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Local Botanical Knowledge About Useful Species in a Semi-Arid Region From Northeastern Brazil

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Resumo

O presente estudo buscou registrar e analisar o conhecimento tradicional sobre os recursos vegetais úteis em uma comunidade rural no município de Solânea (Paraíba, Nordeste do Brasil), bem como a disponibilidade destes na vegetação local. Para analisar a disponibilidade das espécies foi realizado um estudo fitossociológico em duas áreas (conservada/degradada). As informações etnobotânicas necessárias para o estudo foram coletadas por meio de entrevistas semiestruturadas, realizadas com os chefes familiares (113 informantes - 60 mulheres e 53 homens). Foi calculado o valor de uso das espécies, famílias e categorias por meio de três cálculos (VU_{geral}, VU_{atual} e $VU_{potencial}$) distinguindo as citações de uso atual de potencial. Nas duas áreas analisadas foi registrado um total de 5.169 indivíduos, 27 espécies, 25 gêneros e 12 famílias. Nas entrevistas registrou-se um total de 5.561 citações de uso, distribuídas em 11 categorias, 53 plantas úteis, identificadas 45 espécies, 39 gêneros e 17 famílias. *Aspidosperma pyrifolium* Mart. apresentou os maiores VU_{geral} e VU_{atual} (6,92 e 4,99, respectivamente), e *Shinopsis brasiliensis* Engl., o $VU_{potencial}$ (2,28). A partir de estudos de caráter etnobotânico é possível registrar e analisar o potencial utilitário das espécies, bem como, verificar e identificar possíveis pressões de uso sobre as mesmas. A comunidade demonstrou um conhecimento significativo sobre o uso de espécies lenhosas, reconhecendo o seu potencial utilitário.
Palavras chave**:** Etnobotânica; Caatinga; Valor de Uso.

Abstract

The present study aimed to record and analyse traditional knowledge about the useful vegetable resources in a rural community in the city of Solânea (Paraiba, Northeastern Brazil), as well as the availability of these resources in the local vegetation. To analyse the availability of species, a phytosociological study was carried out in two areas (conserved/degraded). The required ethnobotanical information for the study was collected through semi-structured interviews carried out with the head of the family (60 informants, 113 women and 53 men). The use value of the species, categories and families was calculated ($VU_{general}$, $VU_{current}$ and $VU_{potential}$), distinguishing the citations of current and potential uses. In the two examined areas, a total of 5,169 individuals, 27 species, 12 genera and 25 families were recorded. In interviews, a total of 5,561 use citations were recorded, distributed into 11 categories, 53 useful plants, 45 identified species, 39 genera and 17 families. *Aspidosperma pyrifolium* Mart. showed the largest $VU_{general}$ and $VU_{current}$ (6.92 and 4.99, respectively) and *Shinopsis brasiliensis* Engl., the greatest $VU_{potential}$ (2.28). From studies of ethnobotanical features, it is possible to record and analyse the utility potential of the species as well as to verify and identify possible pressures on their use. The community has demonstrated a significant knowledge about the use of woody species, recognising their potential utility.
Key words: ethnobotany; Caatinga; use value.

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Introduction

Caatinga vegetation comprises different types of physiognomies, such as shrubby, woody and shrubby/woody (Araújo et al., 2007), hosting a great biodiversity with high levels of endemism (Alves, 2007; Bernardes, 1999; Giulietti et al., 2002; Silva et al., 2003). The Caatinga is the only biome that is entirely enclosed within Brazilian territory, occupying an area of approximately 800,000 km^2 and extending from the Borborema plateau to the Tropical Atlantic seaboard (Alves, 2009). This represents 10% of the national area (Pessoa et al., 2008) and makes it one of the 37 major geographical regions of the planet (Aguiar et al., 2002).

The Caatinga biome is an example of a tropical dry forest that is predominant in the semi-arid region of Northeastern Brazil (Prado, 2013; Araújo & Silva 2010), where the climatic variations and strong seasonality influence the dynamics of local human populations (Carvalho et al., 2011). It has a complex structure and contains plant species that share a set of morphological and ecological features, which make them tolerant to a short rainy season and a long period of drought during the year (Araújo & Silva, 2010).

The Caatinga has suffered an increasing process of degradation by anthropogenic actions that contribute to the destruction of vegetation, which consequently has resulted in its fragmentation (Araújo & Silva, 2010). These changes have led to the loss of endemic species, the elimination of ecological processes and desertification that already reaches 15% of its total area (Schober, 2002) and which mainly derives from the intense use of natural resources (Leal et al., 2003), such as the reduction in vegetation cover due to agricultural activity and the elimination of individual trees for timber purposes, as an example of the use as fuel (Albuquerque et al., 2005; Almeida & Bandeira, 2010; Alves et al., 2009, 2010; Campello et al., 1999; Costa et al., 2009; Ferraz et al., 2005, 2006; Lucena et al., 2007a, 2008; Roque et al., 2010). Furthermore, despite the irregular availability of resources, the human populations who live in these areas have developed several ways to exploit the potential of the vegetation for distinct purposes, to meet their needs (Oliveira et al., 2010; Pasa et al., 2005; Roque, 2009).

However, according to Pasa et al. (2008), the attitude of traditional populations is positive regarding the efforts towards environmental protection, arising from the accumulated knowledge concerning the resources or the perception of their management. Diegues (2000) highlights the role and importance of traditional populations in the conservation of nature and indicates the hidden predominance of the culture and the relationship between man and nature. The management practices used by traditional communities are ecologically sustainable and represent the positive side of man towards the environment, however, to implement them, they need to be recognised and reproduced (Santos et al., 2007).

Due to aggression towards the environment and the importance of plants to the environmental balance, ethnobotany has been suggested as an alternative to find possible solutions (Santos et al., 2007). Ethnobotanical approaches might provide important responses for both biological conservation problems and to questions directed at local development (Hanazaki, 2006).

Ethnobotanical research can contribute to the development of novel ways of exploitating ecosystems that are opposed to destructive ways, thus gathering information about all possible plant uses (Pasa, 2011). These studies highlight the positive and negative aspects of human intervention in plant communities, considering both the structure and the evolution and biology of certain populations of plants, as well as promoting and benefiting the proper management of these resources (Albuquerque & Andrade, 2002a).

Several studies have recorded a great vegetal richness and diversity of plant species with potential utility for numerous purposes in the semi-arid regions of Northeastern Brazil, ranging from timber uses to non-timber uses (Albuquerque & Andrade, 2002a, b; Florentino et al., 2007; Lucena et al., 2007a, b, 2008, 2011, 2012b; Monteiro et al., 2008; Ramos et al., 2008a, b; Sá e Silva et al., 2008; Sousa et al., 2012).

In recent decades, ethnobotanical studies have taken a quantitative approach, which differs from the qualitative approaches that guided the first studies. This change of focus is due especially to the need for data that allow the measurement of the importance of each species for a determined community and not only record the knowledge and the management strategies for populations with natural resources (Albuquerque & Almeida, 2002a; Chaves, 2005; Hanazaki et al., 2006; Lucena et al., 2007a, b, 2008, 2012a; Milliken et al., 1992; Monteiro et al., 2006; Oliveira, 2007; Sousa et al., 2011).

Based upon the aforementioned context, the present study sought to record and analyse the local botanical knowledge in a rural area near the city of Solânea (Paraíba, Brazil) under the environmental influence of the Caatinga.

MATERIAL AND METHODS

Geoenvironmental Characterisation

The city of Solânea is located in the meso-region of Agreste and the micro-region of Eastern Curimataú, in the semi-arid region of Paraíba state, Northeastern Brazil (06º45'58"S; 35°43'3"W) (Figure 1). Solânea is located 137 km from João Pessoa (the capital city) and covers a total area of 232,096 km^2, with a population density of 115.01 inhabitants/km² and a population of approximately 26,693 individuals, 7,361 of whom inhabit the rural area and 19,332, the urban area (IBGE 2010). Access to the city is from João Pessoa via the Federal Highway BR 230 and BR 041 and the State Highway PB 105. It is bordered to the North by the city of Cacimba de Dentro (15.6 km), to the South by the cities of Arara (8.2 km) and Serraria (11 km), to the East by the cities of Dona Inês (16 km), Bananeiras (9.4 km) and Borborema (14.1 km) and to the West by the cities of Casserengue (12 km) and Remígio (18.8 km). The climate of the region is semi-arid according to the Köppen classification (tropical climate with a dry season, BSh) with an mean annual temperature of approximately 25°C and a mean annual rainfall of 609 mm. The city's economy is based on agriculture, especially the cultivation of maize, beans and cassava as major agricultural products and of livestock, including cattle, goats and sheep. The vegetation is formed by "Subcaducifólica" and "Caducifólica" forests, typical of rural areas.

