

Contributions of medicinal plants to care and health promotion in primary healthcare

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ABSTRACT

Phytotherapy programs and actions within Brazilian primary healthcare were analyzed from the literature. This metastudy included six databases, from 1988 to 2012. Twenty-four published papers were registered. Phytotherapy has been introduced for a variety of reasons: to increase the therapeutic resources, retrieve popular knowledge, preserve biodiversity and promote environmental and popular education, agroecology and social development. There is an ambivalence that on the one hand reinforces self-care, educational activities and intersectoral and community participation, thus constituting a form of care and health promotion; and on the other hand restricts the process to incorporation of compounded or manufactured herbal medicines to pharmacies within primary care services, for strictly professional use. A broad view of phytotherapy that incorporates these two approaches from the perspective of ecology of healthcare knowledge and practices is emphasized.

Keywords: Primary healthcare. Medicinal plants. Phytotherapy.

Introduction

Medicinal plants have always had great significance in culture, medicine and nutrition of societies in the world. Populations, through their healers and autonomous use, have accumulated experience and broad knowledge of them. Nevertheless, the scientific achievements from the latest decades and their large socialization have encouraged the monoculture of scientific knowledge in the health professional practices, which largely discredit other current knowledge and practices in societies (Santos, 2007). As far as phytotherapy is concerned, this knowledge has been considered only as empirical source for expansion of scientific truths and technologies, linked to industrial development and market needs in order to search new patents (Barreiro and Bolzani, 2009).

The scientific status of healthcare makes society more and more dependent on professionalized practices, hindering health professionals to permeate and listen to local

knowledge in Primary Health Care (PHC) (Tesser and Barros, 2008). In Brazil, phytotherapy is present in about three hundred and fifty locations in PHC (Brasil, 2012). Although some of them have been studied (Santos *et al.*, 2011), there are no reviews on the topic that systematize the experiences recorded. This paper aims to analyze the insertion of actions/programs of phytotherapy in the Brazilian PHC services addressed in scientific literature between 1988 – 2012 and to investigate their motivations and approaches within the perspective hereinafter summarized.

Conceptual and Terminological Contextualization

There is a diversity of knowledge and practices related to medicinal plants circulating in societies and, thus, to some extent, in the Brazilian PHC. It is of research interest mapping this diversity of knowledge and practices due to the widespread use of the term Alternative and Complementary Medicines (ACM)¹ and/or Traditional Medicine (TM) in literature (WHO, 2011). This nomenclature brings in a single set everything that is not biomedicine, bringing little contribution to the understanding of different contexts and forms of care involving medicinal plants with their associated knowledge.

In an anthropological approach, Kleinman (1980) proposed three major sectors (or systems) of care: professional, popular and family care, based on the social relationships between healers and care "receivers". The first sector includes the professionalized healers in a given society. Thus, the professionalized ACM are grouped with biomedicine, in spite of significant differences between them. The second sector includes folk healers of various types, whereas the third one refers to family care and their supporting networks, generally supportive and without payment. Each sector has its own characteristics (where different notions, knowledge and practices in relation to health and disease are used), but they are interrelated.

Laplantine and Rabeyron (1989), Metcalf, Berger and Negri (2004), and Menéndez (2009) discuss the heterogeneity of care, the ACM and its knowledge, differentiating them from biomedicine and family care, besides approaching them to popular practices and traditional medicine. In view of these internal differences within ACM/TM, we should still mention the category of "medical rationalities" proposed by Madel Luz (Luz and Barros, 2012). This category challenges the superiority of scientific knowledge and of its alleged monopoly over the veracity in healthcare regarding other complex medical systems. Medicinal plants can be used in various forms according to different medical rationalities, when they are involved.

In this study, a compartmentalization of healthcare practices specific for phytotherapy has been constructed. It was grounded on the adaptation of the Kleinman approach (1980) proposed by Metcalf *et al.* (2004). However, Menéndez (2009) and Luz and Barros (2012) were also considered, respecting the significant differences of knowledge and social context of the medicinal plants use, including possibly involved medical rationalities. Thus, uses of medicinal plants have been separated in: family, popular, traditional and scientific uses, in addition to the use based on other medical rationalities. Family phytotherapy, which often does not have written records of practice, refers to the autonomous and informal practices of phytotherapy (homemade medicine) which fall into the user's social support network.

Unlike the familiar phytotherapy, popular phytotherapy is practiced by non-professionalized popular experts. According to Menéndez (2009), practices of phytotherapy have been created by different healers (midwives, folk healers, traditional

¹ See: <<http://nccam.nih.gov/health/whatisacam>

healers), with theories, cultural and social aspects and with convergent or divergent worldview from each other. Their knowledge and practices are based on a holistic approach, inherited from family members, a "gift" or learning from another healer. These specialists establish a strong connection with the user due to community knowledge and/or lack of access to biomedical care.

The traditional phytotherapy takes place when the use of plants is rooted in the culture of a population with their own identity and long tradition, different from biomedical rationale, which characterizes what the WHO (2011) refers to as TM. For example, the Brazilian indigenous medicine is not considered a medical rationale (perhaps due to a lack of studies on the area). Nevertheless, it is part of a set of knowledge and practices of the Brazilian TM, which usually differs from familiar and popular practices (except for specific contexts such as, perhaps, certain Amazonian riverside populations).

The scientific phytotherapy refers to the use of medicinal plants² based on scientific evidence supported by the biomedical rationale, circumscribed by different disciplines, ranging from the botanical identification to the production of the phytotherapeutic drug³ (Fernandes, 2004). The use of plants can also be grounded on another medical rationale (Chinese or Ayurvedic, for example), which, here in Brazil, is considered neither traditional, nor popular or family use, being usually heteronomous. The differentiation described here disagrees, in part, with the recent classification proposed by the Brazilian Ministry of Health for the different "phytotherapies" in PHC, separating the rationales in only three strands: popular, traditional and western scientific. The first one refers to the domestic use of medicinal plants for healing and to popular healers; the second one includes traditional knowledge or different medical rationales; and the last one refers to the scientific evidence of medicinal plants (Brasil, 2012).

