BOLETIN LATINOAMERICANO Y DEL CARIBE DE PLANTAS MEDICINALES Y AROMÁTICAS
© / ISSN 0717 7917 / www.blacpma.ms-editions.cl

Articulo Original / Original Article

Ethnobotany as a parameter for the study of cultural mimicry among Roma people

[La etnobotánica como parámetro para el estudio del mimetismo cultural entre el pueblo gitano]

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Section
Ethnobotany

Received: 31 July 2020
Accepted: 28 December 2020
Accepted corrected: 10 January 2021
Published: 30 July 2022

Citation:
Lobo RAAM, Lobo ACBNM, de Oliveira AFM, Andrade LHC. Ethnobotany as a parameter for the study of cultural mimicry among Roma people
Bol Latinoam Caribe Plant Med Aromat
21 (4): 530 – 547 (2022).
https://doi.org/10.37360/blacpma.22.21.4.32

Abstract: The nomadic behavior of Roma people has allowed their cultural interaction with people from different continents. Brazil has received Roma immigrants since its colonization, and there are currently more than 800,000 Roma people among the Brazilian population. This article describes the ethnobotanical knowledge of two Calon families (Alves and Dantas) established in hinterland cities of Pernambuco, northeastern Brazil. The survey was conducted with 23 informants (≥ 40 years old, 85% of the target audience) selected through the snowball technique and using semi-structured interviews. The plants mentioned were collected, identified and deposited in the IPA and UFP herbaria. The 157 species (85 native) are used for food, condiment, cosmetic, medicinal, ritualistic, technological, veterinary, and other purposes. The useful flora and forms of use are similar to those reported by non-Roma communities living in the same region, showing a kind of mimicry adopted by the Roma people, yet maintaining their cultural identity.

Keywords: Medicinal plants; Useful plants; Calon ethnicity; Traditional communities.

Resumen: El comportamiento nómada de los gitanos ha permitido su interacción cultural con personas de diferentes continentes. Brasil ha recibido inmigrantes romaníes desde su colonización y actualmente hay más de 800.000 romaníes entre la población brasileña. Este artículo describe el conocimiento etnobotánico de dos familias Calon (Alves y Dantas) establecidas en ciudades del interior de Pernambuco, noreste de Brasil. La encuesta se realizó con 23 informantes (≥ 40 años, 85% del público objetivo) seleccionados mediante la técnica de bola de nieve y mediante entrevistas semiestructuradas. Las plantas mencionadas fueron recolectadas, identificadas y depositadas en los herbarios IPA y UFP. Las 157 especies (85 nativas) se utilizan para alimentos, condimentos, cosméticos, medicinales, ritualistas, tecnológicos, veterinarios y otros fines. La flora útil y las formas de uso son similares a las reportadas por las comunidades no gitanas que viven en la misma región, mostrando una especie de mimetismo adoptado por el pueblo gitano, pero manteniendo su identidad cultural.

Palabras clave: Plantas medicinales; Plantas útiles; Etnia Calon; Comunidades tradicionales.

INTRODUCTION

Scattered throughout the world, Roma people are a non-territorial nation characterized by a strong cultural identity which still has much to reveal (Andrade Júnior, 2013). Linguistic and genetic research shows Romanies originated in the northwest region of present-day India, from where they dispersed from the 10th century onwards (Gresham *et al.*, 2001; Mendizabal *et al.*, 2012). They arrived in Europe in around the 14th century, settling in a region of Greece known at the time as Little Egypt; the names by which they are known - gypsies (English), *gitanos* (Spanish) and *ciganos* (Portuguese) - are derived from the mistaken historical belief that they originated in this region (Moonen, 2011).

The nomadic way of living of Roma people has led them to incorporate part of the culture of non-Roma people with whom they have interacted throughout their history. Examples of this adaptation are perceived in the *chib* language, which incorporated words from other languages throughout its evolution, as well as the songs and dances of the Gadje (non-Roma people) and the clothes and religions of the communities through which Roma people passed (Ramanush, 2011; Simões, 2014). The same likely happened with the diverse Romanies' uses of flora and fauna, which were possibly incorporated from other cultures and merged with their own traditions.

The incorporation of a culture is a mimetic process that involves not only material products but also forms of action, social relations and representations. The readiness for mimicry is fundamental for learning and for cultural transmission, allowing the development and transformation of a given culture (Wulf, 2016). The use of local flora is likely a parameter yet to be considered in studies of the cultural mimicry experienced by Roma people over time, constituting an aspect yet to be explored and clarified.

Romanies began to arrive in Brazil in the 16th century, dispersed throughout all regions of the country over the following centuries and, since 2006, became part of the traditional communities of Brazil (Coelho, 1892; Teixeira, 2008; Moonen, 2011). According to data from the Brazilian Institute of Geography and Statistics (IBGE, 2011), there are about 800,000 Roma people in the country, with 291 registered camps distributed in 21 Brazilian states.

Several forms of use of plant resources are part of the Roma culture, as has been reported for communities living in European and Asian countries such as France and Bangladesh (Derlon, 1979; Seraj *et al*., 2013). Ethnobotanical research on the relations of Roma communities established in Brazil with the local flora was initiated by Lobo et al. (2020), who reported the use of 10 species for the treatment of domestic animals. Continuing this line of research, the present study inventoried the plants used by Roma people of the Calon ethnic group settled in Pernambuco, northeastern Brazil, and compared the list of species and their respective uses with those provided in surveys of non-Roma communities that inhabit the Agreste and humid forest zones, aiming to identify cultural similarities and differences.