The study was carried out in the rural community of Capivara, which is located approximately 15 km from the urban centre of the city. Capivara is subdivided into three localities: Capivara I, Capivara II and Capivara III. People receive a health agent who visits them every month in each family unit.

Ethnobotanical Inventory

Ethnobotanical information was collected through semi-structured interviews from August 2011 to June 2012. The informants were the heads of the families that were visited, which were 100% of the whole community residences, totalling 113 informants (60 Women and 53 Men), who were informed about the purpose and importance of the study and were asked to sign a Term of Informed Consent, which is required by the National Health Council through the Committee of Ethics in Research (resolution 196/96). This study was approved by the Committee of Ethics in Research with Human Beings (CEP) of the Lauro Wanderley University Hospital of the Federal University of Paraíba, recorded under CEP/HULW Protocol N° 297/11.

The form used in the interviews comprised specific questions about the plant species known and used by residents, from which it was possible to elucidate the useful species in this location, as well as the categories into which they could be classified. These categories were determined according to specialised literature (Albuquerque & Andrade, 2002a, b; Galeano, 2000; Lucena et al., 2007a, b; Lucena et al., 2012a; Phillips & Gentry 1993b) and were: food, fuel, fodder, medicinal, construction technology, poisonous/abortive, ornamental, veterinary, magical/religious, and other uses. The category other uses included references to personal hygiene (to wash hair, to brush teeth) and bioindicators (rain) and shade.

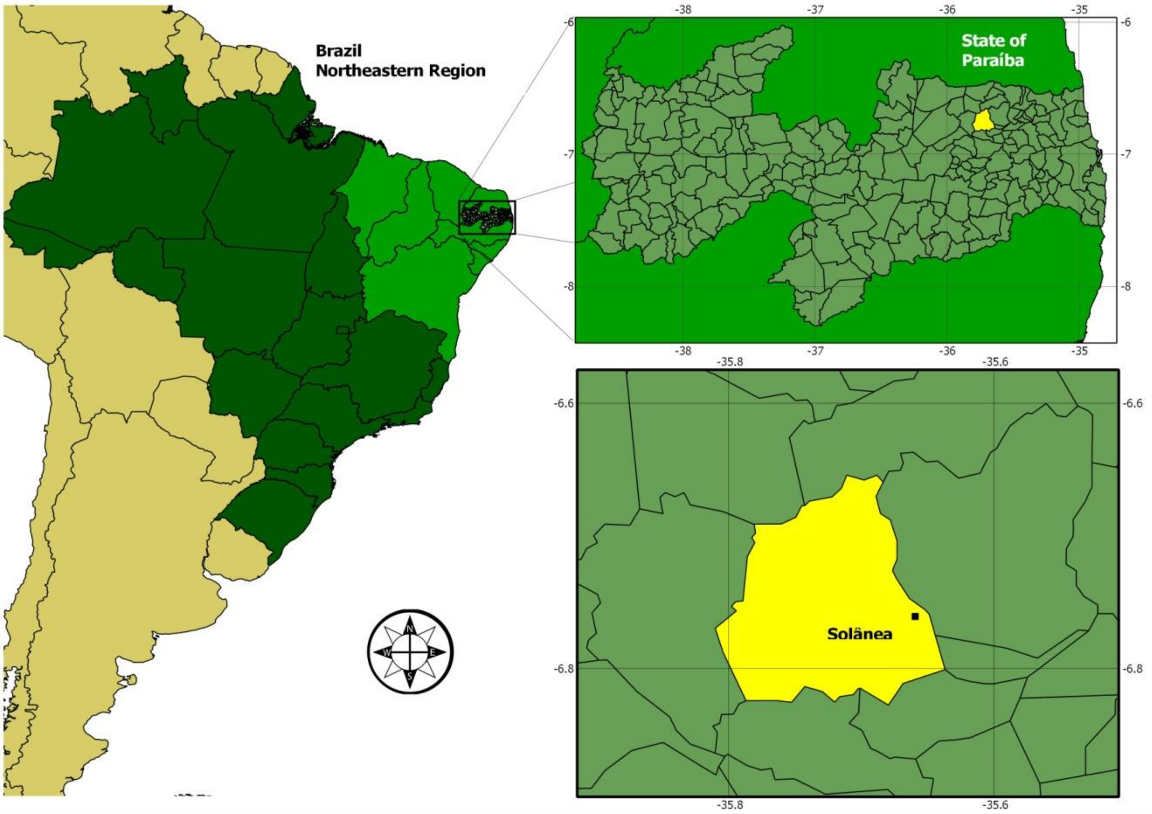

Figure 1. Geographical location of the city of Solânea (Paraíba state, Northeastern Brazil).

The information was enriched and confirmed using other investigative techniques such as direct observation and a guided tour. The guided tour consisted of a tour through the homes and vegetation areas of the community with the informants, who were willing to cooperate in this stage of the research, and aimed to identify the species cited in the interviews (Albuquerque et al., 2010).

Sampling the Vegetation

The sampling of the vegetation sought to collect phytosociological information of the areas of local vegetation. Two fragments were analysed: A1 (degraded area) and A2 (conserved area); each area was delimited by 50 semi-permanent and contiguous plots with dimensions of 10 × 10 m, totalling 100 plots and corresponding to 1 ha of vegetation sample area. A1 was an area recognised by the informants as a place of extraction of resources and (A2) as an area with a better state of conservation and a low removal of resources.

All woody individuals with a diameter at ground level (DNS) ≥ 3 cm were recorded, except cacti, lianas and small herbaceous plants (Araújo & Ferraz, 2010); the height of the plants was also estimated and recorded.

The collected species were identified by comparison with material deposited at the Jaime Coelho de Moraes Herbarium (EAN) of the Federal University of Paraíba and by consultation of botanical experts. The collected material was organised and incorporated into the collection of the EAN Herbarium.

Data Analysis

Analysis of the Interviews

The use value (VU) for species, families and use categories was calculated using the formulae: VU = ΣUi/n; VUf = ΣVU/nf; e VUc = ΣVU/nc, according to Rossato et al. (1999), where Ui = the number of citations of use mentioned for each informant, n = the total number of informants, VUf = the use value of each species in the family, nf = the number of species in the family, VUc = the use value of each species in the category and nc = the number of species in the category.

In the present study, the values of use that referred to citations of current use were distinguished by those citations of potential use suggested by Lucena et al. (2012a).

Analysis of the Phytosociological Data

The phytosociological parameters adopted were analysed according to Araújo & Ferraz (2010) and were; the value of importance, the relative density, relative dominance, relative frequency, where the relative density (DRt,%) is estimated by the number of individuals of a particular taxon from the total number of individuals sampled. The relative frequency (FRt,%) was estimated based on FAt (the absolute frequency of the species concerned), in terms of the total frequency (FT%), which represents the sum of all absolute frequencies. The relative dominance (DoRt,%) represents the percentage DoA (the absolute dominance of the species concerned) in terms of the total dominance (DoT). All phytosociological parameters were analysed by FITOPAC 2.5.

Results

Phytosociological Inventory

In total, 27 species, 25 genera and 12 families were identified, totalling 5,169 individuals in 100 studied plots. In the degraded area (A1), 2,468 individuals distributed among 26 species, 12 genera and 25 families were recorded, whereas in the conserved area (A2), a total of 2,701 individuals 21 species, 20 genera and 10 families (Table 1) were recorded.

In A1, the Fabaceae and Euphorbiaceae families dominated in terms of the number of recorded individuals (1,133 and 1,051 individuals, respectively). The species that had the most notable value of importance (VI) were: *Croton blanchetianus* Baill. (marmeleiro) (VI = 72.35), *Piptadenia stipulaceae* (Benth.) Ducke (amorosa branca) (VI = 45.52) and *Poincianella pyramidalis* Tul. (catingueira) (VI = 30.86) (Table 1).

In the A2 area, the Fabaceae and Euphorbiaceae were the families that also had the most individuals (1,031 and 843, respectively). The species that had the highest value of importance were *C. blanchetianus* (VI = 51.99), *Aspidosperma pyrifolium* Mart. (pereiro) (VI = 61.83), *P. stipulaceae* (VI = 6.69) and *P. pyramidalis* (VI = 34.04) (Table 1).

Regarding the phytosociological parameters of density (DeR), frequency (FR) and dominance (DoR), in area A1, the Euphorbiaceae (DeR = 42.58; DoR = 41.53) and Fabaceae (FR = 21.83) had the highest values, but *C. blanchetianus* had notably high values for all parameters (DeR = 29.78; DoR = 33.14; FR = 9.42). In area A2, the Euphorbiaceae (DeR = 31.24), Fabaceae (DoR = 32.00; FR = 16.84), and the species *C. blanchetianus* (DeR = 26.06; FR = 9.77) and *A. pyrifolium* (DoR = 30.51) were notable (Table 1).

