-industrialization[4], a document that explains in detail the actions to be prioritized until 2026 for implementation of the New Brazilian Industry (NBI) policy, mentions the structuring of the phytomedicine production chain within its National Biodiversity Integration Route, which is under the responsibility of the Ministry of Integration and Regional Development, as well as mentioning the development of a National Phytomedicine Strategy, under

1
According to the Fortune Business Insights site, the value of this market is expected to reach US$ 437 billion by 2032. Available at: https://www.fortunebusinessinsights.com/herbal-medicine--market-106320. Accessed on: Apr 23, 2024.

2
According to data from the Pharmaceutical Market Statistical Yearbook released by Anvisa in 2023.

3
In 2011, the trade deficit in Brazil's herbal medicine chain reached USD 2.7 billion (using 2011 conversion value, ie, BRL 1.53 = USD 1) and, in the middle of the last decade, the country was still a major importer of herbal medicine inputs. Source: RODRIGUES, W. Competitiveness and institutional change in the medicinal plant production chain in Brazil. Interactions. Campo Grande, v. 17, n. 2, p. 267-277, April/June 2016.

4
The document presents the main actions, until 2026, of the New Industry Brazil (NIB), a neo-industrialization policy to be implemented by the federal government until 2033. It was launched in January 2024, under the leadership of the Vice President and Minister of Development, Industry, Trade and Services (MDIC) Geraldo Alckmin.

Pilocarpus pennatifolius (Jaborandi)

responsibility of the Ministry of Development, Industry, Trade and Services (MDIC) as well as the Ministry of Health (MS).

Unfortunately, the plan does not include the involvement of the Ministry of Agrarian Development and Family Farming (MDA), a government branch directly involved with family farmers[5], in the preparation of the National Phytomedicine Strategy or any other front aimed at the issue. This is therefore one of the recommendations that make up this document: to open up new fronts in the MDA for the expansion and strengthening of the phytomedicine chain[6]. Without these steps, the actions foreseen in the Action Plan for Neo-industrialization will only reiterate the restricted and mistaken vision adopted in Brazil so far, by keeping the phytomedicine market on the shelf of secondary projects for family farming.

Copaiba trunk. Photo: Ronaldo Rosa

5
Family farmers is a recognized group by Law 11.326/2006, which also includes foresters, aquaculturists, extractivists and fishermen. The majority of public policies aimed at this group are concentrated on MDA.

6
Since 2023, the Ministry of Agriculture has a partnership with the Oswaldo Cruz Foundation (Fiocruz) in the project “ArticulaFito - Value Chains in Medicinal Plants”, which maps value chains of medicinal, aromatic, spices or food plants with market potential in the North, Northeast, South and Southeast regions.

Researcher at the Amazonian Oils Laboratory (LOA), in the Guamá Science and Technology Park (PCT). Photo: Alex Ribeiro/ Ag. Pará

What comprises the phytomedicine chain?

According to Anvisa’s Collegiate Board Resolution (RDC No. 26 of 2014), **phytomedicine** is a product obtained from active raw plant materials for prophylactic, curative or palliative purposes. It can be simple, when the active ingredient comes from a single medicinal plant species, or compound, when it comes from more than one plant species. Products with isolated active substances are not considered as phytomedicine.

Phytomedicine can be divided in:

- **phytomedicine (PM)** – obtained “with the exclusive use of active plant raw materials whose safety and efficacy are based on clinical evidence and characterized by the constancy of their quality”; and
- **traditional herbal product (THP)** – obtained “with the exclusive use of active plant raw materials whose safety and effectiveness are based on data on safe and effective use (for at least 30 years) published in technical and scientific literature and which are designed to be used without the supervision of a doctor for diagnostic, prescribing or monitoring purposes”.

I. Phytomedicines in Brazil

In order to provide an initial overview of the phytomedicines market in the country, this study analyzed data from medicinal plant extraction and production chains, as well as gathered information regarding the presence of phytomedicine in the pharmaceutical industry. The following figures reveal that is not a very expressive market compared to the phytomedicine market potential of Brazil's biodiversity.

