



Pharmacognosy

Mercury: the beginnings in the medicalization of common names of medicinal plants in Brazil

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Abstract

Medicalization of common names of medicinal plants is a process that involves replacing popular native names by trademarked names of drugs, active principles or therapeutic indications used by modern biomedicine. In Brazil, this process seems to have been intensified in the early 2000s due to the increasing use of those names in ethnoscientific surveys in local communities. In this study, we aimed to trace the origins of that process. For this purpose, we reviewed data from the “grey literature” pre-1980, including 15 books, compendia, dictionaries, and guides of medicinal plants. Mercury and its lexical changes were the only medicalized names found in the literature before the 1980s. This is probably due to the ancient use of mercury in several medical systems through human history, including by Brazilian apothecaries since the seventeenth century. Moreover, Mercurochrome was the name of a Brazilian trademark of antiseptic that probably influenced the use of medicalized names of mercury in the past. The name “Mercury” and its “natural” epithet combinations, like “Mercúrio-vegetal” (Mercury-plant) and “Mercúrio-do-campo” (Field-mercury), could have been the original medicalized way of naming medicinal plants in Brazil.

Key words: ethnobotany, ethnotaxonomy, historical research, merbromin, pharmacy.

Resumo

A medicalização de nomes populares de plantas medicinais é o processo de substituição de nomes populares nativos por nomes de medicamentos comerciais, princípios ativos ou sua indicação terapêutica empregados pela biomedicina moderna. Aparentemente, este processo se intensificou no início dos anos 2000, visto que houve um aumento na quantidade desses nomes em pesquisas etnoscience realizadas em comunidades locais no Brasil. Nosso objetivo foi delinear as origens desse processo. Foram revisados dados da “literatura cinza” pré-1980, incluindo 15 livros, compêndios, dicionários e guias de plantas medicinais. Mercúrio e suas corruptelas lexicais foram os únicos nomes medicalizados encontrados antes dos anos 1980. Isso se deve provavelmente ao antigo uso de mercúrio por vários sistemas médicos durante a história humana, inclusive pelos boticários no Brasil desde o século XVII. Além disso, Mercurocromo era uma marca brasileira de antisséptico que provavelmente influenciou o emprego medicalizado do nome mercúrio no passado. As combinações de “Mercúrio” e com epítetos “naturais,” como “Mercúrio-vegetal” e “Mercúrio-do-campo,” podem ser a forma original medicalizada de se nomear plantas medicinais no Brasil.

Palavras-chave: etnobotânica, etnotaxonomia, pesquisa histórica, merbromina, farmácia.

Several plant species have been assigned with common names similar to those of popular Brazilian drugs, *e.g.*, Terramicine, Anador[®], and Vick[®]. This is related to two cultural appropriation processes,

the medicalization and pharmaceuticalization, which have been occurring for some decades in Brazil. Medicalization is generally conceptualized as a biomedical transformation of human

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experiences and behaviors into medical concerns (Bortoli *et al.* 2019; Zola 1983). On the other hand, pharmaceuticalization can be defined as the overconsumption of pharmaceuticals and social dependency of commercial drugs (Fox & Ward 2008; Bell & Figert 2012).

Medicinal plants with medicalized names can be found cumulatively in ethnobiological surveys from the 1980s to the late 2010s (Siqueira *et al.* 2018). The medicalized names could have had an ethnotaxonomical origin, associated with extensive drug use by modern societies in the twentieth century (Siqueira *et al.* 2017, 2018). However, so far, no evidence has been found to support the recency of the medicalization process since, apparently, there are no surveys about it before the 1980s.

To trace the origins of the medicalization of common names of medicinal plants in Brazil, we evaluated the presence of medicalized names in the “grey literature” from the early twentieth century. Grey literature is defined as scientific productions that were not formally published, including book chapters, research reports, and other unpublished data (Hopewell *et al.* 2007). We consulted 15 books,

compendia and dictionaries of medicinal plants, including those that were published before the 1980s, such as Correa¹ (1926, 1931, 1952, 1969, 1974, 1975), Da Matta (1913), and Cruz (1979) (Tab. 1). These references were chosen based on their historical relevance in the field of Brazilian medicinal plants and availability.