Ethnobotanical Inventory

In total, 53 plants, comprising 45 species belonging to 39 genera and 17 families (Table 2) were recorded, which represented 5,561 citations of use, giving a mean of 49.65 use citations per informant, 2,295 mentioned by women and 3,266 by men.

The number of use citations as timber were 3,645, distributed among 50 species, and 1,916 non-timber use citations (39 species). The mean number of uses per species was 14.98 (± 14.96). The highest cited categories were wood (65.55%), followed by bark (11.89%) and fruit (7.32%) (Figure 2).

Table 1. List of species and botanical families recorded in the inventory of vegetation and their phytosociological data, distinguishing areas A1 = the degraded area, and A2 = the preserved area, in the Capivara rural community, Solânea city (Paraiba, Northeastern Brazil): VU = use value; DoR = relative dominance; FR = relative frequency; DeR = relative density; VI = value of importance; BA = basal area.

Family/Specie	VU general	VU current	VU potential	DeR		FR		DoR		VI		BA	
				A1	A2	A1	A2	A1	A2	A1	A2	A1	A2
Anacardiaceae	**3,87**	**2,19**	**1,68**	**3,89**	**3,85**	**15,72**	**12,79**	**4,23**	**6,50**	**23,84**	**23,15**	**0,67**	**1,07**
Myracrodruon urundeuva Allemão	4,56	2,67	1,89	3,61	2,63	7,49	5,47	3,89	4,26	14,99	12,36	0,61	0,70
Schinopsis brasiliensis Engl.	4,08	1,80	2,28	0,16	1,15	0,86	3,52	0,17	2,22	1,19	6,89	0,03	0,37
Spondias tuberosa Arruda	2,99	2,12	0,87	0,12	0,07	0,64	0,39	0,17	0,02	0,93	0,48	0,03	0,00
Apocynaceae	**6,91**	**4,99**	**1,92**	**2,84**	**22,14**	**8,73**	**15,82**	**3,08**	**30,51**	**14,65**	**68,47**	**0,48**	**5,03**
Aspidosperma pyrifolium Mart.	6,91	4,99	1,92	2,84	22,14	4,28	9,18	3,08	30,51	10,20	61,83	0,48	5,03
Bignoniaceae	**1,11**	**0,53**	**0,58**	**0,04**	**-**	**0,44**	**-**	**0,06**	**-**	**0,54**	**-**	**0,01**	**-**
Tabebuia impetiginosa (Mart. ex DC.) Standl	1,11	0,53	0,58	0,04	-	0,21	-	0,06	-	0,32	-	0,01	-
Burseraceae	**2,44**	**1,01**	**1,43**	**0,28**	**0,44**	**2,18**	**2,69**	**0,56**	**1,83**	**3,03**	**4,97**	**0,09**	**0,30**
Commiphora leptophloeos (Mart.) J. B. Gillet	2,44	1,01	1,43	0,28	0,44	1,07	1,56	0,56	1,83	1,91	3,84	0,09	0,30
Capparaceae	**1,26**	**0,88**	**0,38**	**0,85**	**0,52**	**4,80**	**3,70**	**0,74**	**0,59**	**6,40**	**4,82**	**0,12**	**0,10**
Cynophalla flexuosa (L.) J. Prese	1,26	0,88	0,38	0,85	0,52	2,36	2,15	0,74	0,59	3,95	3,26	0,12	0,10
Combretaceae	**0,24**	**0,12**	**0,12**	**0,89**	**0,74**	**6,11**	**4,38**	**1,08**	**0,27**	**8,08**	**5,39**	**0,17**	**0,05**
Thiloa glaucocarpa (Mart.) Eichler	0,24	0,12	0,12	0,89	0,74	3,00	2,54	1,08	0,27	4,97	3,55	0,17	0,05
Euphorbiaceae	**0,96**	**0,74**	**0,22**	**42,58**	**31,24**	**20,96**	**6,23**	**41,53**	**18,89**	**105,09**	**66,97**	**6,49**	**3,11**
Sapium lanceolatum (Müll.Arg.) Huber	0,04	0,01	0,03	0,24	1,70	1,28	5,27	0,26	1,80	1,79	8,78	0,04	0,30
Manihot cf. *dichotoma* Ule	0,81	0,61	0,20	2,43	0,37	6,42	1,37	5,61	0,17	14,47	1,91	0,88	0,03
Croton blanchetianus Baill.	3,70	2,93	0,77	29,78	26,06	9,42	9,77	33,14	16,16	72,35	51,99	5,18	2,66
Jatropha mollissima (Pohl) Baill.	0,25	0,16	0,09	9,60	3,07	9,42	7,03	2,39	0,75	21,41	10,83	0,37	0,12
Jatropha ribifolia (Pohl) Baill.	0,04	0,03	0,01	0,53	0,04	1,07	0,20	0,13	0,01	1,73	0,24	0,02	0,00
Fabaceae	**1,21**	**0,79**	**0,42**	**41,72**	**30,29**	**21,83**	**16,84**	**39,84**	**32,00**	**111,64**	**87,41**	**6,23**	**5,28**
Piptadenia stipulaceae (Benth.) Ducke	1,32	0,97	0,35	19,12	12,77	10,49	9,57	15,90	8,62	45,52	6,69	2,49	1,42
Anadenanthera colubrina (Vell.) Brenan	1,74	0,96	0,78	0,04	-	0,21	-	0,01	-	0,27	-	-	-
Poincianella pyramidalis Tul.	3,28	2,24	1,04	11,87	9,48	9,42	9,38	9,57	20,19	30,86	34,04	1,50	3,33
Amburana cearensis (Allemão) A.C.Sm.	1,80	1,38	0,42	0,77	-	2,78	-	1,36	-	4,91	-	0,21	-
Libidibia ferrea (Mart. ex Tul.) L.P.Queiroz	0,86	0,53	0,33	0,12	0,37	0,64	1,56	0,31	0,28	1,07	2,21	0,05	0,05
Mimosa tenuiflora (Willd.) Poir.	0,32	0,15	0,17	0,04	-	0,21	-	0,02	-	0,27	-	-	-
Pterogyne nitens Tul.	0,40	0,13	0,27	0,08	0,04	0,43	0,20	0,06	-	0,14	0,24	0,01	0,00
Bauhinia cheilantha (Bong.) Steud.	1,03	0,69	0,34	9,60	7,63	8,35	3,32	12,49	2,91	30,45	13,86	1,95	0,48
Luetzeburgia sp.	0,16	0,12	0,04	0,08	-	0,43	-	0,12	-	0,63	-	0,02	-

continuação

Malvaceae	**0,07**	**0,03**	**0,04**	**1,18**	**1,71**	**7,42**	**9,43**	**1,03**	**3,75**	**9,62**	**14,88**	**0,16**	**0,62**
Chorisia glaziovii (Kuntze) E. Santos	0,11	0,06	0,05	-	0,04	-	0,20	-	0,10	-	0,33	-	0,02
Pseudobombax marginatum (A.St.-Hil.,Juss.& Cambess.) A. Robyns	0,03	0,01	0,02	1,18	1,67	3,64	5,47	1,03	3,65	5,84	10,78	0,16	0,60
Olacaceae	**0,47**	**0,31**	**0,16**	**0,16**	**-**	**0,87**		**0,40**	**-**	**1,43**	**-**	**0,06**	**-**
Ximenia americana L.	0,47	0,31	0,16	0,16	-	0,43	-	0,40	-	0,99	-	0,06	-
Rhamnaceae	**4,23**	**2,40**	**1,83**	**0,24**	**0,78**	**1,31**	**3,37**	**1,42**	**0,71**	**2,97**	**4,86**	**0,22**	**0,12**
Ziziphus joazeiro Mart.	4,23	2,40	1,83	0,24	0,78	0,64	1,95	1,42	0,71	2,30	3,45	0,22	0,12

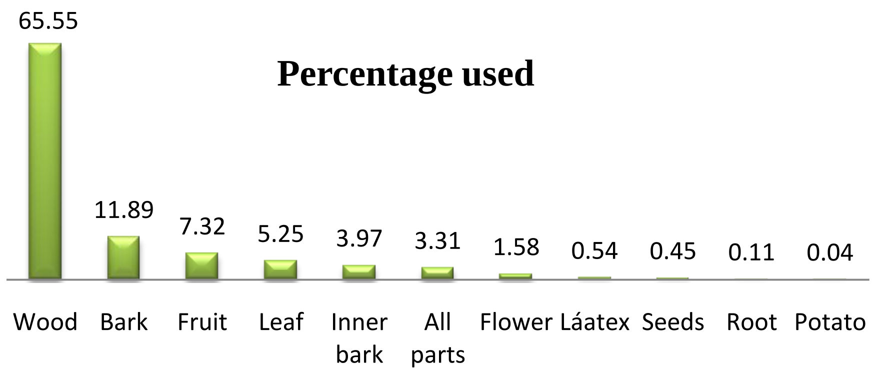

Figure 2: Percentage of used parts of useful species in the Capivara community, Solânea city (Paraíba, Northeastern Brazil).