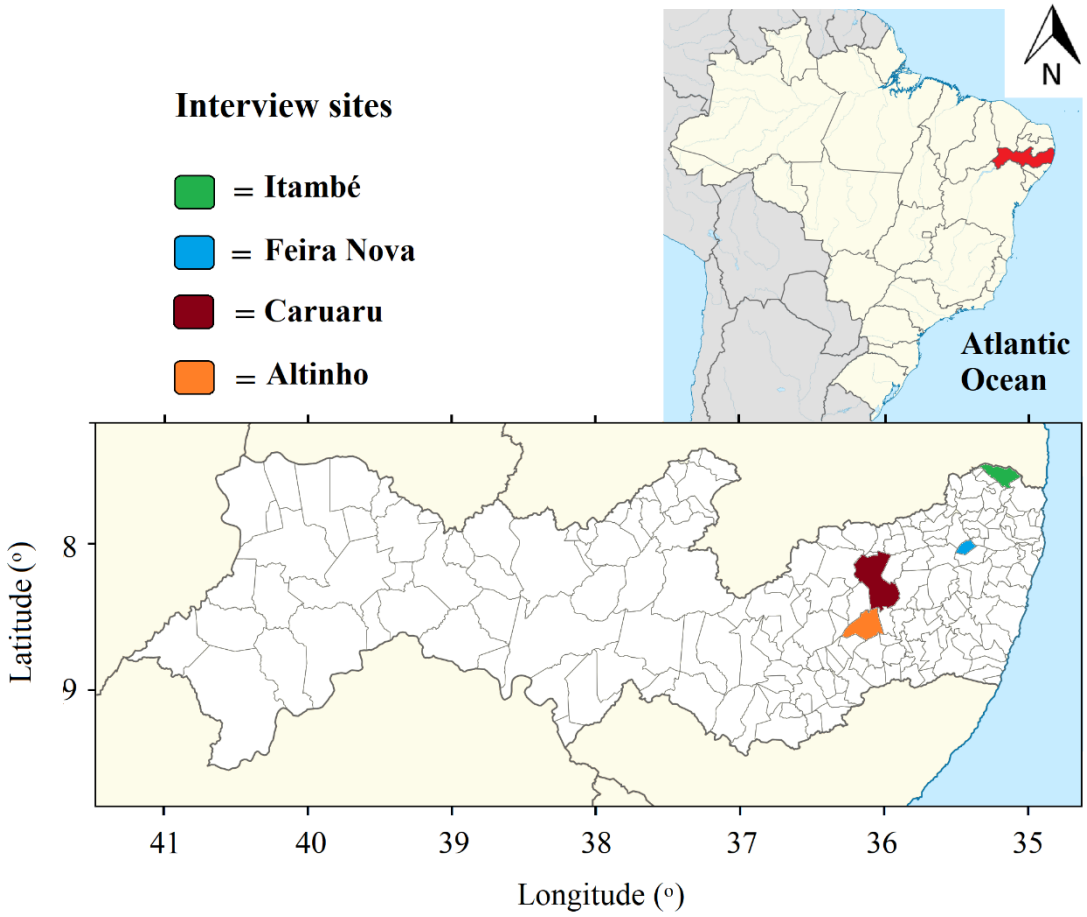
MATERIALS AND METHODS

The research was carried out with authorization of the Genetic Heritage Management Council (CGen) of the Ministry of the Environment (registration A9CB221), and the Ethics Council of the Federal University of Pernambuco (process 57999516.2.0000.5208). The president of the Association of Roma in Pernambuco (ACIPE), Mr. Enildo Kalon, mediated the first contacts introducing the heads of the Dantas family - residing in the municipality of Itambé, Atlantic forest Mesoregion - and Alves family - residing in the municipalities of Altinho, Caruaru and Feira Nova, in the Agreste Mesoregion (Figure No. 1). The region where these municipalities are located has low-flow perennial rivers and low underground water potential. Average annual temperatures vary between 24ºC and 27ºC and the average annual rainfall is 1147.2 mm. The vegetation is formed by deciduous and subdeciduous forests and the climate is tropical rainy, with a dry summer and a rainy season that starts in January/February and ends in September (SGM – MME, 2005).

Informed Consent Forms were presented to the heads of the two families and, after participating in the semi-structured interviews, members of the respective families aged ≥ 40 years were selected through the "snowball" technique to participate as informants (Albuquerque *et al*., 2010). The interviews were conducted individually with 11 men and 12 women, corresponding to 85.2% of the target audience, in 26 visits to the communities. The set of informants from the two Roma families was analyzed according to gender and age group, the latter being divided into three classes: 40 to 50 years, 51 to 60

years, and over 60 years.

Figure No. 1
Municipalities of Pernambuco, northeastern Brazil, where the Roma families were interviewed. Maps of Brazil and Pernambuco state were obtained and adapted from Wikipedia Commons (Wikimedia Foundation, Inc., San Francisco, California, USA)



In addition to the interviews, guided tours were held with the informants for observation and collection of the plants mentioned in gardens, backyards, vacant lots, streets and farms. After being identified by taxonomists from the Agronomic Institute of Pernambuco, representative exsiccates of the mentioned species were registered in the IPA and UFP herbaria. The species were classified into native or exotic (naturalized or cultivated) according to data from Flora do Brasil (2020).

After the survey, the mentioned species were classified into the following categories of use: food, condiment, cosmetic, medicinal, ritualistic, technological, veterinary, and others (Prance et al., 1987). The International Statistical Classification of Diseases and Related Health Problems (ICD) was used to relate diseases, symptoms, signs, abnormalities, complaints and external causes of injuries treated by plants cited by the informants with the scientific nomenclature. The following codes were used: **A06**: Amoebiasis; **A37.9**: Whooping cough; **B05**: Measles; **B07**: Viral warts; **B36.0**: Pityriasis versicolor; **B65.1**: Schistosomiasis due to *Schistosoma mansoni*; **B82.0**: Intestinal

helminthiasis; C80: Malignant neoplasm, without specification of site; **D53.9**: Anemia and stomach pain; **E14**: Diabetes mellitus; **E65**: Localized adiposity; **E78.0**: Hypercholesterolemia; **F50.9**: Eating disorder; **F51.0**: Insomnia; **H10**: Conjunctivitis; **H25**: Senile cataract; **H66.9**: Otitis media; **H83.0**: Labyrinthitis; **I10**: Essential hypertension; **I64**: Stroke, unspecified; **I74**: Arterial embolism and thrombosis; **I84**: Hemorrhoids; **J01**: Acute sinusitis; **J02**: Acute pharyngitis; **J11**: Influenza, virus not identified (flu); **J40**: Bronchitis, not specified as acute or chronic; **J45**: Asthma; **K05**: Gingivitis and periodontal diseases; **K08.9**: Disorder of teeth and supporting structures; **K25**: Gastric ulcer; **K29.7**: Gastritis; **K30**: Functional dyspepsia; **K59.0**: Constipation; **K77.0**: Liver disorders in infectious and parasitic diseases; **L21**: Seborrhoeic dermatitis; **L30.9**: Dermatitis, unspecified; **L65.9**: Nonscarring hair loss; **L80**: Vitiligo; **L98.9**: Disorder of skin and subcutaneous tissue; **M25.5**: Pain in joint; **M54.6**: Pain in thoracic spine; **N20.9**: Urinary calculus; **N39.0**: Urinary tract infection, site not specified; **N41**: Inflammatory diseases of prostate; **N71.9**: Inflammatory disease of uterus; **N76.0**: Acute vaginitis; **N94**: Pain and other conditions associated with female genital organs and menstrual cycle; **O06**: Unspecified abortion; **R05**: Cough; **R10**: Abdominal and pelvic pain; **R11**: Nausea and vomiting; **R33**: Retention of urine; **R42**: Dizziness and giddiness; **R45.0**: Nervousness; **R50.9**: Fever, unspecified; **R51**: Headache; **R52.0**: Acute pain; **R53**: Malaise and fatigue; **R60.0**: Localized oedema; **T14.1**: Open wound of unspecified body region.

The International Classification of Functioning, Disability and Health (ICF) established by the World Health Organization (WHO) was used to calculate the reliability index of the 10 medicinal species that were cited by one third or more of the informants, according to the formula:

$$I_{Fid} = \left(\frac{NIF}{NIT}\right) x100\%$$

where NIF = number of informants who cited the most common functioning for the species; NIT = number of informants who cited any functioning for the species (Martins & Costa, 2016).