Summarizing the approach proposed here, the medicinal plants use in Brazil can be autonomous (family use, which may be or may be not traditional) or heteronomous. The latter may be popular, traditional, scientific or affiliated to another medical rationale. Phytotherapy can also be viewed as a therapeutic resource (product) and/or health practice (action) linked to the culture or knowledge of the user and his/her family, or of the caregiver who directs or prescribes the treatment (popular, traditional, biomedical therapist or a therapist grounded on any other rationale).

On the other hand, there is still a strong "state of mind", both in common sense and in scholarly sense, by associating the family, popular and traditional uses of medicinal plants to poverty and/or lack of development. For Santos (2000), what underlies this thought is the belief that there is only one way of development, tied to the central institutions of modernity: the territorial state, the territorial law and modern science. The success of this idea of development results from the fact that these forms of power, law and knowledge surpass, with some success, other established forms in so-called "structural spaces" of modern society: the domestic, production, market, community, citizenship and global spaces.

Still according to Santos (2007), contemporary society is based on two pillars: the regulation and emancipation pillars. The first one consists of obligations regarding the State, the market and the community. The political obligation of the State is vertical and involves citizens and the State. Market regulation is individualistic and antagonistic,

² Plant species in natura (fresh plant) or dried plant (plant drug used with therapeutic purpose).

³ Medicine obtained exclusively and fully from a medicinal plant used for the purpose of medical treatment.

happening among competitors. In the beginning of the community, this relationship is horizontal, solidary and processed among community members. The pillar of emancipation is formed by the cognitive and instrumental rationale of science, by the aesthetic and expressive form of arts and literature, and by morality. Nevertheless, science and the law, emancipatory categories at the beginning of modernity, have become the hegemonic regulatory categories in service of market forces and large corporations.

The counter-hegemonic strategy proposed by Boaventura Santos, of which this study is near, involves the reconstruction of the emancipation polo in a contemporary world. The space of community would be a fertile social space for this reconstruction, which has been underexploited by modernity and science (Freitas and Porto, 2011). Accordingly, bypassing the modern scientific ideology, this study shares the view that there is not just a single valid knowledge for healthcare and the use of medicinal and phytotherapeutic plants, especially in the PHC environment. This means looking at PHC as a favorable environment to a respectful and mutually enriching dialogue among knowledge, skills, traditions and diverse rationales in the field of (lay and specialized) health. Notwithstanding, hegemonic political forces, market regulation and mass information somehow manipulate professionals and citizens, creating false needs (Marcuse, 1964), making phytotherapeutic medicines seem the only safe, effective and rational way of use and care of medicinal plants, which results in restricting phytotherapy to professional prescription in PHC. This unidirectional thought cultivates ideas, desires and goals that reduce the phytotherapy universe of actions to the scientific field, reinforcing a biomedical physician-centred monoculture. In this sense, the more rational, scientific, strict and technical is the management of services and professional development of health professionals, the more unimaginable the actions and means to insert phytotherapy in PHC beyond the technical and scientific knowledge become.

Unlikely, the inclusion of phytotherapy in PHC could contribute to the "ecology of knowledge" in PHC. According to Santos and Meneses (2010), the ecology of knowledge does not propose to exclude or reduce the technical-scientific knowledge credibility, however, it does not consider it as the only truth (monoculture). The technical-scientific knowledge should be understood as part of a broader knowledge ecology enabling a qualified dialogue. This does not mean that everything goes in the same way, but that the technical-scientific knowledge is not the only one, since there are other kinds of current knowledge in society that can and should be valued on the use of medicinal plants, especially in PHC.

Methods

A literature review recognized as meta-study (Partenson, 2001) was conducted, and the search was focused on the question: "What actions/programs of phytotherapy in PHC were described in the literature in the 1988-2012 period"?

The research was carried out by consulting the databases: Scielo, Lilacs, PubMed, Scopus, Web of Science and Capes Publications Portal, in the period from January 1 1988 to June 18 2012, using Descriptors in Health Sciences (MeSH) and keywords.