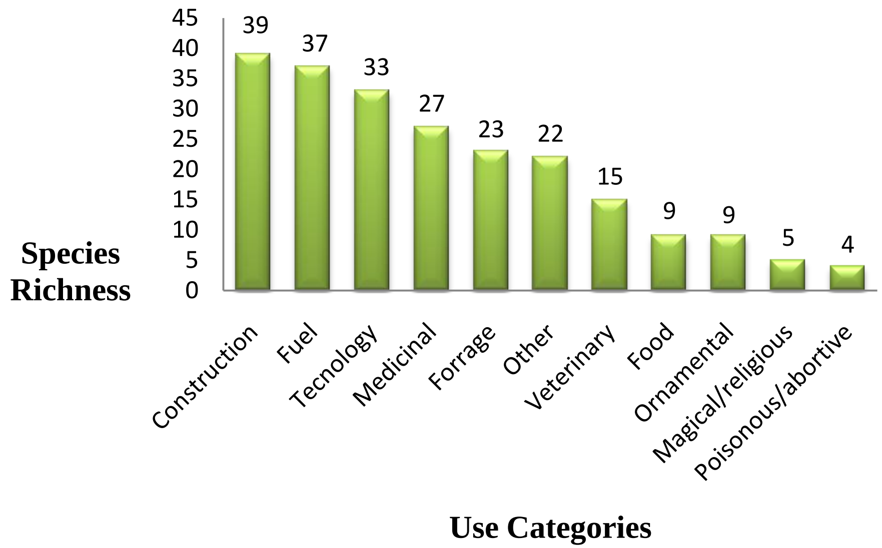

Figure 3. Distribution of the richness of species in the use categories according to use by the Capivara community, Solânea city (Paraíba, Northeastern Brazil).

Table 2. Woody plants with a diameter at ground level ≥ 3 cm, considered useful by the residents from the Capivara rural community, Solânea city (Paraiba, Northeastern Brazil). Use Categories: Ct = construction; Al = food; Cb = fuel; Fr = fodder; Me = medicinal; Ot = other; Tc = technology; Vt = veterinary; Mr = magical/religious; Or = ornament; Va = poisonous/abortive. Parts used: Tp = all parts; Ca = bark; Fl = flower; Fr = fruit; Ec = inner bark; La = Latex; Fo = leaf; Ra = root; Se = seed; Ma = wood; Ba = potato.

Family/Specie	Vernacular Name	Uses Categories	Parts used
Anacardiaceae			
Myracrodruon urundeuva Allemão	Aroeira	Cb, Ct, Fr, Me, Ot, Tc, Vt	Ca,Ec, Fo,Ma,Tp
Schinopsis brasiliensis Engl.	Baraúna	Cb, Ct, Fr, Me, Or, Ot, Tc	Ca,Ec,Fo, Fr,Ma,Ra,Tp
Spondias tuberosa Arruda	Umbuzeiro	Al ,Cb, Ct, Fr, Me, Or, Ot, Tc	Ba, Ca, Fl, Fo, Fr, Ma, Tp
Spondias sp.	Umbucajá	Al, Ot	Fr, Tp
Apocynaceae			
Aspidosperma pyrifolium Mart.	Pereiro	Cb, Ct, Fr, Or, Ot, Tc, Va, Vt	Ca, Ec, Fl, Fo, Ma, Tp
Bignoniaceae			
Tabebuia aurea (Silva Manso) Benth. & Hook. f. ex S. Moore	Craibeira	Cb, Ct, Tc	Ma
Tabebuia serratifolia (Vahl) G.Nichols.	Pau D'arco amarelo	Cb, Ct, Or, Tc	Ma, Tp
Tabebuia sp.	Pau D'arco branco	Ct, Tc	Ma
Tabebuia impetiginosa (Mart. ex DC.) Standl	Pau D'arco roxo	Cb, Ct, Me, Or, Ot, Tc	Ca, Ec, Ma, Tp
Boraginaceae			
Cordia trichotoma (Vell.) Arráb. ex Steud.	Frei jorge	Cb, Ct, Tc	Ma
Burseraceae			
Commiphora leptophloeos (Mart.) J. B. Gillet	Imburana	Cb, Ct, Fr, Me, Ot, Tc, Vt	Ca, Ec, Fl, Fr, La, Ma, Tp
Capparaceae			
Cynophalla flexuosa (L.) J. Prese	Feijão brabo	Cb, Ct, Fr, Me, Ot, Tc, Vt	Ca, Ec, Fo, Fr, Ma, Ra, Tp
Capparis jacobinae Moric. ex Eichler	Icó	Al, Cb, Ct, Fr	Fr, Ma
Celastraceae			
Maytenus rigida Mart.	Bom nome	Cb, Ct, Fr, Me, Ot, Tc, Vt	Ca, Ec, Fr, Ma, Tp
Combretaceae			
Thiloa glaucocarpa (Mart.) Eichler	João mole	Cb, Ct, Fr, Me, Tc, Vt	Ca, Fo, Ma
Euphorbiaceae			
Sapium lanceolatum (Müll.Arg.) Huber	Burra leiteira	Ct, Tc	La, Ma
Cnidoscolus quercifolius Pohl	Favela	Ct, Me	Ca, Ec, La, Ma
Manihot cf. *dichotoma* Ule	Maniçoba	Al, Cb, Ct, Fr, Ot, Tc, Va	Fo, Ma, Se, Tp
Croton blanchetianus Baill.	Marmeleiro	Cb, Ct, Fr, Me, Ot, Tc, Vt	Ca, Ec, Fl, Fo, Ma, Ra, Se, Tp
Jatropha mollissima (Pohl) Baill.	Pinhão brabo	Cb, Ct, Me, Vt	La, Ma, Se
Jatropha ribifolia (Pohl) Baill.	Pinhão manso	Mr, Me	Fo, Se, Tp
Croton rhamnifolius Kunth.	Velame	Fr, Me, Vt	Ca, Fo, Ra

			continuação
Fabaceae			
Piptadenia stipulaceae (Benth.) Ducke	Amorosa branca	Cb, Ct, Fr, Ot, Tc	Ec, Fo, Fr, Ma
Anadenanthera colubrina (Vell.) Brenan	Angico	Cb, Ct, Fr, Mr, Me, Ot, Tc, Va, Vt	Ca, Ec, Fo, Ma, Tp
Senna martiana (Benth.) H.S. Irwin Barneby	Canafístula	Cb, Ct, Fr, Mr, Or, Ot, Tc	Fl, Fo, Fr, Ma, Tp
Poincianella pyramidalis Tul.	Catingueira	Cb, Ct, Fr, Mr, Me, Or, Ot, Tc, Vt	Ca, Ec, Fl, Fo, Fr, Ma, Tp
Amburana cearensis (Allemão) A.C.Sm.	Cumarú	Cb, Ct, Fr, Me, Ot, Tc, Vt	Ca, Ec, Fo, Fr, Ma, Se, Tp
Pithecellobiun diversifolium Benth.	Espinheiro	Cb	Ma
Hymenoca courbaril L.	Jatobá	Al, Cb, Ct, Me, Tc	Ca, Ec, Fr, Ma
Libidibia ferrea (Mart. ex Tul.) L.P.Queiroz	Jucá	Cb, Ct, Fr, Me, Ot, Tc	Ca, Fo, Fr, Ma, Se, Tp
Mimosa tenuiflora (Willd.) Poir.	Jurema preta	Cb, Ct, Fr	Ca, Ec, Ma
Pterogyne nitens Tul.	Madeira nova	Cb, Ct, Tc	Ma
Bauhinia cheilantha (Bong.) Steud.	Mororó	Cb, Ct, Fr, Mr, Me, Tc, Va, Vt	Ca, Fo, Fr, Ma, Ra, Tp
Erythrina velutina Willd.	Mulungú	Cb, Ct, Me, Tc	Ca, Ec, Ma
Luetzeburgia sp.	Pau pedra	Cb, Ct, Tc	Ma
Bowdichia virgilioides Kunth	Sucupira	Tc	Ma
Enterolobium timbouva Mart.	Tambor	Ct, Ot, Tc	Fr, Ma, Tp
Malvaceae			
Chorisia glaziovii (Kuntze) E. Santos	Barriguda	Cb, Ct, Me, Ot, Tc	Ca, Ec, Fr, Ma, Tp
Pseudobombax marginatum (A.St.-Hil.,Juss.& Cambess.) A. Robyns	Imbiratã	Tc	Ca, Ma
Meliaceae			
Cedrela odorata L.	Cedro	Ct	Ma
Myrtaceae			
Eugenia uvalha Cambess.	Ubaia	Al, Cb, Fr	Fo, Fr, Ma
Olacaceae			
Ximenia americana L.	Ameixa	Al, Cb, Ct, Fr, Me, Tc	Ca, Ec, Fo, Fr, Ma
Rhamnaceae			
Ziziphus joazeiro Mart.	Juazeiro	Al, Cb, Ct, Fr, Me, Or, Ot, Tc, Vt	Ca, Ec, Fl, Fo, Fr, Ma, Tp
Rubiaceae			
Coutarea hexandra (Jack.) K. Schum.	Quina quina	Cb, Ct, Me, Ot, Vt	Ca, Ma, Ra
Sapotaceae			
Sideroxylon obtusifolium (Roem & Schult.) T. D. Penn.	Quixabeira	Al, Cb, Ct, Fr, Me, Or, Ot, Tc, Vt	Ca, Ec, Fo, Fr, Ma, Tp
Not identified			
Ident. 1	Amorosa preta	Cb, Ct, Fr, Me	Ca, Fo, Ma
Ident. 2	Goiaba do mato	Cb	Ma
Ident. 3	Imbiriba	Tc	Ma
Ident. 4	Jicuri	Cb, Ct	Ma
Ident. 5	Jurema branca	Cb, Ct, Fr,	Ca, Fo, Ma
Ident. 6	Mapirunga	Cb, Me	Ca, Ec, Ma
Ident. 7	Saúba	Cb, Ct	Ma
Ident. 8	Sipaúba	Tc	Ma