The Relative Importance (RI) was calculated for the 10 most cited medicinal species, based on Bennett & Prance (2000), according to the formula: RI = NBS + NP, where NBS = number of body systems influenced by the cited species, calculated as the ratio between the number of body systems treated by the cited species (NBSS) and the total number of body systems treated by the most versatile species (NBSVS); and NP = number of properties, calculated as the ratio between the number of properties attributed to a given species (NPS) and the total number of properties attributed to the most versatile species.

The use value (UV) of each species was calculated as the ratio between the sum of the number of uses mentioned (ΣU) and the total number of respondents in the survey (n), as shown in the formula: $\mathrm{VU} = (\frac{\Sigma U}{n})$ (Albuquerque *et al*., 2010).

The Sørensen index was used to compare the similarity between the sets of plants cited as useful, calculated by the formula: $\frac{2c}{a+b}$, where“a” represents the number of species mentioned by the Dantas family,“b” the number of species cited by the Alves family, and“c”the number of species cited by both families (Silva & Andrade, 2005).

RESULTS

One hundred and fifty seven (157) plant species were cited as useful. They were distributed in 64 families of Angiosperms (Table No. 1). Fabaceae (19 spp.), Lamiaceae (11 spp.), Euphorbiaceae (9 spp.), Cucurbitaceae (7 spp.), Solanaceae (7 spp.), Malvaceae (6 spp.), Myrtaceae (6 spp.), and Rubiaceae (5 spp.) stood out in number of species cited. *Aloe vera* (“babosa”), *Anacardium occidentale* (cashew), *Citrus* spp. (orange), *Cocos nucifera* (coconut tree), *Cymbopogon citratus* (lemon grass), *Lippia alba* (“erva cidreira”), *Mentha* sp. (small leaf mint), *Musa* spp. (banana), *Myracrodruon urundeuva* (“aroeira”) and *Punica granata* (pomegranate) were the most mentioned species, with 12 to 24 citations each. The highest use values (0.26 - 0.22) were recorded for *A. occidentale*, *C. citratus*, *C. nucifera*, *Coriandrum sativum*, *L. alba*, *Mentha* sp., *Mesosphaerum pectinatum*, *M. urundeuva*, *P. granata* and *Rosmarinus officinalis*. Of these, only *A. occidentale* and *M. urundeuva* are native to Brazil (Table No. 1).

Table No. 1
Species cited by Roma informants living in the Agreste (Alves family) and northern Atlantic forest (Dantas family) of Pernambuco. Categories of use: food (f), cosmetic (Cm), condiment (Cd), medicinal (M), ritualistic (R), technological (T), veterinary (V), and others (O). Number of informants who cited the plant (NIC); Number of citations (NC); Number of uses (NU); Use value (UV), International Statistical Classification of Diseases and Related Health Problems (ICD)

Families	Species	Common name	Part used	NIC	NC	NU	UV	Uses	ICD (when medicinal
Acanthaceae Juss.	*Justicia pectoralis* Jacq	Anador	Leaf	4	4	3	0.13	M	R05; R51; R52.0
Adoxaceae E. Mey.	*Sambucus nigra* L.	Sabugueiro (Elderberry)	Flower	4	5	3	0.13	M	I10; J11; J40; R50.9
Amaranthaceae A. Juss.	*Alternanthera dentata* (Moench) Stuchlík ex R.E.Fr.	Dipirona	Leaf	1	1	1	0.04	M	I10
	Amaranthus blitum L.	Bredo-de-porco	Leaf	1	1	1	0.04	Cd	----------
	Dysphania ambrosioides (L.) Mosyakin & Clemants	Mastruz	Leaf	6	9	4	0.17	M	A37.9; B82.0; F50.9; J11; R05; R52.0; T14.1
	Gomphrena demissa Mart	Capitãozinho	Root	1	1	1	0.04	M	J11
Amaryllidaceae J. St.-Hil	*Allium cepa* L.	Cebola (Onion)	All	5	10	4	0.17	F/Cd/ M	I74, J40; N94; R05; R51
	Allium sativum L.	Alho (Garlic)	All	2	3	2	0.09	F/M	I74
Anacardiaceae R. Br.	*Anacardium occidentale* L.	Cajueiro (Cashew)	Stem /Seed / Pseudofruit	6	17	5	0.22	F/M	I10; L98.9; N71.9; R52.0; T14.1
	Myracrodruon urundeuva (Engl.) Fr. Allemão	Aroeira	Stem	10	14	5	0.22	M/T	K05; L98.9; N39.0; N76.0; R10; T14.1
	Spondias mombin L.	Cajarana	Fruit	2	2	1	0.04	F	----------
	Spondias tuberosa Arruda	Imbu or Umbu	Root	2	2	1	0.04	F	----------
Annonaceae Juss.	*Annona coriacea* Mart.	Aticum	Leaf	2	2	2	0.09	M	I64; E78.0
	Annona muricata L.	Graviola (Soursop)	Leaf/Fruit	2	4	3	0.13	F/M	E78.0; N41
	Annona squamosa L.	Pinha (Custard apple)	Fruit/Seed	2	2	2	0.09	F/M	B85.2
Apiaceae Lindl.	*Coriandrum sativum* L.	Coentro (Coriander)	Stem/Leaf /Root/Seed	5	11	5	0.22	F/Cd/ M/R	E78.0; H83.0; N41; R10
	Foeniculum vulgare Mill.	Erva-doce (Fennel)	Seed	4	6	4	0.17	Cd/M/ R	J11; R10; R11
Apocynaceae Juss.	*Aspidosperma pyrifolium* Mart. & Zucc.	Pereiro-da-caatinga	Stem	2	2	2	0.09	M/V	M54.6
Arecaceae Schultz Sch.	*Acrocomia aculeata* (Jacq.) Lodd. Ex Mart.	Macaíba	Fruit	1	1	1	0.04	M	J40
	Attalea compta Mart.	Catolé	Fruit	1	1	1	0.04	M	H25
	Cocos nucifera L.	Coco (Coconut)	Fruit	6	13	5	0.22	F/Cm/ M	A37.9; K77.0; H10;