In the extractive scenario, two types of Non-Timber Forest Products (NTFP) stand out in the IBGE database that can generate phytomedicine products: 1) aromatic, medicinal, toxic and coloring agents (which includes data on plants such as Jaborandi and Ipecacunha) and 2) Copaiba (oils).

The historical series of the value of the plant extraction by type of product shows growth in the production of "copaiba oils" beginning in 2014 and the production of "aromatic, medicinal, toxic and coloring agents" from 2018 onwards.

A comparative analysis of the production value from plant extraction of "aromatic, medicinal, toxic and coloring agents" by region shows that the Northeast had the best performance between 2010 and 2022 (with an accumulated USD 3.7 million), followed by the North (USD 651 thousand) and the Midwest (USD 383 thousand). However, the North region stands out in the production of copaiba oil, whose production value in plant extraction reached USD 9.9 million in the same period (see Table 01).

* On this document, USD 1 = BRL 5,2177 (Source: Brazilian Central Bank, 30/12/2022).

Table 01*.
Sum of production values from plant extraction, by type of extractive product and by region of Brazil (in thousand USD), from 2010 to 2022.

Region	Aromatic, medicinal, toxic and coloring agents	Copaíba (oils)
North	651	9.965
Northeast	3,749	5.3
Southeast	170	2.4
South	-	-
Midwest	398	213

Source: Brazilian Institute of Geography and Statistics (IBGE). IBGE Automatic Retrieval System – SIDRA, 2024.

Regarding the production, the most recent Agricultural Census (2017) shows 1,433 agricultural establishments producing "medicinal plants, flowers and foliage", with a sales value of USD 3 million.

There are also agricultural establishments with horticulture where the production of medicinal plants such as rosemary, boldo, chamomile, fennel, mint, basil and oregano are found. The Brazilian Northeast also stands out in this case, with the greatest number of horticultural production systems (41.10% of the total), followed by the Southeast (28.01%), South (16.52%), North (9.74%) and Midwest (4.70%).

As to the regional distribution of production in horticultural systems of the medicinal plant species listed by the Census, we highlight the production of rosemary and boldo in the Southeast (43.60% and 40.02% respectively), chamomile in the South (62.94%), fennel in the Northeast and South (35.45% and 34.99%), mint in the Southeast and Northeast (37.65% and 31.69%), basil in the Southeast (41.21%) and oregano in the South (53.42%).

INDUSTRIAL PRODUCTION

From 2014 to 2020 - a period that coincides with the beginning of RDC No. 26/2014 (refer to page 15) - according to IBGE data, the number of industrial units producing phytomedicines and homeopathic medicines for human use increased by 43.58% in Brazil.

In the same period, the units manufacturing medicinal soaps or soaps, essential oils (except citrus-based) and concentrated solutions of essential oils obtained by treating flowers increased their industrial units by 81.81%, 84.61% and 150% respectively. It is worth reminding that, for the purposes of classification and fiscal registration of an economic activity, these products are not directly associated to phytomedicine. Essential oils, however, can be used as raw materials for the manufacture of PM.

In 2020, the average net revenue per industrial unit reached:

- **BRL 5.5 million for phytomedicine and homeopathic medicines for human use;**
- **USD 2.2 million for medicinal soaps;**
- **USD 689 thousand for essential oils (except citrus-based);**
- **USD 178 thousand for manufacturers of concentrated solutions of essential oils, obtained from treatment of flowers.**

Between 2020 and 2022, the number of phytomedicine drugs marketed fell slightly (3.2%), while turnover and the number of marketed packs increased by 13.2% and 40.9%, respectively. The average price of phytomedicine drugs fell by 19.6% during the same period.

The highest sales values recorded in phytomedicine were in the price range from USD 3.8 to USD 9.5 (45.8%), followed by prices between USD 9.5 and USD 47, representing 34.2% of the total production invoiced for this type of medicine.