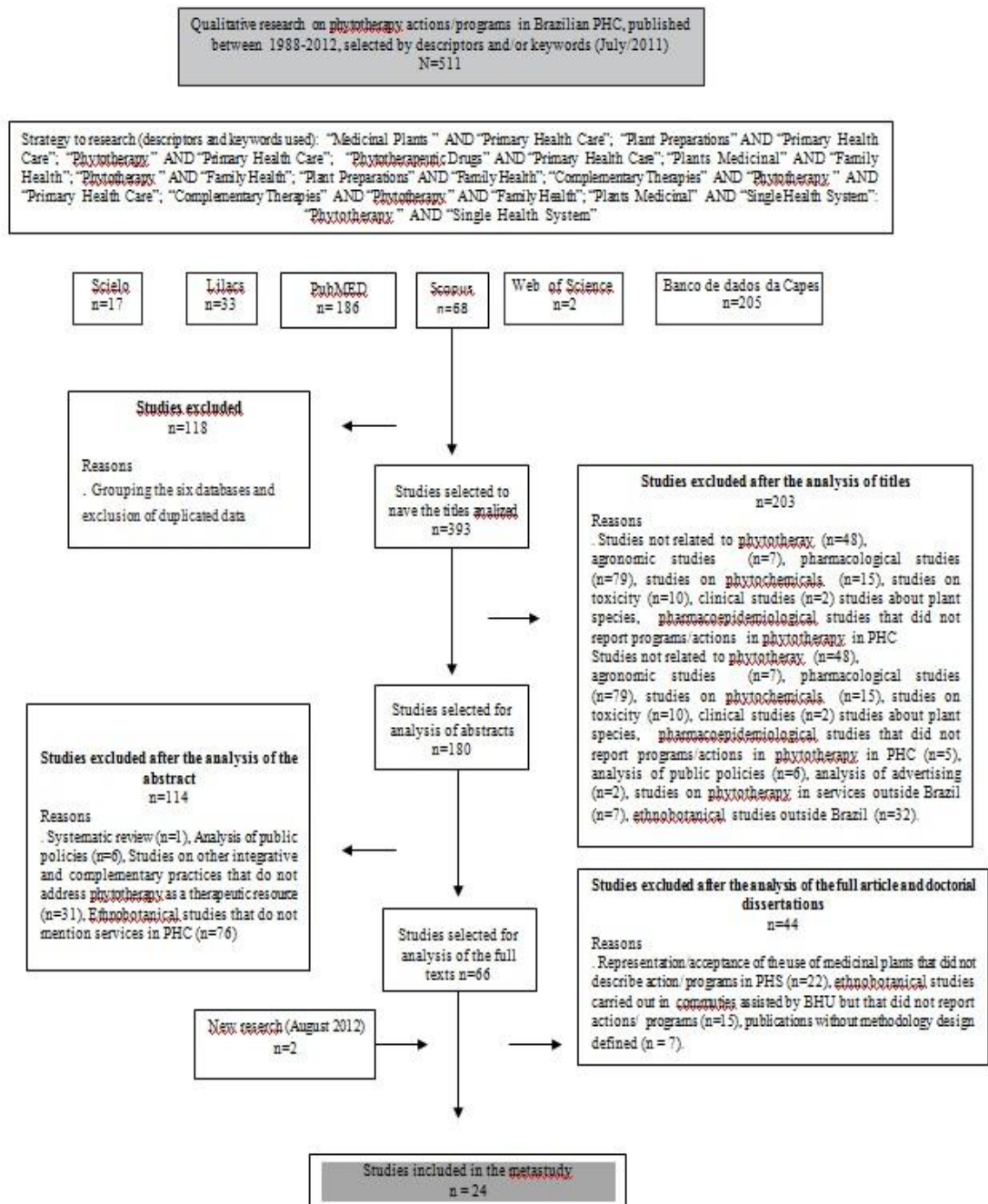


Figure 1. Synthesis of the process to collect articles selected for the metastudy

511 studies have been firstly identified, but after reading the titles, abstracts and full texts, 24 publications were selected according to the inclusion criteria -- qualitative research on phytotherapy actions/programs in PHC services, published between 1988-2012 -- and the exclusion criteria -- such as editorials, news stories, clinical protocols, reviews, comments, revisions, manuals, agronomic, ethnobotanical, phytochemical, pharmacological and toxicological researches, studies in foreign countries, as well as perception, acceptance and/or social representation surveys that did not refer to a specific action or program.

The selected papers were analyzed from the theoretical assumptions (metatheory), methodological approach (metamethod), and results of studies (meta-analysis of the data). A final synthesis, which will be presented in the next section, was elaborated based on that partial synthesis. (Castellanos *et al.*, 2011; Spadacio *et al.*, 2010).

Results

There was evidence of a high concentration of publications between 2004 and 2008, published in journals in the areas of Public Health and Pharmacy, with the participation of researchers from different areas (Table 1). This fact may be related to the institutional stimulation achieved by the issue of PNPIC and PNPMF in 2006.

Table 1. Characterization of articles analyzed, according to the year of publication, journal, type of publication, place where the research was carried out, title of the first author (SC)

Ist author	Year	Journal/Institution	Title of the first author	Place where ations/Programs were carried out	Total of studies per year
Araújo	2000	Interface (Botucatu)	Anthropologist	Londrina/PR	2
Negreiro	2002	Universidade Federal Ceará	Nurse	Pereiro/CE	
Ogava	2003	Rev. Bras. Farmacogn.	Pharmacist	Maringá/PR	2
Teixeira	2003	Universidade Estadual do Rio de Janeiro (Rio de Janeiro State University)	Pharmacist	Juiz de Fora/MG	
Graça	2004	Saúde debate	Medical doctor	Curitiba/PR	6
Reis	2004	Saúde Debate	Medical doctor	Rio de Janeiro/RJ	
Moretti-Pires	2004	Saúde Debate	Nurse	Ribeirão Preto/SP	
Sacramento	2004	Saúde Debate	Homeopathy doctor	Vitória/ES	
Carneiro	2004	Saúde Debate	Pharmacist	Itapipoca/CE	
Michiles	2004	Rev. Bras. Farmacogn.	Pharmacist-sanitarian	Rio de Janeiro/RJ	
Damas	2005	Universidade Federal de Santa Catarina (Santa Catarina Federal University)	Medical doctor	Florianópolis/SC	2
Leite	2005	Saúde Debate	Pharmacist	Itajaí/SC	
Cavalazzi	2006	Universidade Federal de Santa Catarina (Santa Catarina Federal University)	Medical doctor	Florianópolis/SC	6
Diniz	2006	Saúde Debate	Family medical doctor	Londrina/PR	
Silva	2006	Rev. Bras. de Farmacogn.	Pharmacist	Maracanaú/CE	
Matos	2006	Rev. Ciências Agroveterinárias	Pharmacist	Fortaleza/CE	
Guimarães	2006	Saúde Debate	Homeopathy doctor	Betim/MG	
Oliveira	2006	Rev. Bras. Plantas Med.	Municipal Secretary	São Paulo/SP	
Brasil	2008a	Rev. Bras. Saúde da Família	-	Campinas/SP	4
Brasil	2008b	Rev. Bras. Saúde da Família	-	Amapá/AP	
Brasil	2008c	Rev. Bras. Saúde da Família	-	Quatro Varas/CE	
Guizardi	2008	Interface (Botucatu)	Psychologist	Vila Velha/ES	1
Nagai	2011	Ciência Saúde Coletiva	Nurse	Campinas/SP	
Santos	2012	Universidade Federal de Santa Catarina	Pharmacist	Florianópolis/SC	1