										H83.0
Asparagaceae Juss.	*Agave sisalana* Perrine	Agave	Leaf	1	2	2		0.09	T/V	----------
Asteraceae Bercht. & J. Presi	*Acanthospermum hispidum* L.	Espinho-de-cigano	Leaf /Root	7	7	1		0.04	M	A37.9; J11; R05
	Egletes viscosa (L.) Less.	Macela	Seed	1	1	1		0.04	M	A06
	Helianthus annuus L.	Girassol (Sunflower)	Seed	3	3	3		0.13	M	E78.0; I10; R42
	Matricaria chamomilla L.	Camomila (Chamomille)	Flower	2	4	2		0.09	M	R45.0; F51.0
Bixaceae Kunth	*Bixa orellana* L.	Urucum	Seed	2	3	2	0.09	Cd/M	B52.0	
Boraginaceae Juss.	*Heliotropium angiospermum* Murray	Fedegoso	Stem/Leaf /Flower	3	3	3	0.13	M/O/ V	J40	
Brassicaceae Burnett	*Brassica oleracea* L.	Couve-folha (Savoy-cabbage Leaf)	Leaf	3	6	4	0.17	F/Cm/ M	E65; D53.9	
	Nasturtium officinale R. Br.	Agrião (Watercress)	Leaf	1	1	1	0.04	M	A37.9	
Bromeliaceae A. Juss.	*Ananas comosus* (L.) Merril	Abacaxi (Pineapple)	Infructescence	2	4	2	0.09	F/M	J11	
	Bromelia laciniosa Mart. ex Schult. & Schult.f.	Macambira	Leaf	1	1	1	0.04	F	----------	
Cactaceae Juss.	*Cereus jamacaru* DC.	Mandacaru	Stem	3	4	4	0.17	F/M	J40; N94; R50.9; R52.0	
Capparaceae A. Juss.	*Crataeva tapia* L.	Trapiá	Stem/Fruit	1	2	2	0.09	F/M	J01	
	Tarenaya spinosa (Jacq.) Raf.	Mussambê	Flower	3	3	1	0.04	M	J11; J40	
Caricaceae Dumort.	*Carica papaya* L.	Mamão (Papaya)	Fruit	2	4	3	0.13	F/M	K59.0; J40	
Caryocaraceae	*Caryocar brasiliense* Cambess.	Pequi	Fruit	2	3	3	0.13	F/M	H66.9; K08.9	
Caryophyllaceae	*Dianthus caryophyllus* L.	Cravo branco	Flower	1	1	1	0.04	R	----------	
Celastraceae	*Maytenus rigida* Mart.	Bonome	Stem/Folha	4	6	4	0.17	M	K77.0; L98.9; R10; T14.1	
Chrysobalanaceae	*Licania rigida* Benth	Oiticica	Leaf	1	1	1	0.04	M	E14	
Commelinaceae Mirb.	*Commelina benghalensis* L. Brenan	Olho-de-Santa-Luzia	Leaf	1	1	1	0.04	M	L98.9	
Convolvulaceae Juss.	*Ipomoea pes-caprae* (L.) R. Br.	Rama-de-salsa	All	1	1	1	0.04	M	L30.9; B05	
Crassulaceae J.St.-Hil.	*Kalanchoe crenata* (Andrews) Haw.	Saião	Leaf	2	2	1	0.04	M	K25	
	Kalanchoe pinnata (Lam.) Pers.	Corona-branca	Leaf	2	2	2	0.09	M/R	K29.7	
Cucurbitaceae A. Juss.	*Apodanthera congestiflora* Cogn.	Cabeça-de-negro	Root	1	1	1	0.04	V	----------	
Cucurbitaceae A. Juss.	*Citrullus lanatus* (Thunb.) Matsum. & Nakai	Melancia (Watermelon)	Fruit/Seed	2	4	3	0.13	F/M	R50.9	
	Cucumis dipsaceus Ehrenb.	Maxixe-brabo	Fruit	1	1	1	0.04	M	B07	
	Cucurbita spp.	Jerimum (Pumpkin)	Fruit/Seed	1	2	2	0.09	F/M	B82.0	

	Luffa operculata Cogn.	Cabacinha or buchinha	Fruit	3	3	2	0.09	O	J01; O06
	Momordica charantia L.	Melão-brabo	Stem/Leaf	2	2	2	0.09	M/V	I84
	Sechium edule (Jacq.) Swartz	Chuchu (Chayote)	Fruit	2	4	2	0.09	F/M	I10
Dioscoreaceae R. Br.	*Dioscorea trifida* L. f.	Inhame (Yam)	Stem	3	4	2	0.09	F/M	M25.5
Euphorbiaceae Juss.	*Cnidoscolus urens* (L.)	Urtiga-branca	Root	1	1	1	0.04	M	K29.7
	Croton micans Sw.	Velame-branco	Stem	1	1	1	0.04	M	L98.9
	Croton urticifolius Lam.	Marmeleiro-branco	Leaf	1	1	1	0.04	M	R10
	Euphorbia tirucalli L.	Avelós or dedo-do-cão	Stem	3	3	3	0.13	M	B07; C80
	Jatropha gossypiifolia L.	Pinhão-roxo	All	7	9	3	0.13	M/R	R51; T14.1
Euphorbiaceae Juss.	*Jatropha molissima* (Pohl) Baill.	Pinhão-brabo	Stem	1	1	1	0.04	M	T14.1
	Manihot esculenta Crantz	Mandioca (Cassava)	Leaf	2	3	2	0.09	F/O	----------
	Ricinus communis L.	Mamona	Stem/Leaf	2	2	2	0.09	M	R51
	Sapium glandulosum (L.) Morong	Burra-leiteira	Stem	1	1	1	0.04	T	----------
Fabaceae Lindl.	*Amburana cearensis* (Allemão) A. C. Sm.	Imburama-de-cheiro	Stem	3	3	3	0.13	M/T	L98.9; R05
	Anadenanthera colubrina (Vell.) Benan	Angico	Stem	4	5	4	0.17	M/T	J40; R53; T14.1
	Bauhinia cheilantha (Bong.) Steud.	Mororó	Stem	2	3	3	0.13	M/T	L98.9; M54.6
	Bauhinia sp.	Pata-de-vaca	Leaf	2	2	2	0.09	Cm/M	E14
	Cajanus cajan (L.) Huth	Feijão-guandu	Seed	2	2	1	0.04	M	I10
	Desmanthus virgatus (L.) Willd	Jureminha	Leaf	1	1	1	0.04	R	----------
	Erythrina velutina Willd	Mulungu	Stem	2	3	2	0.09	M/T	R60
	Hymenaea courbaril L.	Jatobá	Fruit	1	1	1	0.04	M	J40
	Libidibia ferrea (Mart. ex Tul.) L.P.Queiroz	Jucá	Fruit	2	2	1	0.04	M	L98.9; R52.0
	Melanoxylon brauna Schoot	Braúna	Stem	2	2	2	0.09	T	----------
	Mimosa caesalpiniifolia Benth.	Sabiá	Stem/Leaf	2	3	2	0.09	M/T	E78.0
	Mimosa pudica L.	Malícia	Root	3	3	2	0.09	M	D53.9; K77.0
	Mimosa tenuiflora (Willd.) Poir.	Jurema-preta	Stem/Root	4	6	4	0.17	M;R	K08.9; K30; L98.9; N39.0
	Phaseolus lunatus L.	Fava	Stem/Leaf	2	4	3	0.13	F/M/V	B36.0
	Poincianella microphylla (Mart. ex G.Don) L.P.Queiroz	Catingueira-rasteira	Stem/Flower	3	3	2	0.09	M	L98.9; R52.0; R60
	Poincianella pyramidalis (Tul.) L.P.Queiroz	Catingueira	Flower	3	3	2	0.09	M	J11
	Prosopis juliflora DC.	Algaroba	Seed	2	2	1	0.04	F	----------

