



*Research Paper*

**FARMERS HOMEGARDENS IN SÃO JOÃO DA VARZEA, RIO GRANDE DO NORTE, BRAZIL**

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**Abstract**

The spaces located around the houses are complex systems in which a great diversity of species is managed, mainly for family food and for medicinal use. The aim of this work was to conduct a survey of the use of plants present in these spaces of the community of São João da Várzea, Mossoró, RN, Brazil. The techniques of data collection direct observation and participant, guided tour, free list and semi-structured interviews were applied in 22 production units. 154 species belonging to 63 botanical families were found, covering a total of 2,474 plants. The most frequent species were *Psidium guajava* L., *Cocos nucifera* L. and *Calotropis procera* (Aiton) W. T. Aiton. The species with the largest number of individuals were *Croton campestris* A. St. Hil. (133), *Calotropis procera* (Aiton) W.T. Aiton (121) and *Catharanthus roseus* (L.) G. Don.) (120). Informants reported 15 categories of use and the most representative were medicinal (57), ornamental (54) and food (52), and most species had more than one reported use. The most used parts were fruit (23%), leaf (17%), and stem (11%). The productive units studied are constituted by several spaces with their own characteristics that reflect the socioeconomic and cultural aspects of the families and have diversity of species used by the families mainly as medicinal.

Key words: *Agroforestry systems, ethnobotany, species diversity.*

## INTRODUCTION

The agricultural spaces occupied by a community are managed and organized according to a certain logic, the peasant logic, which uses the body of knowledge it possesses [1]. Domestic spaces, located around the houses, are complex systems in which a great diversity of species is managed, mainly for family food and medicinal use [2]. Many of these spaces are termed and characterized as agroforestry or simply homegarden. Homegardens consist of a combination of trees, shrubs, herbaceous, sometimes associated with small domestic animals, growing close to the residence.

In agroforestry homegardens the way productive factors are organized tends to correspond to the set of knowledge, ecological, social situations and specific experiences accumulated by each farmer [3]. Thus, farmers' knowledge is based on a prolonged empirical experience and is generated from different experiences, namely: accumulated experiences of successive generations; collective experience of each generation of farmers; and individual experience of each of the farmers, constituted from their objectivity and subjectivity [4].

In this sense, plants are used for multiple purposes, highlighting, in several studies conducted in homegardens, the use of food and medicinal plants [5, 6, 7, 8, 9, 10, 11, 12]. Thus, studies on the knowledge and use of natural resources by local populations, as well as the impacts of their practices on biodiversity are fundamental [13] and very little is known about the local perception and phytosociological structure of homegardens in Brazil [14].

In Rio Grande do Norte, seventeen ethnobotanical works were performed, most of them investigating the use of medicinal plants by the communities [12, 15, 16, 17, 18, 19, 20], the use of plants for various purposes [18, 21, 22], or ethnobotanical aspects of some specific botanical families or species [23, 24]. However, only two studies addressed, among other aspects, the structure of homegardens [10, 25].

Therefore, the objective of the present work was to perform an ethnobotanical survey in productive units of São João da Várzea, Mossoró - RN, emphasizing the use of plants present in domestic spaces.

## MATERIALS AND METHODS

### Study Area

The community of São João da Várzea is located on the shores of RN 117, towards Mossoró - Governor Dix Sept Rosado (5°18'19.5 "S; 37°24'46.8" W), altitude 28m, 18 km from the city headquarters, Mossoró-RN. The community is part of the Rio Gateway Pass which is composed of about 400 families distributed in 11 communities and 2 Settlements of the National Land

Credit Program, which mostly survive from subsistence agriculture and cattle and goat breeding [26].

In the area, the Bshw type climate (hot and dry semi-arid with short rainy season from February to April) predominates, high temperatures ranging from 25 °C to 35 °C, with annual average temperatures of 27.2 °C, average annual relative humidity of 68%. and annual average rainfall of 695.8mm [27]. The average monthly precipitation varied in the wettest period (February, March and April) between 102.8 and 160.9 mm and in the dry period (September, October and November) between 1.9 and 4.9 mm [28].

### **Data collection and analysis**

The first contact with the Community was made in March 2012 through the community leader appointed by technicians from the Rio Grande do Norte Institute of Technical Assistance and Rural Extension (EMATER-RN) and the information provided on the community helped in articulating and conducting the workshops.

In the two workshops held with the community residents, the work proposal was presented and discussed, emphasizing the objectives, the importance and the methodology to be adopted. In addition, it was clarified that the participation of the informants in the research was subject to their acceptance, and they could withdraw at any time without any prejudice. The Prior Consent Form (TAP) as directed by the Genetic Heritage Management Council (CGEN) was prepared during the workshops [29].