It is interesting that in a country with the highest biodiversity in the world, with continental extension and large cultural richness and knowledge about medicinal plants, derived from three ethnic matrices (indigenous, African and European, according to Ribeiro, 1995), phytotherapy in PHC has only 24 experiments, which were analyzed and are available in scientific literature. Some general hypotheses can be raised about it. There must be underreporting and/or little academic interest on the subject regarding the quantity and greater diversity of experiences with phytotherapy in PHC in Brazil. Besides, there is little or no government support and funding institutions to the theme, which must be regretted due to the great potential of use, production of knowledge and technology which has been wasted (Viegas Júnior, Bolzani and Barreiro, 2006; Santos, 2000). The subject of medicinal plants is extremely undervalued in Brazil, since there is a predominance of a vision focused on chemotherapy (the unique active principles), which makes the use of medicinal plants seem a vestige of underdeveloped times, and consequently less open to more complex ways to understand how plants act on human beings. Even seeking active principles isolation, best directed by the traditional uses of plants, this country's potential pioneerism is evident (Barreiro and Bolzani, 2009; Veiga and Mello, 2008; Villas Boas and Gadelha, 2007). Still regarding this lack of studies in the field, it should also be involved the absence of integration of different knowledge areas (chemistry, biochemistry, pharmacology, botany, pharmaceutical technology etc.), necessary to achieve an effective result in the research and development of new phytotherapies (Villas Boas and Gadelha, 2007).

Metatheory

Two central axes of motivations and objectives that drove different practices with phytotherapy have been identified. The first one (left column in Table 2) includes programs with educational, social and environmental perspectives, whereas the second one (right column in Table 2) involves programs focusing on knowledge and scientific practices.

Schematic overview of motivations, aims and practices of the actions/programs of medicinal plants in the PHC services analyzed			
Actions/programs with diversity of knowledge and practices, focused mainly in activities for the community, with an educational, social and ecological (environmental) perspective.		Actions/programs with emphasis on professional prescription of herbal medicines and medicinal plants patterned scientifically.	
Motivations	Objectives	Motivations	Objectives
Botanical identification	Guide the use of plants to professionals and users	Diversify therapeutic options	Exclude handled or processed herbal medicines
Demedicalization	Reduce the unnecessary use of herbal medicines		
Home vegetable gardens to avoid wastelands	Avoid the presence of venomous animals and mosquitoes	Public policies	Establish public policies in preservation, research and use of medicinal plants.
Solidariedade e qualidade de vida	Promote the dialogue among different knowledge and solidarity		

Relationship, humanization	Stimulate the exchange of experiences, relationships between the health professionals team and the community	Education in scientific health	Guide the “right” use of plants
Environmental education	Stimulate environmental education	Reduce costs	Offer the population a safe, effective and cheap alternative of medicine.
Family farming	Stimulate family farming as a way to improve life quality		
Interculturality	Preserve the Brazilian cultural diversity		
Actions and Practices in PHC			
Meetings with the community; use of a three farm for preservation of endangered species, vegetable gardens (s (schools, kindergartens, health units, community organizations together to FHS, homely, in uncultivated lands), manipulation laboratory of popular formulas, family farming, nursery, organic compost made with recycled waste, guidance for users and encouragement for autonomous use.		Pharmacy of manipulation, educational lectures, newsletters, booklets for home visits, computerized database, service to exchange information with other groups that engage in similar activities, course on phytotherapy basic ideas, didactic nurseries (botanical identification for isolation of compounds).	

Table 2. Objectives and motivations for the implementation of actions/programs of phytotherapy in the Brazilian PHC

The main theoretical framework of the programs studied followed the proposal of the Farmácia-Viva (Live Pharmacy) project, from Fortaleza/CE, in Brazil, designed by Francisco José de Abreu Matos and guided by ethnopharmacology and pharmacognosy (Matos, 2006), as well as by the principles of the Projeto Vida Verde (Green Life Project), from Curitiba/PR (Grace, 2004), based on environmental education.

Metamethod

The methodological approach used in research is varied. Among the studies analyzed and showed in Table 3, experience reports and case studies have been highlighted. Santos’ study (2012) used the action research method. For Santos (2005), action research consists in the definition, implementation and participation in research projects that involve communities and social organizations, related to a problem whose solution can result from research findings. Social interests are articulated with the scientific ones, and the production of knowledge is closely linked to meeting the needs of social groups that have no power to have specialized and technical knowledge at their service using the market.

Few studies have reported the techniques used for data analysis. Among the exceptions, content analysis was mentioned (Matos, 2008; Cavalazzi, 2006; Silva, 2006; Damas, 2005; Leite and Schor, 2005). Among the studies that have adopted content analysis, we can highlight the influence of social representation, ethnography, drug use studies and case studies (as shown in Table 3).

Table 3. Characterization of the methodological approach in the revised articles

1 st author	Year	Action/program	Method	Techniques to collect data
Araújo	2000	Londrina/PR	Ethnographic study	Interview, P O
Negreiro	2002	Pereiro/CE	SUM	Questionnaire
Ogava	2003	Maringá/PR	Experience report	NI
Teixeira	2003	Juiz de Fora/MG	Case study	Interview
Graça	2004	Curitiba/PR	Experience report	NI
Reis	2004	Rio de Janeiro/RJ	Experience report	NI
Moretti-Pires	2004	Ribeirão Preto/SP	Experience report	NI
Sacramento	2004	Vitória/ES	Experience report	NI
Carneiro	2004	Itapipoca/CE	Experience report	NI
Michiles	2004	Rio de Janeiro/RJ	Experience report	NI
Damas	2005	Florianópolis/SC	Transversal study	Interview
Leite	2005	Itajaí/SC	Case study	Interview , OP
Cavalazzi	2006	Florianópolis/SC	Observational Qualitative Research	Interview
Diniz	2006	Londrina/PR	Experience report	NI
Silva	2006	Maracanaú/CE	SUM	Interview
Matos	2006	Fortaleza/CE	Experience report	NI
Guimarães	2006	Betim/MG	Experience report	NI
Oliveira	2006	São Paulo/SP	Documental research	Interviews
Brasil	2008a	Campinas/SP	Experience report	NI
Brasil	2008b	Amapá/AP	Experience report	NI
Brasil	2008c	Quatro Varas/CE	Experience report	NI
Guizardi	2008	Vila Velha/ES	Case study	Interview e questionnaire
Nagai	2011	Campinas/SP	Social representation	Interview
Santos	2012	Florianópolis/SC	Action research	Seminar