	Senna occidentalis (L.) H.S. Irwin & R.C. Barneby	Manjerioba	Seed	1	1	1	0.04	F	----------
	Stryphnodendron sp.	Barbatimão	Stem	5	7	4	0.17	M	L98.9; M54.6; N39.0; T14.1
Iridaceae Juss.	*Cipura paludosa* Aubl.	Alho-do-mato	Stem	1	1	1	0.04	M	J40
Lamiaceae Martinov	*Cantinoa racemulosa* (Mart. ex Benth.) Harley & J.B.Pastore	Alfazema-braba	Leaf	1	1	1	0.04	M	R10
	Mentha aquatica L.	Vega morta	Leaf	1	1	1	0.04	M	N94
	Mentha sp.	Hortelã-da-folha-miúda (Small leaf mint)	Leaf	11	15	5	0.22	F/M	A06; B82.0; I10; J11; J40; L65.9; R10
	Mesosphaerum pectinatum (L.) Kuntze	Samba-caité	Stem	7	10	5	0.22	M/T	B07; J02; L98.9; N76.0; N94; T14.1
Lamiaceae Martinov	*Ocimum minimum* L.	Manjericão (Basil)	Leaf	3	6	4	0.17	Cd/M/ R	H10
	Ocimum gratissimum L.	Alfavaca-de-caboclo	Leaf	6	6	4	0.17	M	I10; J01, K30, R10 e R51
	Plectranthus amboinicus (Lour.) Spreng.	Hortelã-da-folha-larga (Large leaf mint)	Leaf	5	5	1	0.04	M	A37.9; J03; J11; J40
	Plectranthus barbatus Andr.	Boldo	Stem/Leaf	5	5	3	0.13	M	R45.0; F51.0; K77.0; R10
	Pogostemon patchouly Trist et Pallet.	Patchouli	Stem/Leaf	1	1	1	0.04	R	----------
	Rosmarinus officinalis L.	Alecrim (Rosemary)	Leaf	4	9	5	0.22	Cd/M/ Cm/R	F51.0; J40; L65.9; R45.0
	Vitex agnus-castus L.	Aliamba	Leaf	2	2	2	0.09	M	R10
Lauraceae Juss.	*Cinnamomum zeylanicum* J. Presi	Canela (Cinnamon)	Stem	2	3	3	0.13	Cd/M/ O	F50.9; R11
	Persea americana Mill.	Abacate (Avocado)	Leaf/Fruit /Seed	5	9	4	0.17	F/Cm/ M	M54.6; N39.0; R60
Lythraceae J.St.-Hil.	*Punica granata* L.	Romã (Pomegranate)	Fruit/Seed	10	24	5	0.22	F/M/R	H10; J02; N76.0; R05; T14.1
Malpighiaceae Juss.	*Malpighia glabra* L.	Acerola	Leaf/Fruit	3	6	2	0.09	F/M	J11
Malvaceae Juss.	*Abelmoschus esculentus* L. (Moench)	Quiabo (Okra)	Fruit/Seed	4	7	4	0.17	F/Cm /M	L21; R05
	Gossypium herbaceum L.	Algodão-manso	Flower	1	1	1	0.04	M	I84
	Gossypium hirsutum L.	Algodão (Cotton)	Flower	1	1	1	0.04	M	B36.0
	Guazuma ulmifolia Lam.	Mutamba	Stem	2	2	1	0.04	Cm	----------
	Sida rhombifolia L.	Relógio/Mata	Leaf	1	1	1	0.04	M	H66.9

Malvaceae Juss.	*Urena lobata* L.	pasto Malva-rosa	Leaf	1	1	1	0.04	M	J11
Meliaceae A. Juss.	*Azadirachta indica* A. Juss.	Nim	All	2	2	1	0.04	O	----------
Moraceae Gaudich	*Artocarpus altilis* (Parkinson) Fosberg	Fruta-pão (Breadfruit)	Leaf/Fruit	2	3	2	0.09	M	R60
Musaceae Juss.	*Musa* spp.	Banana	Flower/Fruit	6	13	4	0.17	F/M	A37.9; L21; R05; R60; T14.1
Myrtaceae Juss.	*Eucalyptus* sp.	Eucalipto-da folha-fina (Narrow leaf eucalyptus)	Leaf	7	7	3	0.13	M	J01; R50.9; R51
	Eugenia uniflora L.	Pitangueira (Brazilian cherry tree)	Leaf/Fruit	3	6	2	0.09	F/M	R10
	Psidium guajava L.	Goiabeira (Guava)	Leaf	4	7	2	0.09	M	R10
	Syzygium aqueum (Burm.f.) Alston	Jambo-branco (Jambu air)	Leaf	1	1	1	0.04	M	E14
	Syzygium aromaticum L.	Cravo-da-índia (Clove)	Flower	1	2	2	0.09	Cd/M	R10
	Syzygium cumini (L.) Skeels	Azeitona-preta (Black olive) / Jamelão (Jambolan)	Leaf	2	2	1	0.04	M	E78.0
Nyctaginaceae Juss.	*Boerhavia diffusa* L.	Pega-pinto	Root	1	1	1	0.04	M	R33
Olacaceae R. Br.	*Ximenia americana* L.	Ameixa-do-mato (Wild plum)	Stem	2	2	2	0.09	M	L98.9
Oxalidaceae R. Br.	*Averrhoa carambola* L.	Carambola (Star fruit)	Leaf	2	2	2	0.09	F/M	N39.0
Oxalidaceae R. Br.	*Oxalis sp.*	Azedinha	Fruit	2	2	1	0.04	F	----------
Passifloraceae Juss. ex Roussel	*Passiflora cincinnati* Mast.	Maracujá-da-Caatinga (Passion fruit from Caatinga)	Fruit	1	1	1	0.04	V	----------
	Passiflora edulis Sims	Maracujá (Passion fruit)	Leaf/Fruit	2	4	3	0.13	F/M	R45.0; F51.0
Pedaliaceae R. Br.	*Sesamum indicum* L.	Gergelim-preto (Black sesame)	Seed	1	1	1	0.04	M	E78.0; I10
Phytolaccaceae R. Br.	*Petiveria alliacea* L.	Atipim	Leaf	1	2	2	0.09	M/R	R52.0
Phyllanthaceae Martinov	*Phyllanthus amarus* Schumach	Quebra-pedra (Stone breaker)	Root	5	5	1	0.04	M	N20.9
Piperaceae Giseke	*Piper nigrum* L.	Pimenta-negra (Black pepper)	Fruit	2	3	2	0.09	Cd/M	R05
Poaceae Barnhart	*Cymbopogon citratus* D.C Stapf	Capim-santo (Lemon grass)	Leaf	15	21	6	0.26	Cd/M/R	F51.0; I10; K30; K45; L65.9; R10; R45.0
	Echinochlola crusgalli L.	Senha	Seed	1	2	2	0.09	M/V	K77.0