To choose the interviewees and their production units, the sampling technique known as “snowball” was used [30]. From the initial contact with the community, a first expert is recognized, who then nominates another expert, and so on, until all the experts in the community are involved. Thus, 22 specialists were selected, corresponding to 42% of the productive units. The experts were visited at their production units to clarify possible questions about the research and to schedule the dates and times of the interviews so as not to hinder daily activities. At the time, the TAP was read, reaffirming that the information collected would be used for research purposes only. The informant's signature was requested on the aforementioned term, and a copy of it was duly signed by the parties involved.

In the present study, two to five visits per productive unit were carried out from June to December 2012, using the techniques of data collection direct and participant observation, guided tour, free list and semi-structured interviews [31].

Informants were asked about the use and management of plants and the parts used for each use, addressing specific questions about each species present in domestic spaces. In this case, the interviews were conducted during the on-site verification for each species cited by each informant, using the guided tour method which consists of going to the field with the informant, aiming to substantiate and validate the names of the plants cited in the interviews.

During the guided tour, the cited plants were photographed in detail, for later confirmation of botanical identification through specialized literature [32, 33, 34] and some species were planted according to established techniques in botanical collections for later taxonomic identification by Herbarium Dárdano de Andrade Lima University Federal Rural Semi-Arid experts.

Household classification is in accordance with Angiosperm Phylogeny Group [35]. For the correct spelling of the names of the taxa, we consulted the databases of the Brazilian Flora Species List [36] and Tropicos, of the Missouri Botanical Garden [37].

Thus, the species were classified according to their use according to the interviewees' own definitions, avoiding the use of predefined categories. As they were collected, the information was compiled as a database using text matrices, according to the methodology proposed by [38].

The use value of the species was calculated by the ratio between sum of use citations for a given species and the total number of informants, using the formula  $VUs = \sum Us / ns$  proposed by [39], where: VUs = Value of use of the species; Us = number of uses mentioned by each informant for the species; n = total number of informants). For this work, ns is always 1 (one) for all species, as each informant was interviewed only once.

## RESULTS AND DISCUSSION

In the productive units studied were identified and characterized 15 spaces with their own names: yard; terreiro; front homegarden; alley; garden; vegetable garden; mowing; "croa"; riverside; "weeding"; mangoes; "cleaning"; fenced; chicken sty, sheep sty or "tanker". In each of these spaces plants with different characteristics are cultivated. In all these spaces, 154 species belonging to 63 botanical families were registered, covering a total of 2,474 plants (Table 1).

Table 1- Species found in the ethnobotanical survey conducted in domestic spaces of production units of São João da Várzea, Mossoró-RN. UP = Productive units. NC = Number of citations. CT = Categories of use: A = "Food"; B = "Craft"; C = "Trade"; D = "Cosmetic"; E = "Energy"; F = Forage; G = "Medicinal"; H = "Mystic"; I = "None"; J = "oil"; K = "Ornamental"; L = "Repellent"; M = "Shadow"; N = "Technological", O = "Toxic". PU = Parts of plants used: a = "Bulb"; b = "Bark"; c = "Stem"; d = "Flower"; e = "Leaf"; f = "Fruit"; g = "Latex"; h = "Pseudo stem"; i = "Pseudo fruit"; j = "Root"; k = "Seed"; l = "Whole plant" NP = Number of plants, VU = Use value, O = origin.

Family/Specie	Ethnospecies	CT	PU	NP	NC	VU	O
<b>AGAVACEAE</b>							
<i>Agave americana</i> L.	Agave	K	1	2	1	1	E
<i>Agave sisalana</i> Perr.	Sisal	K	1	4	1	1	E
<b>AMARANTHACEAE</b>							
<i>Celosia argentea</i> L.	Veludo	K	1	1	1	1	E
<i>Celosia cristata</i> L.	Planta de rosa	K	1	29	2	1	E
<i>Chenopodium ambrosioides</i> L.	Mastruz	G	c, d, e	5	4	1	E
<b>AMARYLLIDACEAE</b>							
<i>Allium cepa</i> L.	Cebola de cabeça	A, G	a	1	1	2	E
<i>Allium fistulosum</i> L.	Cebola de fio	A	e	33	2	1	E
<i>Allium sativum</i> L.	Alho	A, G	a	1	1	2	E
<i>Crinum erubescens</i> L.	Croton espada	K	1	2	2	1	E
<i>Crinum procerum</i> Carey ex Herb.	Lágrima de noiva	K	1	6	2	1	E
<b>ANACARDIACEAE</b>							
<i>Anacardium occidentale</i> L.	Cajueiro	A, C, F, G, J, M	b, i, k	5	4	4	N
<i>Mangifera indica</i> L.	Mangueira	A, E, M	c, f, l	14	6	1,7	E
<i>Myracrodruon urundeuva</i> Allemão	Aroeira	G, N	b, c	2	2	1,5	N
<i>Spondias mombin</i> L.	Cajá	A, M	f, l	9	2	2	N
<i>Spondias purpurea</i> L.	Seriguela	A, M, N	c, f, l	27	9	2	E
<i>Spondias tuberosa</i> Arr. Cam.	Cajarana	A, F, M, N	c, e, f, l	28	10	2,3	N