NI = Not identified; PO = Participant Observation; SUM = Study that has made Use of Medicines

Meta-analysis

Phytotherapy practices in PHC referred to four objectives. The first one refers to structural and political aspects of work organization forms with phytotherapy. The second one is related to medicinal plants and their derivatives. The third one includes educational activities, whereas the last one deals with intersectoral actions and community participation.

Municipal management, technical-scientific knowledge and the work at PHC

Structural aspects of the health services management and the prevalence of biomedical knowledge guide, many times, how to organize the work with medicinal plants and phytoterapics in PHC (Alvim and Cabral, 2001). One can understand this situation considering that this combination creates hegemony in the institutional field (Brasil, 2008c). If that hegemony is strong, it tends to drive the process to the insertion of scientific phytotherapy, medical-centred (outlined in the right column in Figure 2). In this case, phytotherapy is reduced to an additional type of medicine.

The expansion of scientific phytotherapy can be seen here as the pharmaceutical industry advancement to little explored areas by expanding the scientific knowledge domain of regulatory nature coupled to business interests. In this perspective, the traditional, popular, family phytoterapies serve just as evidence for scientific

phytotherapy. Notwithstanding, the situation is not restricted to the right side of Figure 2, as there are social and institutional spaces favorable to the interaction between knowledge and local practices with the technical-scientific knowledge as well (left column in Figure 2).

The analyzed literature showed the following different ways of working with medicinal plants within PHC services that may be more or less complementary to each other:

- 1) Living pharmacy: systematized activities performing culture, collection, processing, storage, handling and dispensing of medicinal plants and phytotherapeutic compounds;
- 2) Compounding pharmacy of phytotherapeutics: compounding area of plant raw material derivatives processed according to the Agência Nacional de Vigilância Sanitária - ANVISA (Health Surveillance Agency) regulations;
- 3) Dispensation of dry plant (plant drug): it refers to activities related to drying and dispensation of dry plant processed as industrialized tea;
- 4) Dispensation of phytotherapeutic drugs: phytotherapeutics are part of the basic component of the Pharmaceutical Assistance of the National List of Essential Drugs;
- 5) Didactic horticulture gardens: areas for the culture of plants *in natura*, botanical identification, preservation of endangered species, as well as studies and teaching of plants;
- 6) Community horticulture gardens: sites for organic culture, drying craft, trade or donation of vegetable seedlings, mostly without botanical identification but based on the traditional and popular culture;
- 7) Workshops of homemade remedies: areas and actions for preparing and distributing traditional phytotherapeutic formulas and seedlings by non-governmental institutions (e.g. pastoral healthcare);
- 8) Study groups and/or round of conversations about medicinal plants: systematized and organized collective space of knowledge interaction with educational purpose to discuss and guide the use of medicinal plants, aimed at professionals and the community.