We found the following 20 medicalized names: Anador[®], Atroveran[®], Bromil[®], Coramina[®], Dipirona[®], Doril[®], Elixir-Paregórico[®], Erva-iodex, Figatil[®], Heparrema[®], Insulina, Insulina-vegetal, Melhoral[®], Mercúrio-do-campo, Mercúrio-vegetal, Novalgina[®], Penicilina, Saúde-da-mulher, Terramicina, and Vick[®]. However, in the pre-1980s literature (Correa 1926, 1931, 1952, 1969, 1974, 1975, Cruz 1979; Da Matta 1913) we detected only two medicalized names, both of them related to mercury, “Mercúrio-do-campo” and “Mercúrio-vegetal” (Tab. 2). The medicalized name “Mercúrio”

¹ It's a well-reputed encyclopedia of useful Brazilian plants published in the early twentieth century that is still widely used by botanists, pharmacists, and ethnoscientists, due to the historical content of the former herbalism practiced in Brazil.

Table 1 – Titles, bibliographic classifications and references of “grey literature” consulted.

Grey literature	Bibliographic classification	Reference
Etnofarmácia: Fitoterapia popular e Ciência Farmacêutica	Book	Barbosa <i>et al.</i> 2009
Plantas medicinais na Amazônia: contribuição ao seu conhecimento sistemático	Book	Berg 1993
Dicionário de plantas úteis do Brasil e das exóticas cultivadas Vol. I	Dictionary	Correa 1926
Dicionário de plantas úteis do Brasil e das exóticas cultivadas Vol. II	Dictionary	Correa 1931
Dicionário de plantas úteis do Brasil e das exóticas cultivadas Vol. III	Dictionary	Correa 1952
Dicionário de plantas úteis do Brasil e das exóticas cultivadas Vol. IV	Dictionary	Correa 1969
Dicionário de plantas úteis do Brasil e das exóticas cultivadas Vol. V	Dictionary	Correa 1974
Dicionário de plantas úteis do Brasil e das exóticas cultivadas Vol. VI	Dictionary	Correa 1975
Dicionário das plantas úteis do Brasil	Dictionary	Cruz 1979
Flora médica braziliense	Compendium	Da Matta 1913
Plantas medicinais na Amazônia e na Mata Atlântica	Book	Di Stasi & Hiruma-Lima 2002
Plantas medicinais no Brasil: nativas e exóticas	Compendium	Lorenzi & Matos 2008
Constituintes químicos ativos e propriedades biológicas de plantas medicinais brasileiras	Book	Matos <i>et al.</i> 2004
Plantas medicinais na Reserva Extrativista “Chico Mendes” - Acre	Book	Ming <i>et al.</i> 1997
Fitoterapia da Amazônia	Book	Vieira 1992

Table 2 – Species by medicalized name, the grey literature in which they were reported, medicinal popular uses, organoleptic characteristics and pharmacological activities related to mercury. Information not found in scientific literature were represented by the diacritical sign -.