	Phalaris canariensis L.	Alpiste (Canary grass)	Seed	2	2	2	0.09	M	E14; K77.0
	Zea mays L.	Milho (Corn)	Infructescence	2	3	2	0.04	M	K77.0
Portulaceae Juss	*Talinum racemosum* (Jacq.) Willd.	Bredo-major-gomes	Leaf	1	1	1	0.04	F	----------
Rhamnaceae Juss.	*Ziziphus joazeiro* Mart.	Juá	Stem/Fruit	2	4	3	0.13	F/Cm	----------
Rosaceae Juss.	*Malus pumila* Mill.	Maçã (Apple)	Pseudofruit	2	4	3	0.13	F/M /Cm	J02
	Rosa spp.	Rosa (Rose)	Flower	5	5	1	0.04	R	----------
Rubiaceae Juss.	*Borreria verticillata* (L.) G. Mev.	Vassourinha-de-botão	Root	5	5	4	0.17	M	I84; N39.0; N41; N76.0
	Coutarea hexandra (Jacq.) K.Schum.	Quina-quina	Stem	1	1	1	0.04	M	L98.9
	Genipa americana L.	Jenipapo	Fruit	1	1	1	0.04	M	R05
	Morinda citrifolia L.	Noni	Fruit	1	1	1	0.04	M	E14; N41; N71.9
	Uncaria tomentosa (Willd. Ex Roem. & Schult) DC.	Unha-de-gato	Stem	1	1	1	0.04	M	M54.6
Rutaceae A. Juss.	*Citrus limonum* (L.) Osbeck	Limão (Lemon)	Fruit	3	6	4	0.17	F/Cm /M	J01; R52.0
	Citrus spp.	Laranja (Orange)	Leaf/Fruit	6	12	3	0.13	F/M	F51.0; J40; R45.0
	Ruta graveolens L.	Arruda (Rue)	Leaf	6	6	2	0.09	M/R	H66.9; R42
Sapindaceae Juss.	*Sapindus saponaria* L.	Saboneteira	Fruit	1	1	1	0.04	Cm	
Sapotaceae Juss.	*Chrysophyllum imperiale* (Linden ex K.Koch & Fintelm.)	Marmeleiro-do-mato (Wild quince)	Stem	1	2	2	0.09	R	----------
Sapotaceae Juss	*Sideroxylum obtusifolium* (Roem. E Schult.) T. D. Penn.	Quixaba	Stem	4	4	2	0.09	M	R52.0
Schisandraceae Bl.	*Illicium verum* Hook f.	Anis-estrelado (Star anise)	Flower/Seed	2	2	1	0.04	M	R10
Solanaceae A. Juss.	*Brugmansia suaveolens* (Willd.) Sweet	Zabumba	Leaf	1	1	1	0.04	M	J45
	Capsicum frutescens L.	Pimenta-malagueta (Chilli pepper)	Leaf	2	3	2	0.09	M	R51
	Nicotiana tabacum L.	Fumo (Tobacco)	Flower/Leaf	2	2	2	0.09	V	----------
	Solanum sp.	Gogoia	Fruit/Root	2	2	2	0.09	F/M	N39.0
	Solanum nigrum L.	Erva moura	Leaf/Root	4	4	2	0.09	M	K08.9; N39.0; N94
	Solanum paniculatum L.	Jurubeba	Stem/Fruit /Root	4	7	4	0.17	Cm/M /V	D53.9; J11; J40
	Solanum tuberosum L.	Batata-inglesa (Potato)	Stem/Leaf	3	5	3	0.13	Cm/M	K29.7
Turneraceae Kunth ex DC.	*Turnera subulata* Sm.	Chanana	Flower	2	2	1	0.04	M	A37.9
Urticaceae Juss.	*Cecropia pachysrachya* Trécul.	Imbaúba	Stem	2	2	2	0.09	M	L80; M54.6

Verbenaceae J.St.-Hil.	*Lantana camara* L.	Erva-chumbinho	Flower	1	1	1	0.04	M	L37.9
	Lippia alba (Mill.) N.E.Br. ex P. Wilson	Erva-cidreira	Leaf/ Seed	10	14	5	0.22	M/V	D53.9; F51.0; K30; K59; R10; R11; R45.0; R51
Violaceae Batsch	*Hybanthus cf. ipepacuanha* (L.) Baill	Pepaconha	Root	2	2	2	0.09	M	K08; J11
Vitaceae Juss.	*Cissus verticillata* (L.) Nicolson & C.E. Jarvis	Insulina (Insulin)	Leaf/Fruit	2	3	1	0.04	M	E14
Xanthorrhoeaceae Dumort	*Aloe vera (L.)* Burm. f.	Babosa	Leaf	9	14	4	0.17	Cm/M	B65.1; B82.0; I84; T14.1
Zingiberaceae Martinov	*Alpinia zerumbet* (Pers.) Burtt & R. M. Smith	Colônia (Colony)	Flower/Leaf	5	9	4	0.17	M/R	F51.0; J01; J02; J40; R45.0; R50.9; R51
	Zingiber officinale Roscoe	Gengibre (Ginger)	Root	4	7	4	0.17	Cd/C/M	E65/N94

The respondents made 620 citations of uses of the 157 plant species listed in Table No. 1. Members of the Dantas family (Figure No. 2) contributed with 202 citations (97 species, 54 families) and those of the Alves family (Figure No. 3) with 418 citations (139 species, 58 families). Eighty-one species were cited by both Roma families, leading to a similarity index of 0.68 in their useful flora. The similarity rises to 0.80 when the 10 most cited plants are compared, both in terms of species and indications of use. Most of the informants had a good knowledge of the use of *xacas* (herbs in *chib*), but three chiefs, two from the Dantas family and one from the Alves family, stood out. They were called "*pajés*" (shaman) by the other Roma people due to their extensive knowledge about medicinal species.

A comparison between the set of plants used by the Dantas family and the lists of useful species found in ethnobotanical surveys of non-Roma communities living in the northern Atlantic forest of Pernambuco (Rodrigues & Andrade, 2014; Lima, 2015) showed 76 shared species, which corresponds to a similarity index of 0.60. In turn, among the set of species used by the Dantas family, 89 were present in the lists of useful species provided by surveys of the ethnobotanical knowledge of non-Roma communities living in the Agreste of Pernambuco (Albuquerque et al., 2008; Carvalho et al., 2013), corresponding to a similarity index of 0.68.

Figure No. 2
Interviewees of the Dantas Roma family in a farm close to their homes in Itambé, northern Atlantic forest of Pernambuco

Figure No. 3
Ricardo Lobo accompanied by Enildo Soares (Roma president of ACIPE) and two informants of the Alves family next to one of the houses where they live in the municipality of Altinho, Agreste of Pernambuco

Figure No. 4
Interview with a 102-year-old informant, Alves 6, at her home in Altinho, Agreste of Pernambuco.

Adults aged 40 to 50 years made 191 citations of use for 78 plant species (native or exotic) belonging to 39 families. Those of the next age group (51 to 60 years) made 259 citations for 121 species belonging to 53 families. Adults over 60 years old made 170 citations for 70 species belonging to 42 families. Twenty-eight species were cited by the three age groups, while 13 species were cited exclusively by informants over 60 (Figure No. 4), but which are commonly use in other non-Roma communities, such as macaíba (*Acrocomia aculeata*) and juá (*Ziziphus joazeiro*), native to northeastern Brazil.