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**ANNONACEAE**

<i>Annona muricata</i> L.	Graviola	A, M	f, 1	36	5	2	E
<i>Annona squamosa</i> L.	Pinha	A, F, M	f, 1	67	13	1,4	E
<i>Annona reticulata</i> L.	Condessa	A	f	2	1	1	E

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**APOCYNACEAE**

<i>Allamanda blanchetii</i> A. DC.	Trepadeira vermelha	K	1	9	3	1	N
<i>Allamanda cathartica</i> L.	Trepadeira amarela	K	1	1	2	1	N
<i>Aspidosperma pyriforme</i> Mart.	Pereiro	E, F, G, M, N	b, c, e, 1	54	10	2,5	N
<i>Calotropis procera</i> (Aiton) W.T. Aiton	Flor de cera	F, G, I, N, O	c, d, e, f, g, k, 1	121	16	1,1	E
<i>Catharanthus roseus</i> (L.) G. Don.	Boa noite	G, K	d, 1	120	7	1,1	E
<i>Cryptostegia grandiflora</i> R. Br.	Unha do cão	I, K, M, O	g, 1	97	12	1,1	E
<i>Nerium oleander</i> L.	Espirradeira	K, M, O	1	2	2	2	E
<i>Plumeria rubra</i> L.	Jasmim manga	K	1	1	1	1	E

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**ARACEAE**

<i>Alocasia macrorrhizos</i> (L.) G. Don	Croton bananeira	K	1	11	4	1	E
<i>Caladium bicolor</i> L.	Croton	K	1	1	1	1	E
<i>Dieffenbachia amoena</i> Bull.	Comigo ninguém pode	K	1	9	4	1	N
<i>Epipremnum pinnatum</i> (L.) Engl.	Trepadeira	K	1	2	2	1	E
<i>Philodendron imbe</i> Schott ex Endl.	Croton coração	K	1	10	5	1	E

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**ARECACEAE**

<i>Chamaedorea fragrans</i> (Ruiz & Pav.) Mart.	Palmeira	K	1	5	2	1	E
<i>Cocos nucifera</i> L.	Coqueiro	A, B, G, J, K, M, N	b, e, f, k, 1	97	16	2,9	E

<i>Copernicia prunifera</i> (Mill.) H.E.Moore	Carnaúba	B e	24	1	1	N
<i>Licuala grandis</i> H. Wendl. ex Linden	Palmeira	K l	2	1	1	E
<b>ASPARAGACEAE</b>						
<i>Asparagus densiflorus</i> (Kunth) Jessop	Alfinete	K l	1	1	1	E
<b>ASPHODELACEAE</b>						
<i>Aloe arborescens</i> Mill.	Babosa	K l	1	1	1	E
<i>Aloe vera</i> (L.) Burm. f.	Aloe	D, G e	58	4	1,1	E
<b>ASTERACEAE</b>						
<i>Achmella repens</i> (Walter) Rich.		K l	1	1	1	E
<i>Zinnia peruviana</i> L.	Zinia	K l	91	1	1	E
<b>BALSAMINACEAE</b>						
<i>Impatiens balsamina</i> L.	Maravilha	K l	4		1	E
<b>BEGONIACEAE</b>						
<i>Begonia aconitifolia</i> A. D. C.	Asa de anjo	K l	2	1	1	N
<i>Begonia cucullata</i> Willd.	Brinco de princesa	K l	2	2	1	N
<b>BIGNONIACEAE</b>						
<i>Tabebuia caraiba</i> (Mart.) Bur.	Craibeira	K, M l	7	3	1,7	N
<i>Tabebuia impetiginosa</i> (Mart. ex DC.) Standl.	Pau darco	M l	1	1	1	N
<b>BIXACEAE</b>						
<i>Bixa orellana</i> L.	Corante	A k	1	1	1	N
<b>BORAGINACEAE</b>						
<i>Heliotropium indicum</i> L.	Fedegoso	G c, d, e	3	1	1	N
<b>BRASSICACEAE</b>						
<i>Nasturtium officinale</i> R. Br.	Agrião	G d, e	1	1	1	E
<b>BROMELIACEAE</b>						
<i>Ananas comosus</i> (L.) Merr.	Abacaxi	A, G f	2	1	2	N
<b>BURSERACEAE</b>						
<i>Commiphora leptophloeos</i> (Mart.) J. B. Gillett	Imburana	M, N c, l	4	1	2	N
<b>CACTACEAE</b>						