The most important botanical families with the highest number of reported species were the Fabaceae (15 spp.), Euphorbiaceae (seven spp.), Anacardiaceae and Bignoaceae (four spp. each).

The species were classified into 11 utility categories, which represented construction (39 species – 1,354 citations of use), fuel (37 species – 1,245 citations), technology (33 species – 1.,054 citations) and medicine (27 species – 774 citations) (Figure 3).

Anadenanthera colubrina (Vell.) Brenan (angico), *P. pyramidalis*, *Ziziphus Joazeiro* Mart. (juazeiro) and *Sideroxylon obstifolium* (Roem and Schult.) T.D. Penn. (quixabeira) were the most versatile species regarding the use categories, with uses within nine of the 11 determined categories in the present study. The species with the highest number of citations of use were *A. pyrifolium* (774 citations), *M. urundeuva* (511 citations), *Z. Joazeiro* (474 citations) and *Schinopsis brasiliensis* Engl. (baraúna) (457 citations) (Table 2).

The classes of uses that with the largest number of species contained 0–05 uses, with 19 species, such as *Sapium lanceolatum* (Müll. Arg.) Huber (burra leiteira), *Cnidoscolus quercifolius* Pohl (favela) and *Croton rhamnifolius* Kunth. (velame) (Figure 4).

Analysis of the Use Value

The mean and the standard deviation calculated for the three use values ($VU_{general}$, $VU_{current}$ and $VU_{potential}$) showed a difference between the largest and the smallest values and were 0.94 ± 1.47 for $VU_{general}$, 0.68 ± 1.13 for $VU_{current}$ and 0.40 ± 0.59 for $VU_{potential}$.

Considering only the values of men, the mean and standard deviation was 1.21 ± 1.69 for 0.72 ± 1.09 for $VU_{current}$ and 0.47 ± 0.69 for $VU_{potential}$.

For women, the mean and standard deviation was 1.03 ± 1.46 for $VU_{general}$, 0.70 ± 1.02 for $VU_{current}$, and 0.36 ± 0.52 for the $VU_{potential}$.

Apidosperma pyrifolium showed the largest $VU_{general}$ (6.91), followed by *M. urundeuva* (4.56) and *Z. Joazeiro* (4.32) and for VUcurrent, the order was *A. Pyrifolium* (4.99), followed by *C. blanchetianus* (2.93) and *M. urundeuva* (2.67), and the $VU_{potential}$ for *S. brasiliensis* (2.28) (Table 3).

The construction category showed the largest $VU_{general}$ (0.30), followed by fuel (0.29) and technology (0.28), whereas for the $VU_{current}$, the order was technology (0.47), construction (0.24) and food (0.19); and was construction (0.16) followed by fuel (0.13) and technology (0.11) for the $VU_{potential}$.

The VU for species within each category were as follows: *A. pyrifolium* ($VU_{general}$ = 3.04; $VU_{current}$ = 2.15; $VU_{potential}$ = 0.86) for construction; ($VU_{general}$ = 2.78; $VU_{current}$ = 2.18; $VU_{potential}$ = 0.60) for technology; *N. brasiliensis* ($VU_{general}$ = 1.43; $VU_{current}$ = 0.67; $VU_{potential}$ = 0.76) for fuel; *M. urundeuva* ($VU_{general}$ = 1.25; $VU_{current}$ = 1.1; $VU_{potential}$ = 0.15) in the medicinal category; *Spondias tuberosa* Arruda (umbuzeiro) ($VU_{general}$ = 0.80; $VU_{current}$ = 0.60; $VU_{potential}$ = 0.20) in the fodder category. In the category other uses, the most important species was *Z. Joazeiro* ($VU_{general}$ = 1.79. $VU_{current}$ = 0.93; $VU_{potential}$ = 0.86, in other uses and $VU_{general}$ = 1.40, $VU_{current}$ = 1.22; $VU_{potential}$ = 0.18, in the food category). In the veterinary category, *Cynophalla flexuosa* (L.) J. Presle ("feijão brabo") was important ($VU_{general}$ = 0.37; $VU_{current}$ = 0.37; $VU_{potential}$ = 0.05). In the magical-religious category, *A. colubrina* ($VU_{general}$ = 0.11; $VU_{current}$ = 0.06; $VU_{potential}$ = 0.05) was the most important species and *Manichot cf. dichotoma* (maniçoba) ($VU_{general}$ = 0.62; $VU_{current}$ = 0.49; $VU_{potential}$ = 0.13) was the most important species in the poisonous/abortive category.

The Apocynaceae was the most important family in $VU_{general}$ (6.91) and $VU_{current}$ (4.99) and the Apocynaceae and Combretaceae for $VU_{potential}$ (both with 1.92).

When all use values were analysed ($VU_{general}$, $VU_{current}$ and $VU_{potential}$) within categories, it was noted that the technology category showed a high value of use compared to the other categories, thus representing the category of greatest use in the community, and the construction and fuel categories, were not in widespread use because they only had a high value for $VU_{general}$ and $VU_{potential}$ (Table 4).

The three use values were classified into 14 classes, each having an amplitude of 0.5. For the $VU_{general}$, 10 species (38.5%) were distributed in class one, four species (15.4%) in class three, three species (11.5%) in class four and two species (7.7%) in classes two and nine. The great majority of the species have a low value of use, taking into consideration that the majority was distributed in the first classes (Figure 5).

For the $VU_{current}$, 10 species were distributed in class one (38.5%) and 7 species (26.9%) in class two. The $VU_{potential}$ in class one comprised 16 species (61.5%) and five species in class four (19.2%).

Use Values for Men and Women

Analysing the use values ($VU_{general}$, $VU_{current}$ and $VU_{potential}$), for the most important species and analysing them individually between genera, all values for men were greater. The most important species were: *A. pyrifolium* ($VU_{general}$ = 8.49; $VU_{current}$ = 5.91; $VU_{potential}$ = 2.58) followed by *M. urundeuva* ($VU_{general}$ = 5.34; $VU_{current}$ = 2.89; $VU_{potential}$ = 2.45) and *S. brasiliensis* ($VU_{general}$ = 4.94; $VU_{current}$ = 1.94; $VU_{potential}$ = 3.00). For women, the most important species were *A. pyrifolium* ($VU_{general}$ = 5.49; $VU_{current}$ = 4.17; $VU_{potential}$ = 1.32), *Z. Joazeiro* (juazeiro) ($VU_{general}$ = 4.22; $VU_{current}$ = 2.25; $VU_{potential}$ = 1.97) and *M. urundeuva* (aroeira) ($VU_{general}$ = 3.86; $VU_{current}$ = 2.47; $VU_{potential}$ = 1.39). The species *A. pyrifolium* and *M. urundeuva* were present in the list of the most important species for both men and women, with both genera showing high values (Table 3).