As for trade indicators related to exports, among the products that may constitute raw materials, inputs or phytomedicine products exported from Brazil to other countries, the study analyzed: i) teas; ii) aromatic plants; iii) plant sap; iv) seed oils; v) plant waxes and beeswax; vi) coffee and tea extracts; vii) phenols; viii) vitamins; ix) plant alkaloids; x) plant or animal dyes; xi) essential oils; in addition to also considering: xii) packaged medicines; and xiii) unpackaged medicines.

Data released by the Observatory of Economic Complexity (OEC)[7] show that the products exported with the highest monetary volumes in 2021 were packaged medicines, coffee extracts, teas and essential oils. Packaged medicines and essential oils showed considerable fluctuations during the period analyzed, but always remained among the top three exported products since 2010. In addition to these products, plant sap and plant waxes exports exceeded USD100 million in in the same year.

7 Created by the Macro Connections Group at MIT Media Lab, the Observatory of Economic Complexity (OEC) is an online platform for visualizing international trade data. Available at: oec.world/en: oec.world/en.

Table 2.
Annual exports of potential raw materials, inputs and phytomedicines in Brazil (in US dollars)

Product	2010	2021	2021-2010
Teas	9.327.538	1.226.984	- 8.100.554
Aromatic plants	9.538.787	10.236.719	697.932
Plant sap	66.390.319	106.592.018	40.201.699
Seed oils	1.433.591	9.947.600	8.514.009
Vegetable waxes and beeswax	105.335.350	122.014.981	16.679.631
Coffee and tea extracts	600.502.212	575.105.080	- 25.397.132
Phenols	38.047.450	42.399.408	4.351.958
Vitamins	7.294.900	5.887.432	- 1.407.468
Plant alkaloids	9.325.243	11.492.796	2.167.553
Vegetable or animal dyes	6.945.180	5.422.278	- 1.522.902
Essential oils	168.604.285	280.572.622	111.968.337
Packaged medicines	1.034.125.747	883.971.116	- 150.154.631
Unpackaged medicines	19.576.357	6.250.744	- 13.325.613

Source: Prepared by the authors of the study, based on OEC data (2023).

This good performance of essential oils on the domestic and foreign markets revealed their considerable commercial value. This result may also have been influenced by the inclusion of aromatherapy among the practices endorsed in the National Policy for Integrative and Complementary Practices in the Unified Health System (SUS)[8], entailing the popularization of these products and thus increasing higher demand for them.

Investing in the production of essential oils can also be an opportunity for family and community-based producers, if strategies are created and implemented to enable and strengthen the segment's insertion into this niche market. The same applies to medicinal soaps, which are products with considerable added value, sold at prices between USD 1.9 and USD 4.7/piece. Both essential oils and medicinal soaps have lower technical and sanitary requirements than those demanded for PM or THP.

8 The National Policy for Integrative and Complementary Practices in the SUS also includes phytotherapy, traditional Chinese medicine, homeopathy, social thermalism/crenotherapy, anthroposophic medicine and other integrative and complementary practices through Ordinance No. 702 of the Ministry of Health, of March 21, 2018.

2. A challenging legal framework

Rio de Janeiro (RJ), Dec. 19/2023 - Farmer Máximo Nunes de Oliveira during the harvesting of inputs in Quilombo Dona Bilina for the Food Acquisition Program (PAA). Photo: Tomaz Silva/ Agência Brasil

In 2006, two national policies related to the incorporation of phytomedicine into the public health system were enacted in Brazil: National Policy for Integrative and Complementary Practices in the Unified Health System SUS[9] and the National Policy for Medicinal Plants and Phytomedicine, which established the National Program for Medicinal Plants and Phytomedicine.

Three years later, as part of this program, the Ministry of Health published a National List of Medicinal Plants of Interest to the Unified Health System (Renisus), with 71 plant species indicated for scientific research - among them the twelve plants[10] mentioned in the 2022 National List of Essential Medicines, a document that specifies the medicines that can be purchased by the Unified Health System.

In addition, the Brazilian government, through Anvisa, established legal conditions for the regularization of activities involving the production, processing and marketing of medicinal plants or phytomedicine inputs for the manufacture, registration and marketing of phytomedicines products, consolidating a legal framework comprising laws, decrees, ordinances, resolutions and normative instructions. Therein lies the reason for the low representation of family farming in this already restricted market.