As for the sex of the interviewees, Roma men made 356 citations (57%) of use for 131 species

belonging to 60 families, while Roma women made 264 citations (43%) of use for 93 species belonging to 37 families (Table No. 2). In the group of men, a greater concentration of knowledge was observed in the age group between 51 and 60 years. Two of the three main informants responsible for the knowledge about medicinal plants were of this age group. In the group of women, there was a more balanced distribution of ethnobotanical knowledge among the age groups.

Table No. 2
Ethnobotanical knowledge of Roma people living in the Agreste (Alves family) and northern Atlantic forest (Dantas family) of Pernambuco, distributed by age group and sex

Age group	Informants (n⁰)	Use citations (n⁰)	Families (n⁰)	Species (n⁰)	Native (%)
Men					
40 -50	5	100	30	52	50
51 – 60	3	180	53	102	58
> 60	3	76	28	37	41
Women					
40 -50	5	91	27	46	46
51 – 60	3	79	28	46	35
> 60	4	94	34	47	49

According to the ICF, the plants that stood out for their medicinal applications were the fruit tree *P. granata* (pomegranate), used to treat infections of the eyes and of the female genital tract (H10; N76.0), heal wounds (T14.1), and treat problems of the respiratory system (J02, R05), and *A. hispidum* ("espinho-de-cigano"), a ruderal herb, whose importance for treating diseases of the respiratory system (A37.9; J11; R05) was mentioned by all participants (Table No. 1).

Regarding the number of citations, the use value and the level of reliability, *P. granata*, a species of Asian origin with very old reports of use in European countries, stood out as the most important for Roma families, with a reliability index of 100% (Table No. 3). *Cymbopogon citratus* (lemon grass), also of Asian origin, the second most cited species and indicated for the treatment of disorders of the nervous (F51; R45), circulatory (I10) and respiratory (K30) systems, general pain (R10), and hair loss (L65.9), had a relatively low reliability index (60%) despite having reached the highest use value (0.26) (Tables No. 1 and No. 3).

Table No. 3
Reliability index calculated for the 10 species of plants that were cited by more than 30% of the Roma informants living in the Agreste (Alves family) and northern Atlantic forest (Dantas family) of Pernambuco

Specie	Common name	Number of informants	Uses (when medicinal – CIF)	Reliability index (%)
Cymbopogon citratus D.C Stapf	Capim santo (Lemon grass)	15	Digestive system (9); Nervous system (5); Cardiovascular system (3); Disinfectant (2); Cosmetic (2)	60
Mentha sp.	Hortelã da folha miúda (Small leaf mint)	11	Digestive system (7); Respiratory system (4); Cosmetic (2); Cardiovascular system (1); Food (1)	64
Punica granata L.	Romã (Pomegranate)	10	Respiratory system (10); Food (10); Sensory system and pain (1); Genital system (1); Skin (1); Ritualistic (1)	100
Lippia alba (Mill) Brow	Erva cidreira	10	Digestive system (8); Nervous system (2); Hematological and immune system (2); Sensory system and pain (1); Veterinarian (1)	80
Myracrodruon urundeuva (Engl.) Fr. Allemão	Aroeira	10	Digestive system (5); Skin (4); Cardiovascular system (3); Genital system (1); Technological (1)	50
Aloe vera (L.) Burm. f.	Babosa	9	Cosmetic (6); Cardiovascular system (4); Digestive system (3); Skin(1)	67
Eucalyptus sp.	Eucalipto da folha fina (Narrow leaf eucalyptus)	7	Metabolic and endocrine system (5); Respiratory system (2); Sensory system and pain (2)	71
Jatropha gossypiifolia L.	Pinhão roxo	7	Ritualistic (6); Skin (2); Sensory system and pain (1)	86
Mesosphaerum pectinatum (L.) Kuntze	Samba caité	7	Skin (4); Digestive system (2); Genital system (2); Respiratory system (1); Technological (1)	75
Acanthospermum hispidum D.C	Espinho-de-cigano	7	Respiratory system (7)	100

In the analysis of the relative importance of the 10 species that were mentioned by more than 30% of the informants (Table No. 4), it was clear that *L. alba* was the species with the highest index. This finding corroborates with the other three previously mentioned, because this species also reached a high use value (0.22), good reliability (80%), and was the third most cited by the informants.

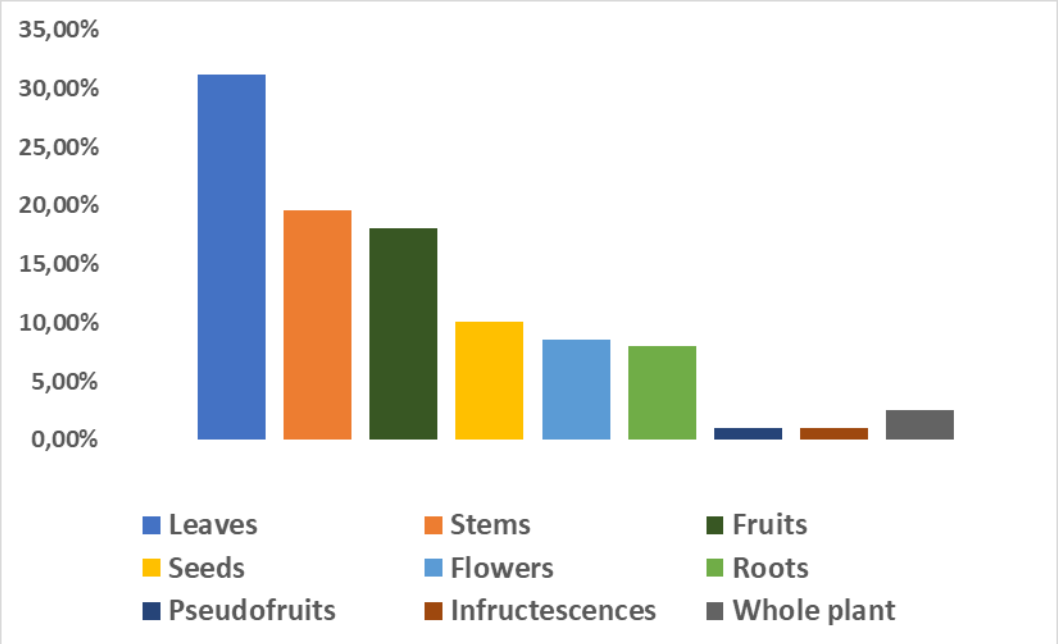
Table No. 4
Relative importance calculated for the 10 medicinal plant species that were mentioned by more than 30% of the Roma informants living in the Agreste (Alves family) and northern Atlantic forest (Dantas family) of Pernambuco. NBSS = Number of body systems influenced by the cited species; NP = Number of properties attributed to the cited species; RI = Relative importance

Specie	Common name	Number of informants	Number of body systems treated	Number of properties attributed	NBSS	NP	RI
Cymbopogon citratus D.C Stapf	Capim santo (Lemon grass)	15	3	7	0.75	0.88	1.63
Mentha sp.	Hortelã da folha miúda (Small leaf mint)	11	3	7	0.75	0.88	1.63
Punica granata L.	Romã (Pomegranate)	10	4	5	1.00	0.63	1.63
Lippia alba (Mill) Brow	Erva cidreira	10	4	8	1.00	1.00	2.00

Myracrodruon urundeuva (Engl.) Fr. Allemão	Aroeira	10	4	6	1.00	0.75	1.75
Aloe vera (L.) Burm. f.	Babosa	9	3	4	0.75	0.5	1.25
Eucalyptus sp.	Eucalipto da folha fina (Narrow leaf eucalyptus)	7	3	3	0.75	0.38	1.13
Jatropha gossypiifolian L.	Pinhão roxo	7	2	2	0.5	0.25	0.75
Mesosphaerum pectinatum (L.) Kuntze	Samba caité	7	4	6	1.00	0.75	1.75
Acanthospermum hispidum D.C	Espinho de cigano	7	1	3	0.25	0.38	0.63

The parts of the plants most cited by the informants (Graph No. 1) were the leaves (31.16%), followed by the stems (19.60%) and fruits (18.09%). Other parts also used were the seeds (10.05%), flowers (8.54%), roots (8.03%), pseudofruits (1.01%), and infructescences (1.01%). The use of the whole plant was infrequent (2.51%).