Species	Medicalized name	Grey literature	Medicinal popular uses	Organoleptic characteristics related to mercury	Pharmacological activities related to mercury
Erythroxylaceae <i>Erythroxylum suberosum</i> A.St-Hil	Mercurio-do-campo ("Field Mercury")	Correa 1926	-	Brown-red bark (Rodrigues <i>et al.</i> 2015)	Antimicrobial (Violante <i>et al.</i> 2002), anti-inflammatory (Barros <i>et al.</i> 2017)
Euphorbiaceae <i>Croton antisyphiliticus</i> Mart.			Lesions, inflammation, syphilis, rheumatism (Reis <i>et al.</i> 2014)	-	Anti-bacterial (Pereira <i>et al.</i> 2012) Antifungal (Fenner <i>et al.</i> 2006) Anti-inflammatory (Reis <i>et al.</i> 2014)
Moraceae <i>Brosimum acutifolium</i> Huber	Mercurio-vegetal ("Vegetable Mercury")	Correa 1926; Da Mata 1913	Rheumatism, nervous system stimulator (Elisabetsky & Castilhos 1990), syphilis (Duke 2008)	-	Anti-inflammatory (Baptista 2007), antibacterial (Moretti <i>et al.</i> 2006)
<i>Pseudolmedia macrophylla</i> Trécul		Cruz 1979	-	-	-
Solanaceae <i>Brunfelsia australis</i> Benth		Correa 1926	Rheumatism (Batisti <i>et al.</i> 2013)	-	-
<i>Brunfelsia brasiliensis</i> subsp. <i>macroclyx</i> (Dusén) Plowman		Correa 1926	Rheumatism (Soares <i>et al.</i> 2004)	-	-
<i>Brunfelsia pauciflora</i> (Cham. & Schildt.) Benth.		Lorenzi & Matos 2008	Rheumatism, syphilis (Uribe & Uribe-Uribe 1941)	-	-
<i>Brunfelsia uniflora</i> (Pohl) D. Don		Correa 1926; Lorenzi & Matos 2008	Rheumatism (Caminhoá 1871), Syphilis (Plowman 1977)	-	Antimicrobial (Thiesen <i>et al.</i> 2018)

(mercury) combined with the epithets “vegetal” (plant) and “campo” (field), both indicating natural sources, is the most ancient medicalized name in Brazil. The association of “natural” epithets seems to be a rudimentary method of creating medicalized names in popular Brazilian medicine.

The majority of species cited as “Mercúrio” in the grey literature is also mentioned with non-medicalized names, with six cited as useful to treat diseases. *Croton antisyphiliticus* Mart. (Euphorbiaceae) was named as Curraleira (Botrel *et al.* 2006; Hirschmann & Arias 1990) and Canela-de-saracura (Hirschmann & Arias 1990); *Erythroxylum suberosum* A.St.-Hil (Erythroxylaceae) as Bananinha-do-campo (Hirschmann & Arias 1990) and Galinha-choca (Hirschmann & Arias 1990; Silberbauer-Gottsberger 1981); *Brosimum acutifolium* Huber (Moraceae), as Mururé and Mureré (Coutinho & Travassos 2002; Monteles & Pinheiro 2007); *Brunfelsia australis* Benth. (Solanaceae), as Primavera (Battisti *et al.* 2013); *Brunfelsia brasiliensis* (Spreng.) L.B.Sm. & Downs (Solanaceae), as Manacá (Guedes *et al.* 1985); *Brunfelsia uniflora* (Pohl) D.Don (Solanaceae), as Manacá or Flor-da-trovoada (Tribess *et al.* 2015), and Primavera or Macaé (Bieski *et al.* 2015); *Brunfelsia pauciflora* (Cham. & Schltld.) Benth. (Solanaceae), as Manacá-de-cheiro (Sanquetta *et al.* 2010) (used, however, only as an ornamental plant); finally, *Pseudolmedia macrophylla* Trécul (Moraceae) was not cited as medicinal and had no common names related to it. The majority of species were reported in the scientific literature to treat syphilis or rheumatism (Tab. 2).

In the literature post-1980s, “Mercúrio” mainly refers to *Alternanthera brasiliana* (L.) Kuntze (Amaranthaceae); *Chelidonium majus* L. (Papaveraceae); *Erythroxylum tortuosum* Mart. (Erythroxylaceae); *Jatropha multifida* L. (Euphorbiaceae) (Fig. 1). Additionally, “Mercúrio-do-campo” refers only to *Galphimia brasiliensis* (L.) A. Juss. (Malpighiaceae) (Siqueira *et al.* 2018). Thus, the binomial “Mercúrio-do-campo” lost representation of *C. antisyphiliticus*, although it has retained *E. tortuosum* as the related species. “Mercúrio-vegetal,” however, lost every related species; thus, it became an extinct medicalized name in the post-1980s.