<i>Opuntia ficus-indica</i> Mill.	Palma	F, K, N	c, l	2	2	1,5	E
<i>Tacinga inamoena</i> (K.Scumm.) N.P.Taylor & Stuppy	Quipá	K		1	1		N
<b>CAPPARACEAE</b>							
<i>Capparis cynophallophora</i> L.	Feijão bravo	F, M	c, e, f, l	1	1	2	N
<b>CARICACEAE</b>							
<i>Carica papaya</i> L.	Mamão	A, F, G	c, d, e, f, g	61	13	2	N
<b>CHRYSOBALANACEAE</b>							
<i>Licania rigida</i> Benth.	Oiticica	J, M	f, l	2	1	2	N
<i>Licania tomentosa</i> (Benth.) Fritsch	Oití	M		1	1	1	N
<b>CLEOMACEAE</b>							
<i>Cleome spinosa</i> Jacq.	Comer passarinho	de F	K	2	1	1	N
<b>CLUSIACEAE</b>							
<i>Clusia fluminensis</i> Planch. & Triana		K		1	1	1	2,6 N
<b>COMBRETACEAE</b>							
<i>Combretum leprosum</i> Mart.	Mofumbo	E, F, G, M, N	b, c, e, f, j, l	36	7	2,6	N
<b>CONVOLVULACEAE</b>							
<i>Ipomoea asarifolia</i> (Desr.) Roem. & Schult.	Salsa	F, G, O	c, d, e	5	3	1,7	N
<b>COSTACEAE</b>							
<i>Costus spiralis</i> (Jacq.) Roscoe	Cana do brejo	G	e	18	1	1	N
<b>CRASSULACEAE</b>							
<i>Bryophyllum pinnatum</i> (Lam.) Oken	Corama	G	c, e	3	2	1	E
<i>Kalanchoe blossfeldiana</i> Poelln.	Calandiva	K		1	4	2	1 E
<i>Kalanchoe brasiliensis</i> Cambess.	Corama	G	c, e	2	2	1	E
<b>CUCURBITACEAE</b>							
<i>Citrullus lanatus</i> (Thunb.) Matsum & Nakai	Melancia	A	f	5	2	1	E



<i>Cucumis anguria</i> L.	Maxixe	A	f	5	2	1	E
<i>Cucumis melo</i> L.	Melão	A	f	2	1	1	E
<i>Cucurbita pepo</i> L.	Jerimum	A, G	c, f, k	6	3	1,5	E
<i>Luffa cylindrica</i> M. Roem	Bucha	N	f	5	3	1	N
<i>Momordica charantia</i> L.	Melão Caetano	F, G, N	c, e, f, k	11	5	1,8	E

#### DAVALLIACEAE

<i>Nephrolepis exaltata</i> (L.) Schott	Samambaia	K (1)	1 (1)	2	2	1	E
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#### EUPHORBIACEAE

<i>Croton campestris</i> A. St. Hil.	Velame	F, G, I, N	e, g, l	133	8	1,2	N
<i>Euphorbia lactea</i> Haw.	Cordão de São Francisco	K	1	2	1	1	E
<i>Euphorbia milii</i> Des Moul.	Coroa de cristo	K	1	4	1	1	E
<i>Jatropha gossypifolia</i> L.	Pinhão roxo	G, H	e, g, l	73	8	1,4	E
<i>Jatropha mollissima</i> (Pohl) Baill.	Pinhão	F, G, M, N	c, e, f, g, l	15	4	1,8	N
<i>Manihot utilissima</i> Pohl	Macaxeira	A	j	6	2	1	N
<i>Pedilanthus tithymaloides</i> (L.) Poit.	Sapatinho	K	1	5	3	1	N
<i>Ricinus communis</i> L.	Carrapateira	A, F, J	e, f, k	2	2	3	N

#### FABACEA-CAESALPINIOIDEAE

<i>Caesalpinia ferrea</i> Mart.	Jucá	G, M	f, l	2	1	2	N
<i>Caesalpinia pulcherrima</i> (L.) Sw.	Flamboyanzinho	K, M	l	21	3	1,3	E
<i>Caesalpinia pyramidalis</i> Tul.	Catingueira	E, F, G, M, N	c, d, e, f, l	78	7	3	N
<i>Senna occidentalis</i> (L.) Link	Manjerioba	A, F	c, d, e, f, k	1	1	2	N
<i>Senna siamea</i> (Lam.) H.S. Irwin & Barneby	Acácia	K, M	l	4	3	1,3	E
<i>Senna spectabilis</i> (DC.) H. S. Irwin & Barneby	Canafístula	F, M	c, e	2	1	2	N
<i>Senna uniflora</i> (Mill.) H.S. Irwin & Barneby	Mata pasto	F, I	c, d, e, f, l	7	3	1	N