Discussion

Inventory of the Vegetation

The total number of species in the inventory in this study (27 species) was similar to that obtained in similar surveys conducted in other semi-arid regions (Carvalho et al., 2012; Leite et al., 2012; Lucena et al., 2007a, b; 2008; 2012a, b), where between 21 and 38 species were recorded. However, other authors found fewer species than these in other areas; for example, Trovão et al. (2010), who studied the woody component of the riparian forest of the Bodocongó stream (Campina Grande, Paraíba), Guerra et al. (2012) in a phytosociological survey in the Sertão of Paraíba state and Marangon et al. (2013) in the Sertão of Pernambuco. Such differences might be associated with the different distribution of species within the ecosystem and the level of anthropisation of the studied stretches of vegetation, as well as due to the different levels of ecological succession of the communities.

Sampaio (1996) and Araújo et al. (1995) highlight the low diversity within taxa in Caatinga areas which represent many genera in the samples, which is corroborated by the results of the present study In the present study, the Fabaceae and Euphorbiaceae families were the most important and had the largest number of individuals in the inventoried area. Similarly, other studies have demonstrated the predominance of these two families in other parts of the Caatinga (Araújo et al., 1995; Guerra et al., 2012; Monrango et al., 2013; Pereira et al., 2001; Rodal et al., 1998; Sampaio et al., 1996; Trovão et al, 2010) and that by Carvalho et al. (2009), who reported that more than 80% of the sampled vegetation was composed of individuals from the Euphorbiaceae, Fabaceae and the Apocynaceae. These botanical families therefore, can signal areas that are in the natural regeneration stage, based on the results of studies already carried out on this topic (Pereira et al., 2001; Andrade et al., 2007; Alves Júnior et al., 2013).

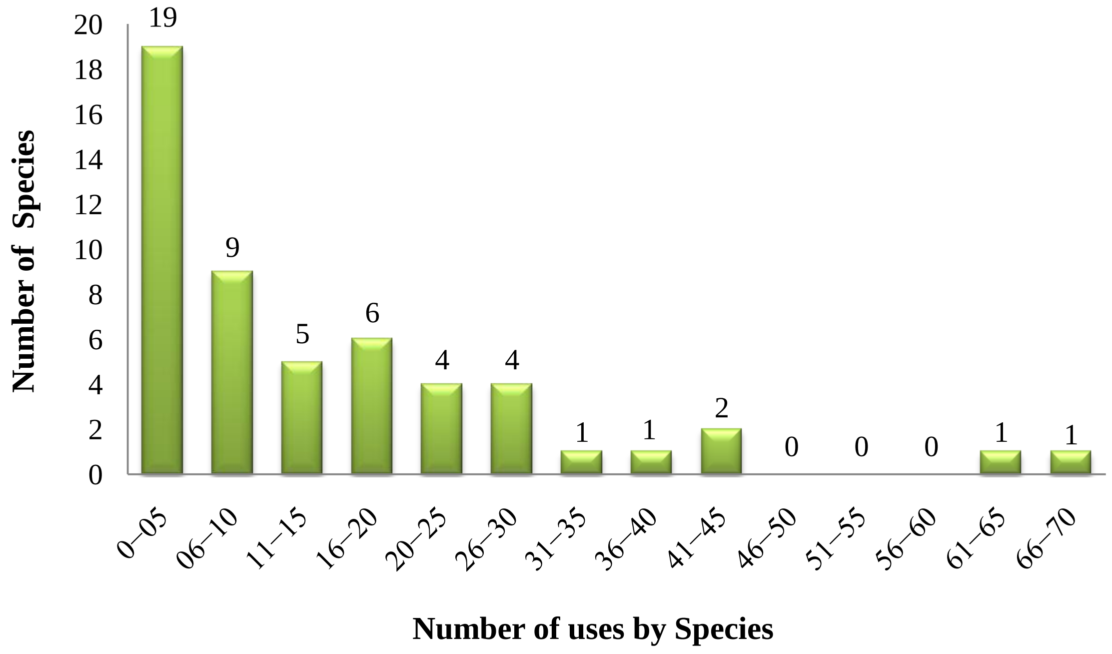

Figure 4. Number of applications attributed to each species in the Capivara community, Solânea city (Paraíba, Northeastern Brazil).

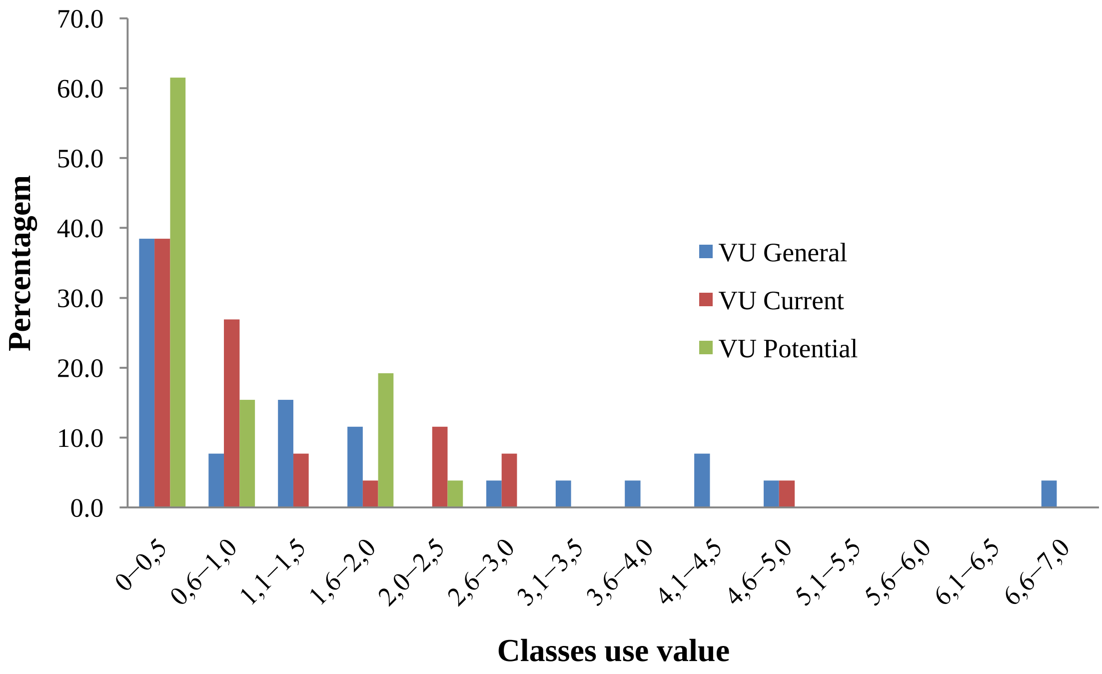

Figure 5. Percentage of species in each of the use value classes in the Capivara community, Solânea city (Paraíba, Northeastern Brazil).

Table 3. Value of general, current and potential use, divided by genera, allocated to families and plant species in the Capivara community, Solânea city (Paraiba, Northeastern Brazil).