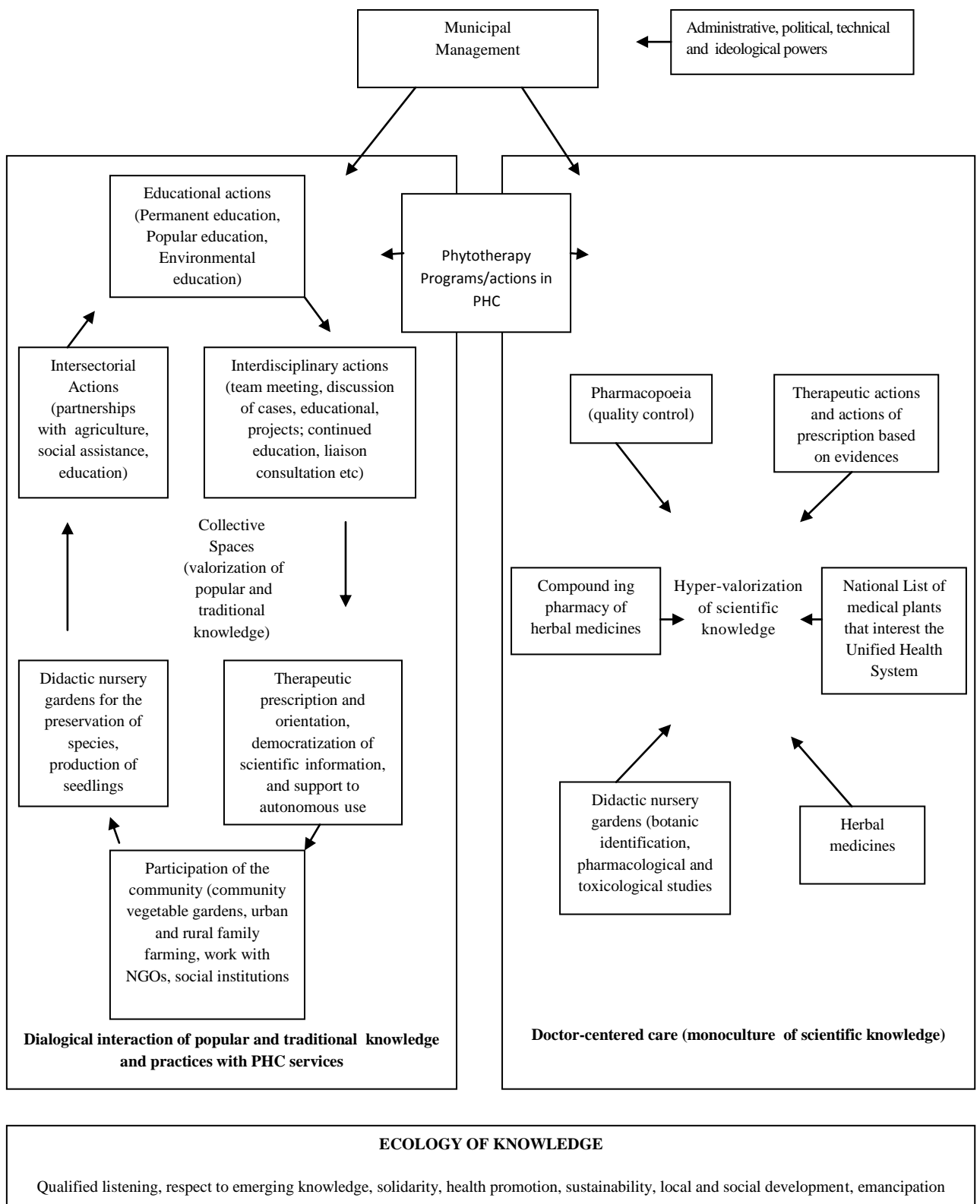


Figure 2. Approaches, characteristics and practices of phytotherapy and medicinal plants programs and actions in the Brazilian PHC.

The 1, 2, 3 and 4 work forms are carried out under the supervision of a pharmacist and have specific regulations (Table 4). Activities 1, 5 and 6 can rely on the technical support of an agronomist, an agricultural technician and/or a botanist (Brasil, 2012). Activities 7 and 8 represent traditional, popular and family initiatives based on their own knowledge, being held with or without the participation of health professionals. Such possibilities open space for working with multiple forms, including and going beyond the therapeutic use of phytotherapy prescribed as medicine. Nevertheless, they all need, somehow, managing the issue of safety, efficacy and quality at least in the environment of public health services.

The medicinal plant and its by-products

The Política Nacional de Plantas Medicinais e Fitoterápicos (National Policy of Medicinal Plants and Herbal Medicines) was developed to contemplate the Brazilian biodiversity, coupled with a commitment to follow or propose specific legislation for the sector. The aim was to offer services with safety, efficacy and quality to ensure the Brazilian population safe access, in the perspective of a comprehensive health care, considering the traditional knowledge about phytotherapy (Brasil, 2006a, b). Nevertheless, the large amount of scientific requirements in the current Brazilian laws to ensure the quality, efficacy and safety of phytotherapy, as shown in Table 4, is hindering the inclusion of medicinal plants in PHC, since there are no large distribution centers in the country that meet all the criteria required for supplying plant raw materials to towns. These requirements comprise the need of a report from the Agronomic Institute, the absence of toxic waste, the plant botanical identification, and the operating license by the Agência Nacional de Vigilância Sanitária - ANVISA (Health Surveillance Agency) specifying the culture. As a consequence of these requirements, few organic producers and/or local farmers are unable to participate in the bidding process (Silva *et al.*, 2006).

Furthermore, it can be noted that the lack of experience of professionals to both buy seedlings and seeds and cultivate plant species hinders the access to medicinal plants in PHC services (Sacramento, 2004). Moreover, the difficulty in standardizing Relações Municipais de Fitoterápicos - REMUMEFITO (Herbal Medicines Municipal Lists) and therapeutic mementos predetermined by the Ministry of Health, guided by the technical-scientific knowledge but regardless of the local information collected to meet the lists to the epidemiological profile, needs and appreciation of medicinal plants in each place (Matos, 2006; Silva *et al.*, 2006; Carneiro and Pontes 2004; Pires, Borella and Raya, 2004).

Health Education

According to the political-administrative organization of PHC services, the educational activities described involved both community and health professionals (Oliveira, Simões and Sassi, 2006; Araújo, 2000). With regard to the population, it was found: study groups, round of conversations, exchange workshops of seedlings, family agriculture, agroecology, intersectoral activities and university extension, and valuing family, folk, traditional and scientific phytotherapy. The references applied were: popular, permanent and/or environmental education (Santos, 2012; Diniz, 2006; Carneiro and Pontes, 2004; Pires, Borella and Raya, 2004; Sacramento, 2004).

In actions directed at professionals, there was the adoption of permanent education⁴ (Ceccim and Feuerwerker, 2004) and continuing education⁵ (Peduzzii *et al.*, 2009) in order to minimize the resistance to inserting phytotherapy in PHC (Santos,

Table 4. Main updated legislation on medicinal plants and phytotherapics, in effect until 2013

Products	Document	Aim
Medicinal Plants	Law n° 5.991, from 17 December 1973	Sanitarian control of commercialization of drugs, medicines, pharmaceuticals and related
	Decree n° 5.813, from 22 June 2006	National Policy for Medicinal Plants
	List of medicinal plants	National list of medicinal plants that interest the Unified Health System
Vegetal Drugs	Resolution (RDC) n° 10, from 9 March 2010	Notification of vegetal drug at ANVISA (Agência Nacional de Vigilância Sanitária – National Health Surveillance Agency)
	Resolution (RDC) n° 267, from 22 September 2005	Technical regulations of vegetable species for the preparation of teas
	Resolution (RDC) n° 219, from 22	Vegetable species and part(s) of vegetable species for the preparation of teas
	Resolution RDC n° 17, from 16 April 2010	Good practices of vegetable drugs manufacturing subject to notification
Compounde d herbal medicines	Resolution (RDC) n° 67, from 08 October 2007	Good practices of compounding Magistral and Official Preparations for Human Use in Pharmacies
	Resolution (RDC) n° 87, from 21 November 2008	Good Practices of Compounding in Pharmacies
Herbal Medicines	Resolution (RDC) n° 48, from 16 March 2004	Registration of herbal medicines.
	RE n° 90, from 16 March 2004	Guide for toxicity studies of herbal medicines

⁴ Permanent Education in Health refers to the qualification of health professionals structured from the problematization of their work process and demands aiming at changing practices and its own work organization, and having as reference the health needs of people and populations, sectoral management, and of social control in health (Ceccim and Feuerwerker, 2004).