<i>Tamarindus indica</i> L.	Tamarina	A, F, G, M	f, l	3	2	3	E
<b>FABACEA-FABOIDEAE</b>							
<i>Erythrina variegata</i> L.	Raio de sol	K		1	1	1	E
<i>Gliricidia sepium</i> (Jacq.) Kunth ex Walp.	Gliricidia	F, K, M	c, e, f, l	9	9	1,8	E
<i>Vigna unguiculata</i> L. Walp.	Feijão	A	k	1	1	1	N
<b>FABACEA-MIMOSOIDEAE</b>							
<i>Desmanthus virgatus</i> (L.) Willd.	Jureminha	F, M	c, e, f, l	7	2	1	N
<i>Leucaena leucocephala</i> (Lam.) de Wit	Leucena	F, M	c, e, f, l	31	5	1,4	E
<i>Mimosa ophthalmocentra</i> Mart. ex Benth.	Jurema de imbirá	F, M, N	c, e, f, l	2	1	3	N
<i>Mimosa tenuiflora</i> (Willd.) Poir.	Jurema	E, G, M, N	b, c, l	5	4	2,2	N
<i>Piptadenia stipulacea</i> (Benth.) Ducke	Jurema branca	E, M	c, l	1	1	2	N
<i>Prosopis juliflora</i> (Sw.) DC.	Algaroba	E, F, M	c, e, f, l	3	3	2	E
<b>LAMIACEAE</b>							
<i>Mentha arvensis</i> L.	Hortelã pimenta	A, G	c, d, e	6	3	1,7	E
<i>Mentha x piperita</i> L.	Hortelã roxo	A, G	c, d, e	8	5	1,4	E
<i>Mentha x villosa</i> Huds.	Hortelã	A, G	e	6	2	1,5	E
<i>Ocimum basilicum</i> L.	Manjeriçã	G	c, d, e	3	1	1	E
<i>Ocimum gratissimum</i> L.	Louro	A, G	c, d, e	4	2	2	E
<i>Origanum majorana</i> L.	Manjerona	G	c, d, e	3	1	1	E
<i>Plectranthus amboinicus</i> (Lour.) Spreng.	Malvarisco	G	c, e	7	6	1	E
<i>Plectranthus barbatus</i> Andrews	Boldo	G	e	1	1	1	E
<i>Plectranthus neochilus</i> Schltr.	Dipirona	G	e	1	1	1	E
<b>LAURACEAE</b>							
<i>Persea americana</i> Mill.	Abacate	A, G, M	f, k, l	5	3	2	N
<b>LYTHRACEAE</b>							

<i>Punica granatum</i> L.	Romã	A, G	f, k	8	7	1,6	E
<b>MALPIGHIACEAE</b>							
<i>Malpighia glabra</i> L.	Acerola	A, C, F, G, M	f, l	65	13	1,9	E
<b>MALVACEAE</b>							
<i>Abelmoschus esculentus</i> (L.) Moench	Quiabo	A	f	4	1	1	E
<i>Guazuma ulmifolia</i> Lam.	Mutamba	A, E, F, M, N	c, e, f, l	8	4	2	N
<i>Hibiscus rosa-sinensis</i> L.	Brinco de princesa	K, M	l	3	2	1,5	E
<i>Pseudobombax marginatum</i> (A. St.-Hil., Juss. & Camb.) A. Robyns	Embiratanha	G	b	1	1	1	N
<i>Sida rhombifolia</i> L.	Vassoura de Relógio	N	c, d, e, f	82	4	1	E
<i>Waltheria albicans</i> Turcz. x. Arb	Malva braba	F, N	c, d, e	8	1	2	N
<b>MELIACEAE</b>							
<i>Azadirachta indica</i> A. Juss.	Nim	F, K, L, M	e, l	58	11	1,9	E
<b>MORACEAE</b>							
<i>Artocarpus heterophyllus</i> Lam.	Jaca	A, M	f, k, l	1	1	2	E
<i>Ficus benjamina</i> L.	Sempre verde	K, M	l	18	7	2	E
<b>MUSACEAE</b>							
<i>Musa paradisíaca</i> L.	Bananeira	A, F, G	e, f, h	94	4	2	E
<b>MYRTACEAE</b>							
<i>Eugenia uniflora</i> L.	Pitanga	A, M	f, l	2	1	2	N
<i>Psidium guajava</i> L.	Goiabeira	A, F, G, M	e, f, l	77	15	2,5	N
<i>Syzygium cumini</i> (L.) Skeels	Azeitona	A, M	f, l	3	2	2	E
<b>OLACACEAE</b>							
<i>Ximenia americana</i> L.	Ameixa	G	b	2	1	1	N
<b>OLEACEAE</b>							