Family/Specie	**Use Value**			**Use Value - Gender**					
				Men			Women		
	$VU_{general}$	$VU_{current}$	$VU_{potential}$	$VU_{general}$	$VU_{current}$	$VU_{potential}$	$VU_{general}$	$VU_{current}$	$VU_{potential}$
Anacardiaceae	**2,91**	**1,66**	**1,26**	**3,23**	**1,75**	**1,48**	**2,63**	**1,75**	**1,07**
Myracrodruon urundeuva Allemão	4,56	2,67	1,89	5,34	2,89	2,45	3,86	2,47	1,39
Schinopsis brasiliensis Engl.	4,08	1,80	2,28	4,94	1,94	3,00	3,31	1,68	1,63
Spondias tuberosa Arruda	2,99	2,13	0,87	2,62	2,17	0,45	3,32	2,80	1,24
Spondias sp	0,02	0,02	0,00	0,00	0,00	0,00	0,03	0,03	0,00
Apocynaceae	**6,91**	**4,99**	**1,92**	**8,49**	**5,91**	**2,58**	**5,49**	**4,17**	**1,32**
Aspidosperma pyrifolium Mart.	6,91	4,99	1,92	8,49	5,91	2,58	5,49	4,17	1,32
Bignoniaceae	**0,46**	**0,20**	**0,51**	**0,82**	**0,31**	**0,51**	**0,13**	**0,10**	**0,05**
Tabebuia aurea (Silva Manso) Benth. & Hook. f. ex S. Moore	0,48	0,15	0,33	1,00	0,30	0,70	0,02	0,02	0.00
Tabebuia serratifolia (Vahl) G.Nichols.	0,19	0,08	0,11	0,38	0,17	0,21	0,02	0,00	0,02
Tabebuia sp.	0,04	0,03	1,00	0,08	0,06	0,02	0,00	0,00	0,00
Tabebuia impetiginosa (Mart. ex DC.) Standl	1,11	0,53	0,58	1,81	0,72	1,09	0,47	0,36	0,12
Boraginaceae	**0,16**	**0,10**	**0,06**	**1,91**	**0,21**	**0,13**	**0,00**	**0,00**	**0,00**
Cordia trichotoma (Vell.) Arráb. ex Steud.	0,16	0,10	0,06	1,91	0,21	0,13	0,00	0,00	0,00
Burseraceae	**2,44**	**1,01**	**1,43**	**2,87**	**1,11**	**1,75**	**3,32**	**2,08**	**1,24**
Commiphora leptophloeos (Mart.) J. B. Gillet	2,44	1,01	1,43	2,87	1,11	1,75	3,32	2,08	1,24
Capparaceae	**0,68**	**0,48**	**0,20**	**1,05**	**0,74**	**0,31**	**0,34**	**0,24**	**0,10**
Cynophalla flexuosa (L.) J. Prese	1,26	0,88	0,38	1,91	1,32	0,58	0,68	0,47	0,20
Capparis jacobinae Moric. ex Eichler	0,09	0,07	0,02	0,19	0,15	0,04	0,00	0,00	0,00
Celastraceae	**1,34**	**0,75**	**0,59**	**2,13**	**1,17**	**0,96**	**0,63**	**0,37**	**0,25**
Maytenus rigida Mart.	1,34	0,75	0,59	2,13	1,17	0,96	0,63	0,37	0,25
Combretaceae	**0,24**	**4,99**	**1,92**	**0,43**	**0,21**	**0,23**	**0,07**	**0,03**	**0,03**
Thiloa glaucocarpa (Mart.) Eichler	0,24	4,99	1,92	0,43	0,21	0,23	0,07	0,03	0,03

contuniação

Euphorbiaceae	**0,70**	**0,55**	**0,16**	**0,78**	**0,61**	**0,17**	**0,64**	**0,49**	**0,15**
Sapium lanceolatum (Müll.Arg.) Huber	0,04	0,01	0,03	0,06	0,02	0,04	0,02	0,00	0,02
Cnidoscolus quercifolius Pohl	0,04	0,02	0,03	0,09	0,04	0,06	0,00	0,00	0,00
Manihot cf. *dichotoma* Ule	0,81	0,62	0,20	1,09	0,85	0,25	0,56	0,41	0,15
Croton blanchetianus Baill.	3,70	2,93	0,77	3,83	3,06	0,77	3,58	2,81	0,76
Jatropha mollissima (Pohl) Baill.	0,25	0,16	0,09	0,23	0,15	0,08	0,27	0,17	0,10
Jatropha ribifolia (Pohl) Baill.	0,04	0,04	0,01	0,06	0,06	0,00	0,03	0,02	0,02
Croton rhamnifolius Kunth.	0,04	0,04	0,00	0,09	0,09	0,00	0,00	0,00	0,00
Fabaceae	**0,80**	**0,52**	**0,28**	**1,07**	**0,66**	**0,40**	**0,56**	**0,39**	**0,17**
Piptadenia stipulaceae (Benth.) Ducke	1,32	0,97	0,35	1,85	1,40	0,45	0,85	0,59	0,25
Anadenanthera colubrina (Vell.) Brenan	1,74	0,96	0,78	2,13	1,06	1,08	1,39	0,88	0,51
Senna martiana (Benth.) H.S. Irwin Barneby	0,52	0,35	0,17	0,72	0,43	0,28	0,34	0,27	0,07
Poincianella pyramidalis Tul.	3,28	2,24	1,04	3,70	2,42	1,28	2,90	2,08	0,81
Amburana cearensis (Allemão) A.C.Sm.	1,80	1,38	0,43	2,26	1,60	0,66	1,39	1,17	0,22
Pithecellobiun diversifolium Benth.	0,01	0,00	0,01	0,02	0,00	0,02	0,00	0,00	0,00
Hymenoca courbaril L.	0,13	0,09	0,04	0,13	0,11	0,02	0,14	0,07	0,07
Libidibia ferrea (Mart. ex Tul.) L.P.Queiroz	0,86	0,53	0,33	1,28	0,72	0,57	0,47	0,36	0,12
Mimosa tenuiflora (Willd.) Poir.	0,32	0,15	0,17	0,45	0,17	0,28	0,20	0,14	0,07
Pterogyne nitens Tul.	0,40	0,13	0,27	0,58	0,19	0,40	0,24	0,08	0,15
Bauhinia cheilantha (Bong.) Steud.	1,03	0,69	0,34	1,85	1,28	0,57	0,29	0,15	0,14
Erythrina velutina Willd.	0,18	0,08	0,10	0,19	0,11	0,08	0,17	0,05	0,12
Luetzeburgia sp.	0,16	0,13	0,04	0,30	0,23	0,08	0,03	0,03	0,00
Bowdichia virgilioides Kunth	0,03	0,01	0,02	0,06	0,02	0,04	0,00	0,00	0,00
Enterolobium timbouva Mart.	0,24	0,11	0,13	0,47	0,21	0,26	0,03	0,02	0,02

continuação

Malvaceae	**0,07**	**0,03**	**0,04**	**0,09**	**0,05**	**0,04**	**0,05**	**0,02**	**0,04**
Chorisia glaziovii (Kuntze) E. Santos	0,11	0,05	0,05	0,11	0,08	0,04	0,10	0,03	0,07
Pseudobombax marginatum (A.St.Hil., Juss. & Cambess.) A. Robyns	0,03	0,01	0,02	0,06	0,02	0,04	0,00	0,00	0,00
Meliaceae	**0,03**	**0,00**	**0,03**	**0,04**	**0,00**	**0,04**	**0,02**	**0,00**	**0,02**
Cedrela odorata L.	0,03	0,00	0,03	0,04	0,00	0,04	0,02	0,00	0,02
Myrtaceae	**0,22**	**0,15**	**0,07**	**0,21**	**0,13**	**0,08**	**0,24**	**0,17**	**0,07**
Eugenia uvalha Cambess.	0,22	0,15	0,07	0,21	0,13	0,08	0,24	0,17	0,07
Olacaceae	**0,47**	**0,31**	**0,16**	**0,51**	**0,34**	**0,17**	**0,44**	**0,29**	**0,15**
Ximenia americana L.	0,47	0,31	0,16	0,51	0,34	0,17	0,44	0,29	0,15
Rhamnaceae	**4,32**	**2,40**	**1,83**	**4,25**	**2,57**	**1,68**	**4,22**	**2,25**	**1,97**
Ziziphus joazeiro Mart.	4,32	2,40	1,83	4,25	2,57	1,68	4,22	2,25	1,97
Rubiaceae	**0,04**	**0,02**	**0,02**	**0,08**	**0,04**	**0,04**	**0,00**	**0,00**	**0,00**
Coutarea hexandra (Jack.) K. Schum.	0,04	0,02	0,02	0,08	0,04	0,04	0,00	0,00	0,00
Sapotaceae	**0,96**	**0,71**	**0,24**	**1,17**	**0,91**	**0,26**	**0,76**	**0,54**	**0,22**
Sideroxylon obtusifolium	0,96	0,71	0,24	1,17	0,91	0,26	0,76	0,54	0,22
Not identified									
Ident. 1	0,23	0,20	0,04	0,38	0,30	0,08	0,10	0,10	0,00
Ident. 2	0,02	0,01	0,01	0,04	0,02	0,02	0,00	0,00	0,00
Ident. 3	0,01	0,00	0,01	0,02	0,00	0,02	0,00	0,00	0,00
Ident. 4	0,04	0,03	0,02	0,09	0,06	0,04	0,00	0,00	0,00
Ident. 5	0,22	0,14	0,08	0,38	0,25	0,13	0,08	0,05	0,03
Ident. 6	0,13	0,11	0,02	0,17	0,13	0,04	0,08	0,08	0,08
Ident. 7	0,04	0,03	0,02	0,06	0,06	0,04	0,00	0,00	0,00
Ident. 8	0,03	0,01	0,02	0,06	0,04	0,02	0,00	0,00	0,00

Table 4. Number of species and citations of use per use category and their respective values of general, current and potential use, mean values and the main species within each category, found in the Capivara community, Solânea city (Paraiba, Northeastern Brazil).