Analysis of the legal frameworks (refer to the next page) associated with public policies for medicinal plants and phytomedicine in Brazil[11] show that these changes in health legislation brought requirements closer to the standards found in international legislation and further away from the reality of family and community-based producers of medicinal plants and phytomedicine products. These requirements can only be met by private companies in the industrial sector, especially given the financial investment needed to fulfill the stages defined by law.

The mapping of phytomedicine products registrations carried out by this study identified, for instance, a total of 514 regularization processes for a total of 343 phytomedicine products. These processes were requested by 68 companies (61 large or medium-sized companies; 6 small-sized companies and one micro-company), mostly located in the Southeast, especially in the states of São Paulo (25), Rio de Janeiro (8) and Minas Gerais (8). No cooperatives or associations of small producers were identified[12].

Of the companies identified with phytomedicine products registered with Anvisa, 80% have the main code of CNAE[13] linked to the activity of “manufacturing allopathic medicines for human use”. Only six companies have their primary code associated with the production of phytomedicine.

9 See footnote 4.

10 Artichoke, mastic tree, aloe vera, sacred caraway, hawthorn, devil’s claw, guaco, mint, soy isoflavone, plantago, willow and cat’s claw.

11 GONÇALVES, R. N.; GONÇALVES, J. R. S. N.; BUFON, M. C. M.; NEGRELLE, R. R. B.; MAZZA, V. A. The legal frameworks of public policies on medicinal plants and herbal medicines in Brazil. APS Magazine, July/September 2020; 23 (3): 597-622. Available at: https://doi.org/10.34019/1809-8363.2020.v23.16610. Accessed on: Apr 23, 2024.

12 Source: Ministry of Health. Anvisa. Medicines Consultation System. Available at: https://consultas.anvisa.gov.br/#/medicamentos/.

13 National Classification of Economic Activities adopted by Brazil’s National Statistical System and by federal, state and municipal bodies that manage administrative records and other institutions in the country.

MAIN LEGAL FRAMEWORKS FOR PHYTOMEDICINE IN BRAZIL

YEAR

1973

LAW Nº 5.991:
provides for the Sanitary Trade Control of Drugs, Medicines, Pharmaceutical Supplies and Related Products. It rules that "dispensing (sanitary control) of medicinal plants is restricted to pharmacies and herbalists, observing proper packaging and botanical classification."

1976

LAW Nº 6.360:
rules that no establishment that manufactures or industrializes herbal products may operate without the assistance and effective responsibility of a legally qualified technician, but does not specify to which professional aggregation this professional should be associated.

2013

***RDC Nº 49:**
provides for the regularization of low health risk activities of interest to individual micro-entrepreneurs, rural family enterprises and economic solidarity enterprises. This resolution allows the regularization of the enterprise regardless of the ownership condition of the property and production in homes, safeguarding the risk classification and good manufacturing practices. It also includes qualified volunteer professionals or representatives of governmental and non-governmental bodies to be technically responsible for certain activities or products.

2014

***RDC Nº 26:**
brings concepts and technical definitions for the regularization of phytomedicine, from production to labelling. It also establishes the requirements for the registration of PM and the registration or notification of industrialized THP and the technical requirements for plant drugs, plant derivatives and Active Plant Pharmaceutical Ingredients (IFAV) applied in the manufacture of PM and THP, as well as for the notification of medicinal teas. No artisanal products are mentioned.

The resolution allows the industry receiving medicinal plants, plant drugs or plant derivatives to carry out the physical and chemical analyses required in the production report, as long as it is regularized (releasing the raw material supplier from this responsibility, which is positive if they are small producers). The document stipulates that, preparations made by traditional peoples and communities, which are non-profit-making and non-industrialized, such as syrups, "lickers", "bottled compounds" etc. are not subject to PM registration or THP notification. Finally, it exempts family producers with organic production certification from having to submit a pesticide residue analysis report when supplying medicinal plants or plant drugs to third parties.