<i>Jasminum sambac</i> (L.) Aiton	Bugari	K	e, l	4	2	1	E
<b>PASSIFLORACEAE</b>							
<i>Turnera ulmifolia</i> L.	Xanana	G, I, K	d, e, j, l	20	5	1,4	N
<b>PHYLLANTHACEAE</b>							
<i>Phyllanthus niruri</i> L.	Quebra pedra	G	j	9	4	1	N
<b>PIPERACEAE</b>							
<i>Peperomia obtusifolia</i> (L.) A. Dietr.	Croton figo	K	l	5	4	1	N
<b>PLANTAGINACEAE</b>							
<i>Scoparia dulcis</i> L.	Vassoura	G, N	c, d, e, f, j, l	96	7	1	N
<i>Stemodia maritima</i> L.	Rabo de soim	F, N	c, e, l	8	2	1	N
<b>POACEAE</b>							
<i>Cymbopogon citratus</i> (DC.) Stapf	Capim santo	A, G	e	6	5	1,7	E
<i>Saccharum officinarum</i> L.	Cana	A, F	c	16	2	1,5	E
<i>Sorghum bicolor</i> (L.) Moench	Sorgo	F	c, e	3	2	1	E
<b>PORTULACACEAE</b>							
<i>Portulaca grandiflora</i> Hook.	Onze horas	K	l	25	6	1	N
<i>Portulaca oleracea</i> L.	Beldroega	K	l	27	8	1	E
<b>RHAMNACEAE</b>							
<i>Ziziphus joazeiro</i> Mart.	Juazeiro	A, D, E, F, G, M	b, c, e, f, l	18	10	3,9	N
<b>ROSACEAE</b>							
<i>Rosa chinensis</i> Jacq.	Rosa menina	K	l	1	1	1	E
<b>RUBIACEAE</b>							
<i>Ixora coccinea</i> L.	Ixora	K	l	7	2	1	E
<i>Morinda citrifolia</i> L.	Noni	G	F	5	4	1	E
K. Schum.	Jenipapo	E, G, M, N	b, c, l	3	2	1	N

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**RUSCACEAE**

<i>Sansevieria trifasciata</i> Prain 'Hahnii'	Espada de São Jorge fêmea	K	1	1	1	1	E
<i>Sansevieria trifasciata</i> var. <i>laurentii</i> (De Wild.) N. E. Br	Espada de São Jorge macho	K	1	32	3	1	E

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**RUTACEAE**

<i>Citrus reticulata</i> Blanco	Tangerina	A, M	f, l	3	3	2	E
<i>Citrus sinensis</i> (L.) Osbeck	Laranja	A, G, M	e, f, l	5	4	2	E
<i>Citrus x limonia</i> (L.) Osbeck	Limão	A, G, M, N	e, f, l	21	10	2,4	E

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**SAPOTACEAE**

<i>Manilkara sapota</i> (L.) Van Royen	Sapoti	A, M	f, l	3	2	2	E
<i>Sideroxylon obtusifolium</i> (Roem. & Schult.) T. D. Penn.	Quixabeira	A, G, M	b, f, l	3	3	2	N

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**SOLANACEAE**

<i>Capsicum chinense</i> Jacq.	Pimenta de cheiro	A	f	3	1	1	E
<i>Capsicum frutescens</i> L.	Pimenta malagueta	A, K	f, l	9	3	1,3	E
<i>Lycopersicon esculentum</i> Mill.	Tomate	A	f	1	1	1	E
<i>Solanum melongena</i> L.	Berinjela	A, G	f	1	1	2	E

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**URTICACEAE**

<i>Pilea microphylla</i> (L.) Liebm.	Croché	K	1	10	6	1	E
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**VERBENACEAE**

<i>Lippia alba</i> (Mill.) N. E. Br. ex Britton & P. Wilson	Cidreira	A, G	c, d, e	6	6	1,7	N
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**VITACEAE**

<i>Vitis vinifera</i> L.	Uva	A	f	1	1	1,7	E
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**ZINGIBERACEAE**

<i>Alpinia zerumbet</i> (Pers.) B. L. Burt & R. M. Sm.	Coluna, colônia	G	e	32	1	1	E
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Heterogeneous distribution of these species and number of plants among the productive units was observed, ranging from 9 to 60 species and 24 and 375 plants, respectively. This difference in floristic composition is directly related to some factors, such as water availability, size of production unit, soil type and presence of rock outcrops, family socioeconomic and cultural condition, preference and interest of the maintainer of the production unit, and finally, the agricultural fitness of the family.