Use categories	**Nº of species**	**Use value (standard deviation)**			
		general	**current**	**potential**	**Important species**
Food	9	0,22 (±0,44)	0,19 (±0,38)	0,04 (±0,06)	*Ziziphus joazeiro* Mart.
Fuel	37	0,29 (±0,38)	0,16 (±0,23)	0,13 (±0,17)	*Shinopsis brasiliensis* Engl.
Construction	39	0,30 (±0,60)	0,24 (±0,41)	0,16 (±0,21)	*Aspidosperma pyrifolium* Mart.
Forage	23	0,09 (±0,23)	0,07 (±0,16)	0,02 (±0,06)	*Spondias tuberosa* Arruda
Magical/religious	5	0,04 (±0,04)	0,02 (±0,02)	0,02 (±0,02)	*Anadenanthera colubrina* (Vell.) Brenan
Medicinal	27	0,26 (±0,27)	0,19 (±0,23)	0,07 (±0,04)	*Myracrodruon urundeuv*a Allemão
Ornamentação	9	0,02 (±0,02)	0,01 (±0,02)	0,01 (±0,01)	*Senna martian* (Benth.) H.S. Irwin Barneby
Other uses	22	0,13 (±0,38)	0,08 (±0,20)	0,05 (±0,18)	*Ziziphus joazeiro* Mart.
Tecnology	33	0,28 (±0,47)	0,47 (±0,16)	0,11 (±0,16)	*Aspidosperma pyrifolium* Mart.
Poisonous/abortive	4	0,18 (±0,27)	0,14 (±0,21)	0,04 (±0,06)	*Manihot* cf. *dichotoma* Ule
Veterinary	15	0,05 (±0,09)	0,04 (±0,08)	0,01 (±0,02)	*Cynophalla flexuosa* (L.) J. Prese

Regarding the phytosociological parameters and specifically the VI, an index that evaluates the ecological importance of the sampled taxa, *C. blanchetianus* obtained the highest value, which was a similar finding to that of other studies carried out in the Agreste of Pernambuco and in the Sertão of Paraíba state (Carvalho et al., 2012; Guerra et al., 2012; Lucena et al., 2008).

Ethnobotanical Inventory

The importance of local knowledge about natural resources and the richness of information has been demonstrated by the information obtained from the residents of the Capivara community, similar to in studies already carried out not only in the Caatinga, but in other regions (Albuquerque et al., 2005; Albuquerque et al., 2006; Cunha & Albuquerque, 2006; Dalle & Potvin, 2004; Ferraz et al., 2005; Galeano, 2000; Lucena et al., 2008; Lucena et al., 2012a, b; Tacher et al., 2002).

The results of the Ethnobotanical inventory (53 species, belonging to 39 genera and 17 families) showed a number of useful species in addition to those found in other ethnobotanical studies in the Caatinga (Albuquerque & Andrade, 2002b; Carvalho et al., 2012; Lucena et al., 2012; Sales & Lima, 1985; Torres et al., 2009), where a mean of 66 to 97 species were recorded. However, other authors have identified fewer useful species in traditional communities (Albuquerque et al., 2005b; Ferraz et al., 2005; Guerra et al., 2012; Lucena et al., 2008); for example, Guerra et al., (2012) recorded 36 useful species in the community under study in the Sertão of Paraíba state.

The mean number of citations provided by individual respondents was high (49.65) compared to those of studies by Ferraz et al., (2005), with a mean of 28.6 citations per informant and by Lucena et al. (2008), with a mean of 14.6 citations per informant, and low compared with that of Lucena et al. (2012b) who recorded a mean of 74.2 citations per informant.

The results here indicate a strong preference for the timber category, as was found in other studies in the Caatinga (Albuquerque & Oliveira, 2007; Ferraz et al., 2006; Lucena et al., 2007a, b; Lucena et al., 2008; Ramos et al., 2008a, b; Sousa et al., 2012). A large number of useful species was also found in the construction and fuel categories, which was also observed in other regions of the Caatinga (Aguilar & Condit, 2001; Cunha & Albuquerque, 2006; Louga et al., 2000; Lucena et al., 2007a; Medeiros, 2010; Tacher et al., 2002; Voeks, 1996).

The deep association of local populations of the Caatinga with timber uses can be explained considering the climatic seasonality hypothesis proposed by Albuquerque et al. (2006), who believe that the use of vegetation in semi-arid regions is urgent and submissive to the climate during long drought periods, where there is a considerable reduction in the available resources, and thus only those are used that will be adapted to the adverse situation.

In the use categories considered as non-timber uses, the medical category was among the main uses of the plants of the Caatinga and one major species within this category was *M. urundeuva*. The use of medicinal plant resources is due to empirical knowledge that is transmitted over generations, and includes mainly the production of homemade tea, potions and traditional syrup made of the bark of woody species found in the semi-arid regions. The results from this study corroborate those of other studies that demonstrate the importance of the plant resources in this category (Almeida & Albuquerque 2002; Albuquerque et al., 2007; Lucena et al., 2012b; Oliveira et al., 2007; Sousa et al., 2012).

Another non-timber category that recorded a large number of uses was forage, which is a cultural ingredient within populations that preserve small-animal breeding with grazing techniques, as is discussed by Diegues & Arruda (2001) and Sampaio & Gamarra-Rojas (2002).

Considering the plant parts that were most used in Solânea, wood and bark were preferred, which has also been reported in other studies (Cunha & Albuquerque, 2006; Dalle & Potvin, 2004; Galeano, 2000; Tacher et al., 2002). These parts are predominantly used, as they are easy to obtain and yield a large number of uses, besides being available in the vegetation throughout the year.

Myracrodruon urundeuva and *A. pyrifolium* showed the greatest number of different types of uses, indicating the high versatility of these plants. According to the literature (Lorenzi, 2002a,b; Maia, 2004), these species have a very resistant wood, which is used specifically in the manufacture of furniture, such as chairs, stools, doors, flooring, stumps, rafters, laths, liners and stakes for fences. The use of this species was also found in studies conducted in the semi-arid in the Brazil (Carvalho et al., 2012; Guerra et al., 2012; Leite et al., 2012; Lucena et al. 2012a, b; Ribeiro, 2013a, b; Sousa et al., 2012).

Use Value for Men and Women

In the studied community, *A. pyrifolium*, *M. urundeuva* and *S. brasiliensis* were important species among the knowledge shown by men and for women; *A. pyrifolium* was also one of the main species, followed by *Z. Joazeiro* and *M. urundeuva*, which were also used by men. The literature suggests that women have a greater knowledge concerning medicinal uses, for taking care of family health, whereas men have more knowledge of timber use due to their daily work routine (Albuquerque & Andrade, 2002; Ceolin et al., 2011; Lucena et al., 2012a; Luoga et al., 2000; Moreira et al., 2002; Voeks & Leony, 2004), however, men in the Capivara community are also involved with the preparation of medicines, and women are also involved with using timber (Leite et al., 2012).

The medicinal uses and timber use-value parameters reflect differences between men and women, since men participate actively in the search of resources for the preparation of herbal medicines by women, contributing to the acquisition of empirical knowledge about medicinal uses (Voeks & Leony, 2004). Women know that timber use provides energy, due to its use in wood stoves, as observed by Roque (2009).

In a study carried out with the Pankararé Indians in the Raso da Catarina, Colaço (2006), found that although there were no significant differences between geneder for local vegetation, differences existed for some groups of plants in particular. This discrepancy in the knowledge between men and women was also reported in other studies, when recognising the potential of utilities and practices of acquired knowledge to the available resources in the local vegetation (Carvalho et al., 2012; Figueiredo et al., 1993; Guerra et al., 2012; Lucena et al., 2011; Matavele & Habib, 2000; Voekes et al., 1996).

CONCLUSIONS

The Capivara community displays considerable knowledge concerning the use of woody species and recognises the utility of most of them. The species found meet the needs of the inhabitants, and thus, searches for additional plant resources hardly ever occur. It is clear that there is a strong degree of extraction of woody species from the environment.

Due to an excess of use, some native species such as *M. urundeuva* are already endangered, and the use of these species is continuous and excessive, as reported in this study. These influences are incorpotated into the socioeconomic conditions, i.e., the pressure on the environment is due to the conditions of survival. This conclusion was reached primarily, due to the consideration of current and potential uses.

From the data in this study, we can conclude that studies that not only record and evaluate local knowledge and the potential utility of the plant resources of a given community, but that also test indices and aim to evaluate the importance of the known species in different regions of the Caatinga, are important. There is a need to correlate species used, with their availability in the local vegetation, to identify the use pressure suffered by certain species and to estimate a usage pattern for them. The improvement of these ethnobotanical indices, together with ecological indices, helps to provide a common direction of new ethnobotanical approaches aimed at the conservation of biodiversity.

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