⁵ Continuing Education refers to specific educational actions, focusing on technical-scientific knowledge transmission according to the individual needs of each professional category with emphasis on courses and training (Peduzzi *et al.*, 2009).

	RE nº 91, from 16 March 2004	Guide for making alterations, inclusions, notifications and cancelling after herbal medicines have been registered.
	Resolution (RDC) nº 95, from 11 December 2008	Text for patient information leaflet of herbal medicines
	Normative Instruction nº 05, from 11 December 2008	List of herbal medicines with simplified registration.
	Normative Instruction nº 05, from 31 March 2010	List of bibliographical references in order to evaluate safety and efficiency of herbal medicines
	Resolution (RDC) nº 14, from 31 March	Registration of herbal medicines (present)
	Resolution (RDC) nº 17, 16 April 2010	Good practices for Manufacturing Medicines (including a specific part referring to herbal medicines)
	Ordinance GM/MS nº 533, from 28 March 2012 (National List of Essential Medicines)	List of herbal medicines in primary care: artichoke (<i>Cynara scolymus</i> L.), pepper tree (<i>Schinus terebinthifolius</i> Raddi), aloe (<i>Aloe vera</i> (L.) Burm. F.), cascara sagrada (<i>Rhamnus purshiana</i> DC.), espinheira-santa (<i>Maytenus officinalis</i> Mabb.), guaco (<i>Mikania glomerata</i> Spreng.), devil's claw (<i>Harpagophytum procumbens</i>), mint (<i>Mentha x piperita</i> L.), soybeans (<i>Glycinemax</i> L. Merr.), fleawort (<i>Plantago ovata</i> Forssk.), willow (<i>Salix alba</i> L.), cat's claw (<i>Uncaria tomentosa</i> (Willd. ex Roem. &Schult.))
Physiotherapy Service in the Unified Health System		
Live Pharmacy	Ordinance nº 886, from 20 April 2010	Live Pharmacy in the Unified Health System
	Resolution (RDC) nº 18, from 3 April 2013	Good practices in processing and storing medicinal plants, preparing and dispensing magistral and officinal products made from medicinal plants as well as herbal medicines in live pharmacies in the Unified Health System.

Source: http://portal2.saude.gov.br/saudelegis/leg_norma_pesq_consulta.cfm

2012). This often occurs because the professionals did not have a discipline on the topic at the undergraduate level. Therefore, the option adopted in some towns was to offer an introductory course on medicinal plants (Rosa, Câmara and Beria, 2011; Reis *et al.*, 2004; Ogava *et al.*, 2003).

Hence, the teaching and service integration, the appointment time, the home visit, and the community actions were cited as favorable exchange spaces, taking into account local knowledge on therapeutic, agronomic, botanical, chemical and pharmacological aspects of medicinal plants in order to qualify both professionals and users (Nagai and Queiroz, 2011; Pires, Borella and Raya, 2004; Reis *et al.*, 2004; Araújo, 2000).

Intersectoral actions and community participation

Phytotherapy goes beyond the health sector. In this regard, the absence of intersectoral partnerships was mentioned as a barrier to phytotherapy advancement in PHC. On the other hand, partnerships and technical cooperation were emphasized with: Instituto Nacional de Colonização e Reforma Agrária – INCRA (the National Institute of Colonization and Agricultural Reform), to develop actions with rural settlements (Pires, Borella and Raya, 2004); the Municipal Environment Secretariat, to support home gardens and environmental education activities (Graça, 2004), to sanitize derelict land and control breeding poisonous animals (Sacramento, 2004); and didactic horticulture gardens, to preserve and identify species (Santos, 2012; Pires, Borella and Raya, 2004), in order to enhance social and cultural aspects of phytotherapy with the participation of community leaders, businesses and researchers (Nagai and Queiroz, 2011; Matos, 2006).

Local councils, community meetings and educational projects (Campos, 2007) were also mentioned as strategies that encourage community participation to strengthen the insertion of phytotherapy in PHC.

Phytotherapy in PHC: knowledge interaction and care practices

The literature review showed richness and diversity of reasons for including phytotherapy in APS. Among motivations and practices, summarized in Table 2, it can be emphasized the educational and social aspects of phytotherapy which disseminate a perspective of health promotion, self/supportive care beyond scientific knowledge. In spite of that, the latter should not be underestimated. The enrichment of therapeutic possibilities for professional use (prescription) represents an important achievement of medicinal plants integration in PHC.

Anyway, it is necessary to beware that this insertion does not focus on the product only for professional use, restricting the actions to the scientific-institutional regulatory universe (right column in Figure 2). This type of action can and should be associated with dialogue with other knowledge and practices about existing medicinal plants or possible fostering in the community with other meanings and characteristics (left column in Figure 2).

The health promotion through phytotherapy involves rescuing cultural values while stimulating intersectoral actions, thus facilitating: the connection between team and community, bringing together professionals and users, self care, local development, intersectoral and community participation. In this perspective, the insertion of phytotherapy demands educational approaches, enhancing the creation of spaces that encourage the appreciation of knowledge, prudence and critical analysis by professionals and users about the use of medicinal plants (Carvalho, 2004). Nevertheless, that perspective seems to find various obstacles interposed by the medical-centred and scientist care model (Luz, 2005). Consequently, it is not enough that municipal management encourages phytotherapy actions in PHC or regulate these practices by means of legal instruments in order to ensure quality service. It is necessary to invest in permanent and popular education in services, observing the needs that emerge in the daily work process of PHC teams from the bond and interaction with communities for inserting new care strategies that enable a decentralization of the scientific power-knowledge as well (Rosa, Câmara and Bieria, 2011; Santos *et al.*, 2011).