2022

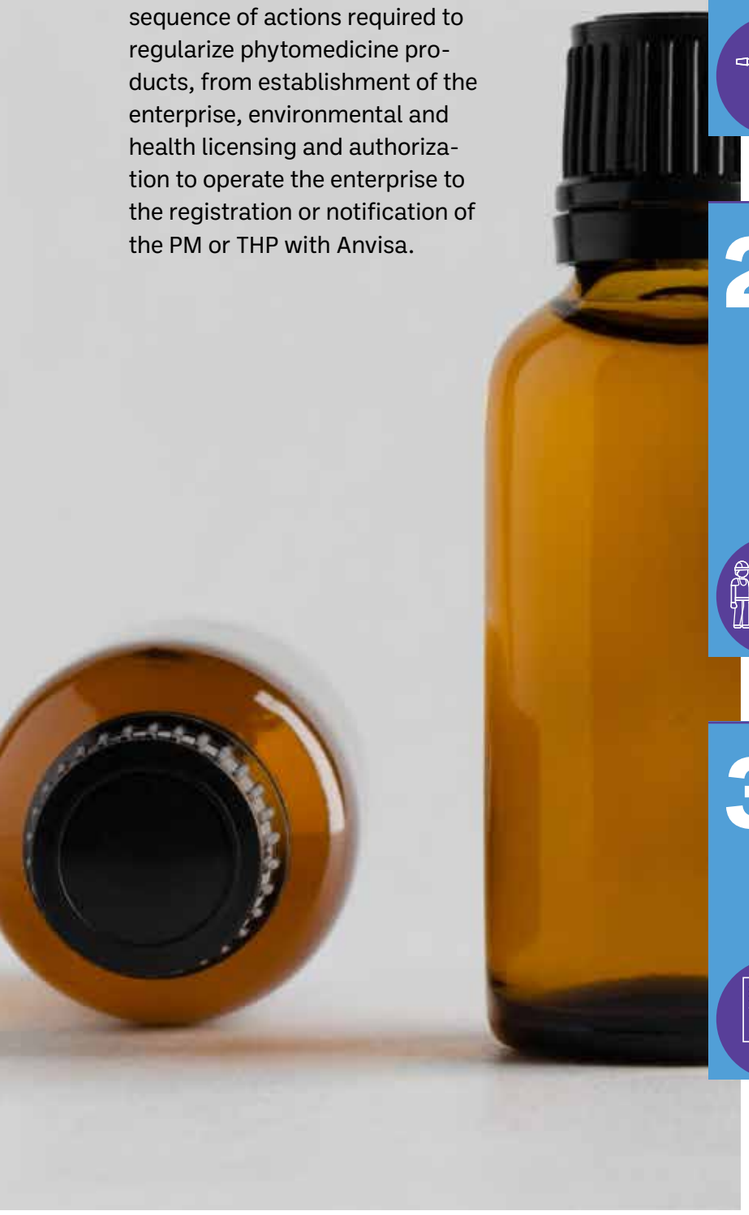
***RDC Nº 654:**
provides for Good Manufacturing Practices for Active Pharmaceutical Ingredients, including guidelines for hygiene and sanitization, storage conditions, processing of raw materials, packaging and labeling, and technical specifications in analysis reports for medicinal plants, plant drugs and plant derivatives.

It is complemented by Anvisa's Normative Instruction No. 130/2022, which establishes requirements regarding the facilities, equipment, documentation, manufacturing instructions, quality parameters for raw materials and sampling procedures. These requirements demand as a minimum, presence of permanent technical assistance and financial resources for audits, chemical analyses and product registrations.

*Resolutions by Anvisa's Board of Directors.

I. Phytomedicines (PM) or Traditional Herbal Product (THP)

The flowchart below shows the sequence of actions required to regularize phytomedicine products, from establishment of the enterprise, environmental and health licensing and authorization to operate the enterprise to the registration or notification of the PM or THP with Anvisa.