The former practice of naming medicinal plant species as “Mercúrio” is mainly related to the ancient therapeutic use of the mercury element, predominantly extracted from cinnabar (Broussard *et al.* 2002), in several traditional pharmacopoeias



Figure 1 – *Jatropha multifida* (public domain).

worldwide, like the Caribbean (Zayas & Ozuah 1996), Indian-Tibetan (Kumar & Prabhakar 1987; Leslie 1976), and Chinese (Tang *et al.* 2008). The therapeutic use of mercury in drug preparations in Brazilian pharmacies and apothecaries dates back to the eighteenth century (Edler 2006), but probably was a common “chemical medicine” since the sixteenth century (Almeida 2017).

The Brazilian Pharmacopoeia also mentioned its use in several pharmaceuticals to treat syphilis and wounds until the 1920s and 1990s, respectively, since the first edition (Silva 1929). This probably explains the majority of popular antisyphilitic indications of species, pre-1980s, listed in Table 2. The “antirheumatic” indications were probably related to congenital and acquired syphilitic arthritis that overcome in several clinical cases of the disease (Gray & Philip 1963), or to the similarity of those symptoms with other musculoskeletal disorders.

On the other hand, pharmacological activities and organoleptic characteristics may explain the case of *Erythroxylum suberosum* due to the reddish color of the inner bark and its antimicrobial and anti-inflammatory activities (Tab. 2). The red inner bark is a morphological characteristic that could refer to the alcoholic solution of merbromin.



Figure 2 – Mercurochrome bottle (by Kevin Vreeland, <<https://commons.wikimedia.org/wiki/File:Merbromin-Anti-Infective.jpg>>. No changes were made). This file is licensed under the Creative Commons Attribution-Share Alike 2.5 Generic license.

“Mercúrio” usually refers to the Brazilian trademarked name “Mercúrio-cromo” (Mercurochrome) (Fig. 2), a topical antiseptic formerly used to treat wounds and perforations in the epidermis (Campos 1978) (Fig. 3). The main constituent of “Mercúrio-cromo” is Merbromin, a sodium organomercuric compound prohibited as a commercial drug by ANVISA (Brazilian National Health Surveillance Agency) since 2001 (ANVISA 2001). Therefore, the medicalized name “Mercúrio” may become obsolete due to this relatively recent ban on the use of mercury compounds in Brazilian drugs. On the other hand, another medicalized name of antiseptic, “Merthiolate,” is derived from the trademark name Merthiolate® and it has been used to the same therapeutic purposes (Bieski *et al.* 2015; Caetano *et al.* 2015; Leite & Oliveira 2012; Martins *et al.* 2005). In this context, we hypothesize a gradual functional substitution of the name “Mercury” by “Merthiolate” to name medicinal plants with antiseptic and wound-healing properties.

MEDICAMENTOS QUE PODEM SER VENDIDOS NOS “POSTOS DE SO- CORROS FARMA- CÊUTICOS”

O Departamento Estadual de Saude do Rio Grande do Sul, elaborou a lista dos únicos medicamentos, drogas e utensílios que podem ser vendidos como “socorros farmacêuticos”, pelas casas licenciadas de acordo com o artigo 545 do Regulamento Sanitário em vigor.

A relação é a seguinte:

Algodão — Atadura — Gase, Soro antiofídico, Soro antidiarréico, Soro antitetânico, Oleo de ricino, Tintura de arnica, Tintura de iodo, **Mercúrio cromo**, Água oxigenada, Oleo verde, Folha de sene, Bicarbonato de sódio, Grátia probátia, Allum sativum, Sul amargo, Caflaspirina e similares, Emplasto poroso, Sinapismo, Seringa hipodérmica, Agulhas, Termômetros, Irrigadores, Pisos para irrigador, **Especialidades farmacêuticas hemostáticas, Produtos farmacêuticos antissépticos devidamente licenciados.**

Figure 3 – Advertising of Brazilian pharmaceutical journal from the 1940s (public domain). It is possible to notice that mercurial drugs as “Mercúrio-cromo” (highlighted) were sold as “socorros farmacêuticos” (pharmaceutical aids).

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