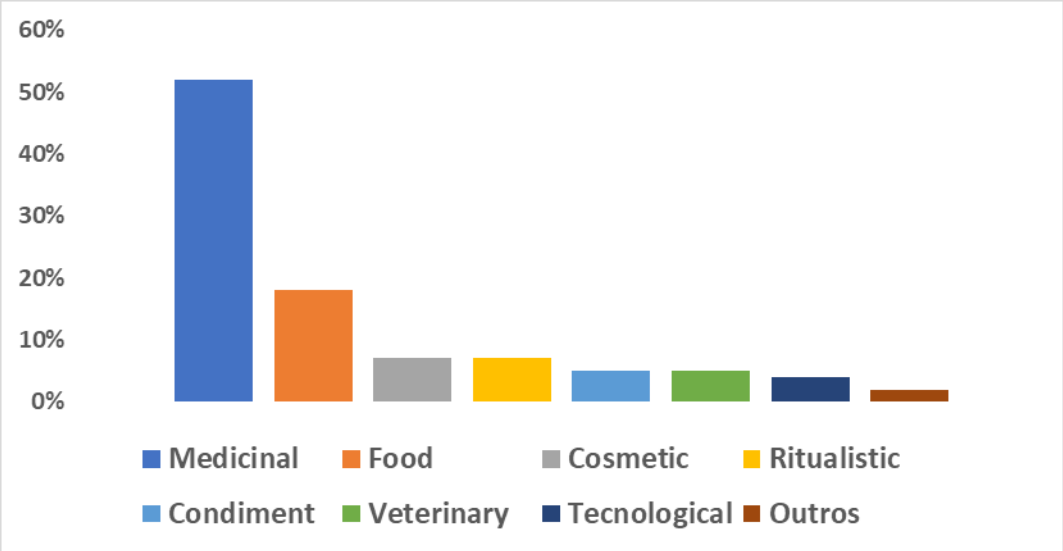
Graph No. 1
Parts of the plants cited for various uses by Roma informants living in the Agreste (Alves family) and northern Atlantic forest (Dantas family) of Pernambuco



Approximately half of the mentioned species (54%) were native to Brazil, with the rest being exotic, cultivated (25%) or naturalized (21%).

Most of the plants mentioned (52%) had medicinal uses. They were indicated for the treatment of diseases related to different body systems, but also for food (18%), cosmetic (7%), ritualistic (7%), condiment (5%), veterinary (5%), technological (4%) purposes, and 2% were indicated for other uses, such as insecticides, abortive agents, or appetite stimulants (Graph No. 2).

Graph No. 2
Categories of use cited by Roma informants living in the Agreste (Alves family) and northern Atlantic forest (Dantas family) of Pernambuco



DISCUSSION

Greatest knowledge about the taxonomic diversity was observed among the Alves family; however, there was a similarity of 0.66 between the informants in terms of the plant families mentioned, which were also the most frequent in the lists of plant families used by non-Roma communities in northeastern Brazil. The preference for leaves and stems is probably due to their easy collection and because they are a permanent resource, unlike flowers, fruits and seeds, which are mostly seasonal.

The higher percentage of native species used by Roma people (54%) differs from what has been described for non-Roma communities living in the same regions (Sousa *et al.*, 2018; Brito *et al.*, 2015; Lima, 2015), but the distribution in relation to the categories of use was very similar, with predominance of medicinal use (Lopes & Lobão, 2013; Andrade *et al.*, 2018; Oliveira *et al.*, 2018). The outstanding position of the species *L. alba* in terms of relative importance, use value and reliability index corroborates what is found in the scientific literature on the use of medicinal plants by non-Roma populations in northeastern Brazil (Andrade *et al.*, 2018; Oliveira *et al.*, 2018).

Men showed a slightly greater ethnobotanical knowledge compared to women. This is in contrast with surveys conducted with non-Roma communities in the same region (Albuquerque & Andrade, 2002; Rodrigues & Andrade, 2014; Lima, 2015). Considering that practically the same number of men and women were interviewed, this finding can be explained by the dominance of men peculiar of Roma culture. The greater ethnobotanical knowledge of male individuals aged 50 to 60 years can also have a cultural reason, since the ages of two of the three family heads interviewed were within this range. In the case of women, ethnobotanical knowledge is better distributed among age groups.

Factors related to the Roma culture, such as the language, the importance of kinship relations, the transmission of oral knowledge, nomadic or semi-nomadic behavior, and the trader tradition, may be responsible for the similarity observed between these families, as their members do not know each other, nor have direct contact.

A comparison between the set of plants used by the Dantas and Alves families with the lists of useful species found in ethnobotanical surveys of non-Roma communities living in the northern Atlantic forest (Silva & Andrade, 2005; Rodrigues & Andrade, 2014) and the Agreste (Albuquerque & Andrade, 2002; Teixeira & Melo, 2006; Carvalho *et al.*, 2013) of Pernambuco revealed 76 and 95 shared species, respectively, which corresponds to 75-70% of the total cited. Besides this similarity in the lists of

species, there was also a significant approximation in relation to their respective uses. However, some uses mentioned by the participants were original, as in the case of *H. indicum* and *A. congestiflora*, indicated for the treatment of Newcastle disease in poultry (Lobo *et al*., 2020).

The results showed that there was no relevant difference between the ethnobotanical knowledge of Roma families and non-Roma populations living in the same region. This similarity, also observed in daily clothing, must be related to the tendency of Roma families to adopt some customs of local non-Roma communities. This could be considered as a kind of mimicry that allows them to live with less discrimination, yet without losing their cultural identity.

CONCLUSION

The interaction with other peoples, the practice of informal commerce, the discrimination suffered over the centuries, and the need to survive have led the Roma people to develop what could be interpreted as cultural mimicry, adapting to each region they pass through and inhabit. This adaptation can be observed also in the use of the flora, for the communities approached in the present study demonstrated a very similar knowledge to that of the non-Roma communities with which they have come into contact. Measuring this adaptation or the influence of this culture in the formation of the Brazilian population is a difficult and multidisciplinary task, which requires greater commitment from the scientific community.

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