1º

ESTABLISHING A BUSINESS: risk classification and registration with the town hall/registrar's office and the Internal Revenue Service (association, cooperative or private company). Adaptation of physical facilities and regularization with the Fire Department.

2º

ACCESS TO TECHNICAL LIABILITY: identifying professionals and developing technical assistance/technical responsibility actions related to the production, processing and treatment of medicinal plants and the manufacture of herbal products.

3º

ENVIRONMENTAL LICENSING: regularization of conditions to prevent environmental impacts, presentation of architectural projects and descriptive memoranda for facilities and production or industrial processes.

4º

SANITARY LICENSE: compliance with sanitary control conditions with presentations of the Certificate/Manual of Good Manufacturing Practices/Standard Operating Procedure, Health Services Waste Management Plan, Certificate of Registration and Certificate of Operating License (industry), Technical Responsibility, Pest Control and Contracts of Outsourced Companies.

5º

AUTHORIZATION FOR THE OPERATION OF A BUSINESS: submission of th social contract operating license, health licernse, and technical liability.

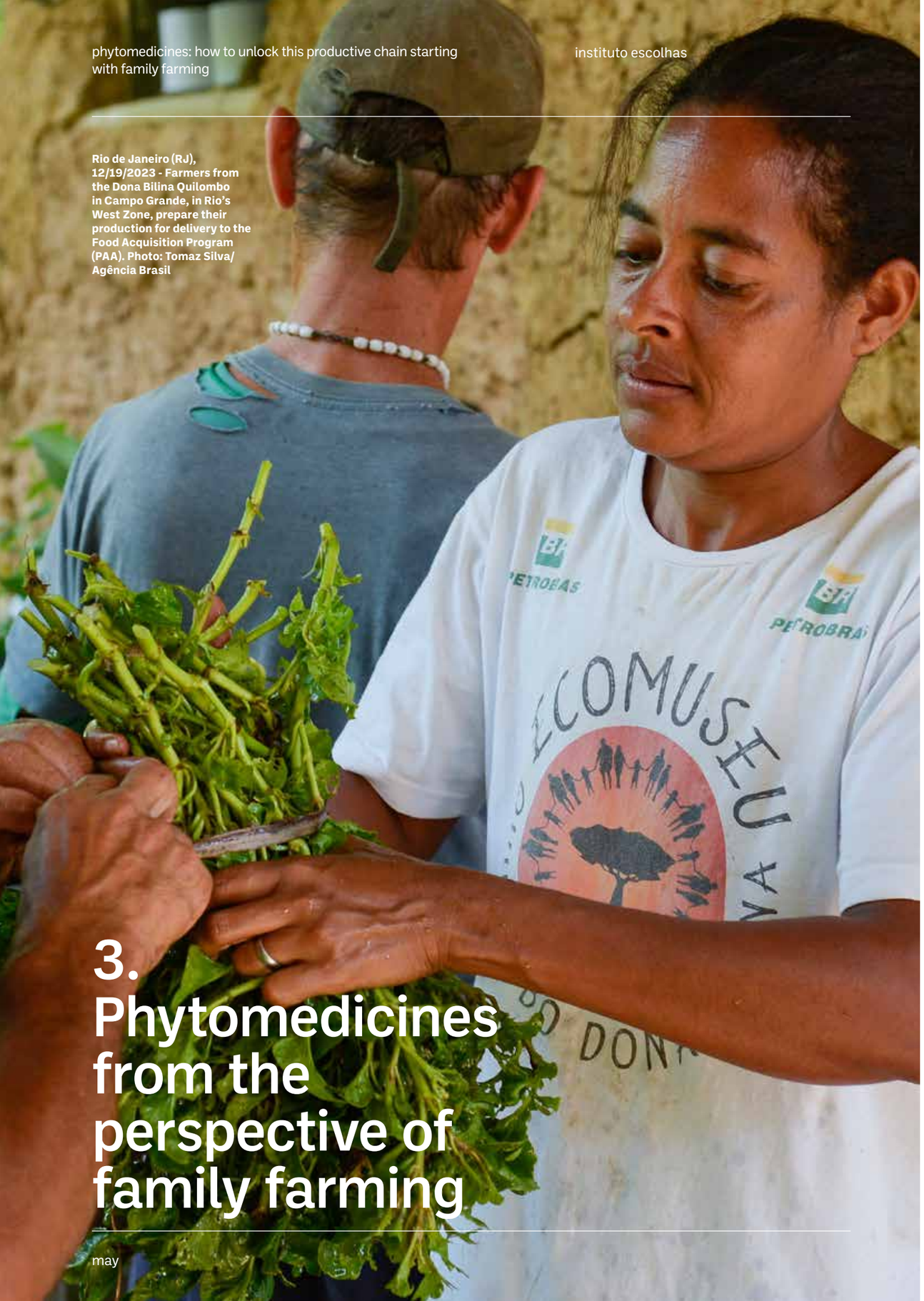
6º

REGISTRATION OF HERBAL MEDICINE/ NOTIFICATION OF A TRADITIONAL HERBAL PRODUCT: submission of the Production Report (stability, quality control, safety / efficacy / effectiveness), pharmacovigilance, label and package leaflet), chemical analyses.

DISTRIBUTION OF BENEFITS

In addition to complying with the requirements for notification or registration of products, those interested in developing economic activities involving phytomedicine with access to traditional knowledge associated with genetic heritage (CTA) must report their activities through the National System for the Management of Genetic Heritage and Associated Traditional Knowledge (SisGen). They must also notify the finished product and yearly declare the net revenue from this economic exploitation in order to calculate and pass on the monetary value relating to the sharing of benefits with the holders of the CTA.
Family and community-based producers are exempt from this requirement and often fall into the category of CTA holders.

Learn more about SisGen and benefit distribution at: https://escolhas.org/wp-content/uploads/Biodiversity-Law-Handbook_Final.pdf



Rio de Janeiro (RJ), 12/19/2023 - Farmers from the Dona Bilina Quilombo in Campo Grande, in Rio's West Zone, prepare their production for delivery to the Food Acquisition Program (PAA). Photo: Tomaz Silva/ Agência Brasil