Other studies also cite the relationship between plant diversity in domestic spaces and some of these constraints, such as: the function and size of the homegarden, socioeconomic and cultural factors [2]; ecological potential of the region and cultural food preference [40]; and interests of their owners, since products are generally used for self-consumption in the family unit of production [41].

The botanical family that presented the largest number of species was Lamiaceae (9 spp.) and then the families Apocynaceae (8 spp.), Euphorbiaceae (8 spp.) and Fabacea-Caesalpinioideae (8 spp.). These results are similar to those found in São Miguel-RN [25] and in part with those found in Caruaru-PE [6].

The most frequent species were *Psidium guajava* L., *Cocos nucifera* L. and *Calotropis procera* (Aiton) WT Aiton, all present in 16 productive units (73%), followed by *Annona squamosa* L., *Malpighia glabra* L. and *Carica papaya* L. in 13 production units (59%). In the south of Rio Grande do Norte in São Miguel, *Psidium guajava* L. and *Cocos nucifera* L. were the most frequent species, occurring in 14 of the 20 homegardens studied [25]. Therefore, with the exception of *Calotropis procera* (Aiton) WT Aiton, which is a spontaneous species used by foragers as forage, medicinal and technological species, the other most frequent species are fruitful for family feeding, contributing to their food security.

These results corroborate those found by other authors who found that the most common species in the homegarden are the fruit trees [6, 25, 42]. Arboreal fruit species, in addition to favoring the establishment of a favorable microclimate, may benefit the development of other species [2, 43].

There were 2,474 individuals distributed in the 22 productive units. In other studies conducted in caatinga areas a lower number was observed. In Pernambuco, it was verified the presence of 1,461 individuals in 25 homegardens of Caruaru-PE [6] and was found 390 plants in 31 homegardens [14]. In Rio Grande do Norte, accounted for 482 individuals in 39 homegardens in Caraúbas-RN [10] and in São Miguel-RN, was found a total of 1,325 individuals in 20 homegardens [25].

*Croton campestris* A. St. Hil. stood out as the most abundant species, with a total number of 133 plants in 8 productive units, followed by *Calotropis procera* (Aiton) WT Aiton and *Catharanthus roseus* (L.) G. Don., with 121 and 120 plants, respectively. The greater abundance of these species is probably due to the period in which the ethnobotanical survey was carried out from June to December 2012, since the region, as well as the entire semiarid region, faced consequences of the drought of that year. Thus, there was a predominance of species that possibly have greater resistance to water deficiency, especially spontaneous ones, such as *Croton campestris* A. St. Hil. and *Calotropis procera* (Aiton) WT Aiton). or those of easy propagation, such as *Catharanthus roseus* (L.) G. Don.

In São João da Várzea as in most communities located in the semiarid region, the requirement for water for the crop is a factor that influences the choice of species that will compose the production units, since the amount of water available for irrigation in these areas is, in most cases, insufficient to meet plant needs. In addition, this fact has a direct impact on the amount of plants that are kept and/or managed in the vicinity of homes. Thus, species diversity and abundance are directly related to the rainy season, since, during this period, several annual and perennial species are cultivated in order to take advantage of the ease of irrigation water and the action of rainfall.

In a study conducted in the Morraria Region, Cáceres-MT, found a similar condition, in which planting is concentrated during the rainy season and plants depend on rainfall to survive [44]. The same author states that with limited access to water in the dry season, only a few plants are irrigated, especially medicinal and ornamental, with a preference and/or importance relationship to select the plants that will be maintained with irrigation during this period.

Although without a defined pattern of spacing and with an apparent disorganization of the studied domestic spaces, the distribution of plants is directly related to the characteristics and particularities of each productive unit and each family member responsible for the management of these spaces. Ornamental plants, for example, are always found in or around the front of the house, suggesting an interest in the use of these plants for aesthetics of domestic spaces. Those used for human consumption are usually grown behind homes, where shadows are also used when it comes to shrubs and trees.

Other authors have observed similar spatial distribution, reporting some sectorization in the choice of planting location of species, in which ornamental are arranged in front of the residence, while food allocated in the homegarden [45,46]. Herbaceous medicinal plants, in turn, are generally close to the kitchen of the house, corroborating other studies [6,25]. Agroforestry homegardens in the municipality of Teixeira Soares-PR, have distribution of plants following a considerable level of organization, where the planting of fruit, ornamental and forestry is done in areas reserved for this purpose, using standard spacing [5].