Hence, it is necessary to encourage phytotherapy actions in PHC that include and extrapolate the prescription. Perhaps, its inclusion does not represent a cost reduction,

but rather the acceptance of knowledge of the other, the respect for cultural values and traditions, and the construction of a supportive relationship with the community, so that the popular versus scientific dichotomy can be broken (Rosa, Câmara and Bieria, 2011). They propose more holistic practices, with active participation of the community and various ways of working with medicinal plants beyond scientific knowledge. (Sicoli and Nascimento, 2003).

However, such ambitions require an educational practice focused on dialogue, solidarity, building partnerships, encouraging co-responsibility as well as individual and collective politicization, components of health promotion connected to the empowerment principle (Sicoli and Nascimento, 2003). In this sense, popular education can be a device that enhances the subject's knowledge without considering the school education level (Albuquerque and Stotz, 2004), and that is a key element in strengthening knowledge ecology. Subsequently, popular education contributes not to produce information dissemination practices focusing only on the transmission of technical-scientific knowledge (Peduzzi *et al.*, 2009).

There is here the presence of great challenge and tension due to the professional development of health professionals being based on technical-scientific knowledge, which is generally linked to the prospect of unidirectional and prescriptive knowledge regulation. Their practice, influenced and dominated by the political-administrative power and ideologically driven by biomedical knowledge, contributes to resistance to changes. What is observed in universities and services is that there is not significant space for discussion yet on the validity of the unscientific cultural heritage on medicinal plants or parts of it (Sena, 2007). Bastos and Lopes (2010) discuss the lack of PHC nurses' professional development on phytotherapy. The rare inclusion of medicinal plants theme in medical courses reflects the negative attitude of this issue towards traditional, popular and family knowledge circulating in society (Rosa, Câmara and Beria, 2011).

The scientific monoculture creates a restricted context, with little openness to new possibilities, nurturing insecurity of the medical corporation regarding prescription and guidelines. Such representations reinforce negative or fearful attitudes with respect to the intention to use herbal medicines in PHC. Consequently, it is reinforced the importance of permanent education for this theme to emerge from the everyday demands of healthcare practice and professional-user relationship. Furthermore, there must be offered popular education activities encouraging problematization in a contextualized way, addressing the singularities of places and persons (Peduzzi *et al.*, 2009; Ceccim and Feuerwerker, 2004).

The diffusion of the theme "phytotherapy" on permanent education activities with healthcare teams in PHC services is a strategy to be adopted by the municipal management (Santos, 2012; Thiago and Tesser, 2011). Moreover, the encouragement to the educational actions towards the community helps qualifying the work with phytotherapy, implying new knowledge on the subject. The permanent and popular education regarding phytotherapy may provide democratization of knowledge, dialogue, learning, guidance, listening and creative confrontation of health problems present in everyday services in order to improve quality care. They promote the construction of supportive, ethical and critical practices, supplying the lack of professional development courses that either omit phytotherapy or consider it as an elective discipline. This attitude leads to many scholars considering phytotherapy as less important, when exactly the opposite should happen: regard the relevance of phytotherapy, which can be applied both in individual and collective professional practices with the objective of

expanding the autonomy and capacity of people's intervention over their own lives (Campos, 2007).

This interaction of different knowledge seems to be the way to strengthen a policy that "does not aim only at cost reduction", validation and certification of technically prepared phytotherapeutic products, but primarily at promoting health, qualified listening, solidarity and social emancipation. Educational, intersectoral actions that can count with the community active participation can contribute to the articulation of phytotherapy projects that reinforce knowledge ecology.

Final Remarks

In a broad perspective, phytotherapy can and should be considered as knowledge and practices interaction field that values: cultural resources, practices and local knowledge, natural resources and biodiversity preservation, users interaction with both nature and healthcare team professionals, besides enriching heteronomous and autonomous therapeutic possibilities. Moreover, phytotherapy can promote scientific research socialization as well as develop the population's critical view on medicinal plants use in PHC and on a family basis. The diversity of experiences in the registered PHC confirms these potentialities.

This way of thinking on the issue can also contribute to the generation of jobs and income, and for the PHC strengthening as well, as a strategy aiming at qualifying listening to other community knowledge. These are essential aspects for promoting both institutional and non-institutional health and care. Thus traditional, popular and lay knowledge can be seen as an opportunity to approach the health professional with the user. In this context, the principles guiding the healthcare relations should be solidarity, reciprocity, respect and mutual appreciation.

This interaction between community and healthcare teams can occur in meetings to enable sharing experiences such as: plants identification, how they are prepared and indicated, and the use of plants by the community. On the other hand, the skilled health professionals present scientific evidence, currently available, correlating popular knowledge with studies of chemical composition, nutritional and pharmacological action, toxicity, drug interactions, contraindications, dosage, agronomic and botanical aspects of plant species, in addition to identifying different species which can be recognized with the same popular name.

The intersectoral articulations favor introducing phytotherapy in PHC. With them, the community and users, organized with their traditions, values and knowledge, and the academic and research institutions, with the help of their scientific criteria, may contribute to building knowledge ecology on medicinal plants, and in dialogues and decisions regarding uses, guidelines and prescriptions of medicinal and plants and phytotherapies in PHC, and in their autonomous use as well. This will certainly help in building a knowledge-emancipation that counterbalances and outweighs the strong current trend to emphasize the regulation aspect of scientific knowledge and practices on phytotherapy in PHC.

Contributors

Gisele Damian Antonio took part in the design, planning, research and selection of papers, and in the data analysis and interpretation as well. Rodrigo Otavio Moretti-Pires contributed significantly to both drafting the manuscript and methodology design. Dalcanale Tesser Charles worked on the study design, content critical review, research general guidance, as well as in the preparation and approval of the final manuscript.

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