3. Phytomedicines from the perspective of family farming

To market medicinal plants and phytomedicine, family and community-based farmers have three main outlets: direct trade, compounding pharmacies and the industry. Each of these has different demands in terms of the scale of production and the quality standard of the product delivered, with direct - and most often informal - trade being the least demanding.

Small producers, intending to leave the informal sector, will also be subject to a series of legal, health and marketing obligations, even if only acting as raw materials suppliers to the industry or compounding pharmacies. In this way, by focusing on characterizing the type of activity and product, without considering the specificities of the small producers, the legislation lumps industries and small production units into the same package.

Thus, the small producer is already in great disadvantage for not being able to afford to set up and regularize production systems and manufacturing or processing units, as well as regarding the costs of chemical analyses and testing for effectiveness, efficacy, stability, bioavailability, purity, etc.

Additionally, there is a difficulty to access laboratories with adequate infrastructure to carry out specific chemical analyses as well as the obtainment of certified medicinal and aromatic plant species, given the limitation of medicinal plant species approved by Anvisa for the manufacture of PM and THP - which, in turn, limits the knowhow of traditional peoples and communities and family farmers that can be used to manufacture marketable phytomedicine.

I. Proposals and recommendations

In order to overcome the identified challenges and hindrances, it is proposed to adopt combined actions to support family farming and to adapt the legislation to the size of the activity in the production chain, as well as re-evaluating the frameworks for activities and certain requirements.

The following actions can be incorporated into the design of the National Phytomedicines[14] Strategy, included in the aforementioned Action Plan for Neo-industrialization.

Proposal 1

Formalization of a new category of herbal product

The regulation of this new category could adopt a list of criteria suitable for evaluating producers of medicinal plants and manufacturers of plant drugs, plant derivatives, active pharmaceutical plant ingredients (APIs) or traditional preparations, reducing health requirements, as occurs in some artisanal food production activities.