The use value ranged from 1 to 4 and the species with use value between 2 and 4 were 43 of which 17 were exotic and 26 native. This shows the importance of native species to the community. We highlight the cashew tree (*Anacardium occidentale*) with use value 4 and juazeiro (*Ziziphus joazeiro*) with use value 3,9. The cashew tree has the fruit used for human and animal food, in the juice, candy and beverage industry, the bark as medicinal, the trunk as wood and charcoal, the flowers are honey. The fruits of juazeiro are for human and animal consumption, the bark for the cosmetics and toothpaste industry, the branches are fodder for cattle, and the plant is medicinal.

Regarding the use of species found in the productive units studied, the informants cited 15 categories, classifying each species in at least one of these categories (Table 2).



Table 2 - Number of species, use and production units and their respective percentages, by use categories, cited by informants from São João da Várzea, Mossoró-RN. UP = productive units.

Category of use	N° Citation of species	% Species	N° Citation of use	% Citation of use	N° UP	% UP
Medicinal	57	18,9	170	20,1	21	12,1
Ornamental	54	17,9	125	14,8	16	9,2
Food	52	17,3	199	23,5	22	12,7
Shadow	49	16,3	150	17,7	22	12,7
Fodder	35	11,6	70	8,3	17	9,8
Technological	23	7,6	55	6,5	19	11,0
Energy	10	3,3	21	2,5	8	4,6
None	5	1,7	14	1,7	11	6,4
Oil	4	1,3	6	0,7	4	2,3
Toxic	4	1,3	10	1,2	7	4,0
Craft	2	0,7	5	0,6	5	2,9
Trade	2	0,7	2	0,2	2	1,2
Cosmetic	2	0,7	10	1,2	9	5,2
Mystic	1	0,3	8	0,9	8	4,6
Repellent	1	0,3	2	0,2	2	1,2
TOTAL	301	100	847	100	173	100

Of the 154 species found in the study, 57 (18.9%) are used as medicinal, 54 (17.9%) as ornamental, 52 (17.3%) as food, 49 (16.3%) for shade and 35 (11.6%) as forage. Medicinal plants also stood out in a study conducted in homegardens of a rural community of Caraúbas-RN [10] and in urban homegardens of Rosario Oeste-MT [9].

Studies in homegardens, whether urban or rural, show that the popular use of plants for medicinal purposes is almost always large, in numbers comparable to plants used for food purposes, especially for ornamental plants, especially in urban homegardens [9]. These features are the main components of the homegardens studied in other studies, although they do not follow the same order of representation [5, 6, 7 25, 42].

According to the results of the ethnobotanical survey, it can be seen that all species present in the productive units were considered useful, and 51.3% of them were cited for more than one purpose, while 48.7% for a single use. Studying homegardens in São Miguel-RN [25] found a high diversity of species, but only 37.6% were cited for multiple uses. Also found that few species are used for more than one purpose in Caruaru-PE homegardens [6]. In the present study, coconut palm (*Cocos nucifera* L.) was presented as the most versatile species, being used for food, handicraft, medicinal, oil, ornamental, shade and technological, thus covering seven categories of use.

Different parts of the plant used by the informants were cited. The category "Whole plant" was the most representative, with 98 species mentioned (31%), and then the leaf, fruit and stem stood out, as shown in Table 3.

**Table 3** - Number and percentage of species, number and percentage of use and number and percentage of productive units per plant parts used by informants from São João da Várzea, Mossoró-RN. UP = productive units.

Part of the plant	Nº Specie	% Specie	Nº Citation of use	% Citation of use	Nº UP	% UP
Bulb	2	0,6	2	0,2	1	0,6
Bark	11	3,5	26	3,1	12	7,6
Stalk	46	14,6	93	11,0	18	11,5
Flower	20	6,3	38	4,5	17	10,8
Leaf	57	18,0	148	17,5	22	14,0
Fruit	56	17,7	198	23,4	22	14,0
Latex	6	1,9	15	1,8	11	7,0
Pseudo stem	1	0,3	1	0,1	1	0,6
Pseudo fruit	1	0,3	4	0,5	4	2,5
Root	5	1,6	11	1,3	8	5,1
Seed	13	4,1	37	4,4	19	12,1
Whole plant	98	31,0	273	32,3	22	14,0
Total	316	100	846	100	157	100

This predominance of citations of use of "Whole plant" is probably due to the relationship between this category and the presence of ornamental plants and used for

shade in the studied production units, since it is difficult to separate these citations of use. The use of the stem is more related to native species with forage, energy and medicinal use and this fact brings concern with the conservation of the species.

## CONCLUSIONS

The productive units studied are constituted by several spaces that reflect the socioeconomic and cultural aspects of the families and have diversity of species used by the families mainly as medicinal.

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