Parameters such as the type of product and manufacturing process (level in the production chain), production area and volume (size of the enterprise) and the origin and quality of the products and raw materials can be used to define these requirements.

Proposal 2

Adoption of a Social Control Organization model (SCO)

Likewise, to the participatory model of organic certification, but aimed at assessing compliance with the Popular Good Manufacturing Practices for Phytomedicine and the Popular Standard Operating Procedures for Phytomedicine Production, inserted in the context of the production of phytomedicine products by family and community-based producers. This social control organization is subject to act on both fronts - both in assessing the conformity of pesticides and the compliance with good manufacturing practices for phytomedicine products - seeking to ensure the quality and traceability of products and raw materials.

Proposal 3

New rule for Living Pharmacies[15]

Currently, the Living Pharmacy has to carry out all the activities in the production chain, from the cultivation of medicinal plants to the production of the phytomedicine itself. However, if the plants could be purchased, farmers could rely on health centers as another outlet for medicinal plants.

Proposal 4

Targeting the resources of FNRB

Dedicate resources from the National Fund for the Sharing of Benefits (FNRB) to actions to support the strengthening of production chains for medicinal and aromatic plants from family and community-based producers.

Created by Law No. 13.123/2015 and regulated by Decree No. 8.772/2016, the FNRB aims to promote the valorization of genetic heritage and associated traditional knowledge and their sustainable use.

Proposal 5

Effective and permanent technical assistance

Adoption of a technical assistance model with strategies specifically aimed at the production chains of medicinal, aromatic and condiment plants and phytomedicine products, offering technical and commercial subsidies in contextualized language with the support of professional staff dedicated to these production chains[16].

With this, technical partnerships can also be established with public and private institutions to make the public infrastructure available to support productive activities, as provided for in the RDC Nº 49/2013.

14
The National Phytotherapics Strategy is mentioned as an action of the MDIC and MS, in Mission 5 of the plan. According to the document, the Strategy should establish “guidelines and priority lines for the development of actions by the various partners around common objectives aimed at guaranteeing safe access and the rational use of medicinal plants and herbal medicines in the country, the development of technologies and innovations, as well as the strengthening of production chains and arrangements, the sustainable use of Brazilian biodiversity and the development of the Health Production Complex.”.

15
Within the scope of the Unified Health System (SUS), under State, Municipal or Federal District management, the Living Pharmacy is the place where all stages take place, from the cultivation, collection, processing, storage of medicinal plants, to the handling and dispensing of distinguished and official preparations of medicinal plants and herbal medicines, subject to the provisions of specific health and environmental regulations, to be issued by the related regulatory bodies. Source: BRASIL. Ministry of Health. National Health Surveillance Agency (Anvisa). Consolidation Ordinance No. 5, of September 28, 2007. 2017.

16
For more information on the provision of technical assistance as a strategy to strengthen the bioeconomy, refer to the study “Technical assistance for the bioeconomy in the Amazon: from challenges to solutions”, available at escolhas.org.

Proposal 6

Opening up institutional markets

Develop a model for institutional purchases along the lines of the National School Feeding Program (PNAE) or the Food Acquisition Program (PAA), the expansion of which is provided for in the Action Plan for Neo-industrialization, with a minimum percentage of financial resources earmarked for the purchase of medicinal plants or phytomedicine products from family and community-based producers via Public Calls for Bids.

Proposal 7

Expand the presence of phytomedicine agendas within the Ministry of Agrarian Development and Family Farming (MDA)

Involving the MDA in the actions planned for the phytomedicine chain in the Action Plan for Neo-industrialization would reinforce the role of traditional peoples and communities and family farmers as a source of knowledge, phytomedicine products and raw materials for the pharmaceutical industry, while at the same time giving these segments the support they need to strengthen grassroots production.

Andiroba, an Amazonian fruit, has therapeutic, anti-inflammatory, healing and insecticidal properties. Photo: Alex Ribeiro/Ag. Pará

Realization

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Study conceived by Instituto Escolhas. Access the full technical report at.
https://escolhas.org/wp-content/uploads/2024/05/Relatorio_Final_Fitoterapicos.pdf

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