Afro-diasporic ethnobotany: Food plants and food sovereignty of Quilombos in Brazil

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Ethnobotany Research and Applications 26:42 (2023) - http://dx.doi.org/10.32859/era.26.42.1-23
Manuscript received: 18/04/2023 – Revised manuscript received: 09/09/2023 - Published: 19/09/2023

Research

Abstract

Background: Traditional territories can safeguard a great diversity of food plants through local practices that can contribute to the food security of these traditional people. Urbanization can affect food biodiversity and agrobiodiversity by reducing cultivation areas, providing other labor and employment alternatives, and due to other combined effects. The remaining Quilombo populations are groups of traditional people with African ancestry in Brazil, and several Quilombolas groups have their food sovereignty dependent on local agrobiodiversity.

Methods: Through a bibliographic review, we described the richness of food plant resources reported by remaining Quilombo communities, verifying the importance and potential use of plants, both native and exotic, for Quilombola sovereignty from the north to the south of the country.

Results: We selected 24 publications from 1,189 articles, which covered 39 Quilombola communities, with a concentration of research efforts in the Atlantic Forest and Cerrado. A total of 234 plants were registered, and despite their similarities, these communities have specificities in their knowledge of food plants, especially the native ones.

Conclusions: The sovereignty of the Quilombola people goes through the recognition of their ways of life in different biomes and contexts of socio-biodiversity.

Keywords: Afro-Brazilian territoriality; food security; biodiversity conservation.

Background

African diaspora is a slight name for a hideous chapter of human history in which the forced movement of enslaved people from Africa to the Americas resulted in almost 5 million people being trafficked to the Brazilian coast for more than 300 years (Eltis 2007). The relationship of this massive and forced migration with ethnobotanical knowledge was discussed elsewhere, both in the Brazilian context (e.g. Voeks 2013, Vandebroek & Voeks 2018, Albuquerque 1999, Carney 2004) and in other parts of the American continent (e.g. Van Andel *et al.* 2014, Carney & Rosomoff 2009, Pasquini *et al.* 2018). However, several outcomes of this historical process still must be addressed to provide a better understanding of what Malcolm Ferdinand (2022) called "the fractures which erased the continuities in which humans and non-humans were confused with 'resources' and which fed the same colonial project". For example, in Brazil, after the legal end of slavery, there was a gap of more than a hundred years in the legislation to assure the territorial rights of Quilombola communities (Carvalho & Lima 2013). The relationship between territory and ethnobotany is one of these outcomes with gaps to be filled: a recognized territory should assure access to natural resources, including plant, animal and water resources, and may also assure the symbolic and historical relationships with that given environment.

In Brazil, the Remaining Quilombo Communities, or hereafter Quilombola communities, are urban and rural populations with self-determination concerning their historical heritage of resistance against colonization; and are mainly formed by black and African descendant people (Costa 2008, Nascimento 2018a). They are groups that produce and adapt knowledge and uses of biodiversity, developing biointeractions to maintain and reproduce their livelihoods in the consolidation of their territory (O'Dwyer 2010, Santos 2015). Brazilian legislation recognizes the Quilombola rights to their territories for their physical, social, economic, and cultural reproduction (Carvalho & Lima 2013). However, the process of territorial recognition is complex and often threatened. The colonizing processes sought to produce underdeveloped societies lacking autonomy, and these populations faced and still face the occupation, acquisition, and exploitation of people and territories in multiple ways (Mudimbe 2013, Nascimento 2018a).

From a biocultural perspective, the continuous use of a given territory allows for the relationships that result in complex socioecological systems (Maffi 2018). Within these systems, the plants used for purposes such as medicine and food can be related to traditional knowledge and plant availability and are also affected by socioeconomic characteristics of their users, nature conservation policies, urbanization and access to markets, among other variables. In particular, the availability and access to plants used as food can affect the food security of indigenous and traditional peoples, including Afro-Brazilian people, promoting discussions that go beyond ethnobotany and dialogues with multiple knowledges (Katz 2021, Medeiros *et al.* 2013, Oliveira *et al.* 2009).

In addition to the historical gap related to their territories, the Quilombola population started to be considered in the Brazilian census only in 2022, when the official data recordings about these communities started and registered about 1,3 million Quilombolas living inside and outside their territories. Thus, for 150 years, this population has been invisibilized in its social role, generating an erasure of its demography and reinforcing the colonizing image of what a quilombo should be and what means to be a Quilombola, disregarding the regional differences and historical trajectories of resistance these populations (Instituto Brasileiro de Geografia e Estatística [IBGE] 2021, Nascimento 2018b).

One of the consequences of environmental racism towards the Quilombola people is the legal procedures that ensure their rights to the territory. The minority of Quilombos are fully entitled because this process requires stages of self-identification, certification, recognition, and entitlement of the territory (Albuquerque & Filho 2006), and each stage has specific requirements. According to estimates of the Geographical Information and Statistics Basis on Indigenous Peoples and Quilombolas (IBGE 2021), around 5,972 Quilombos, distributed in 1,672 municipalities in all Brazilian biomes were certified, and from the year 1995 (when the first Quilombola territory was entitled) to 2022, only 176 Quilombola territories were fully entitled, resulting in an accumulation of non-entitled Quilombola communities and huge insecurity and vulnerability regarding the maintenance of their historic territories and livelihoods (Comissão Pró-Indio de São Paulo [CPI] 2022).

The conservation of food plant resources by traditional peoples takes place through their presence in everyday practices, including culinary and eating habits rooted in elements of their cosmovision and ethnic identity (Barbas-Rhoden 2010, Conti & Coelho-de-Souza 2014, Etkin 2006), and through the management of the agrobiodiversity which provides food plants (Gonçalves *et al.* 2022). These practices are directly related to food security (the access to sufficient safe and nutritious food) and food sovereignty of a given community (their right to control their own food systems and production modes; Wittman 2011). For rural Quilombola communities, agrobiodiversity and network exchanges of food plants can strengthen local food sovereignty, reducing food insecurity (Gonçalves *et al.* 2022).Urbanization can affect the traditional ecological knowledge about food plants due to the proximity to markets and the increased contact with other groups. In this process, parts of traditional knowledge can be lost, and other parts can be favored (Gaoue *et al.* 2017, Vandebroek & Balick 2012, Zimmerer *et al.* 2022). The proximity to urban centers and to a higher population density can also modify access to plant resources by influencing decisions about land management, size of agricultural area, and extraction of native plants (McDaniel & Alley 2005), and offering more profitable urban jobs when compared to traditional farming activities.

Thus, considering this historical and continually evolving context—in which the colonialist oppressions remain, albeit subliminal—, we aim to synthesize the role of food plants used by Quilombola communities for their food sovereignty through a systematic review of literature. We aim to understand the relationships between the socioeconomic characteristics of Quilombola communities, present in all Brazilian biomes, and the food plants used. We are considering that different degrees of urbanization can affect the composition and richness of food plants used, in which more urbanized communities (or those nearer urban centers) may rely on a lower plant richness due to access to markets and other economic activities in alternative to farming. We also expect that communities with more autonomy in their territorial management will use a higher richness of food plants. Finally, we aim to discuss the potential of ethnobotanical studies on food plant uses regarding the Quilombola food sovereignty.

Materials and Methods

We performed a systematic review of ethnobotany articles in Quilombola communities using the Web of Science, Scopus, and Google Scholar databases based on the PRISMA (2020) methodological guidelines, by using the search keywords: "Ethnobotany" OR "Plants use" OR "Plants used " OR "Uses of plants" OR "Knowledge of plants" OR "Ethnobotanical works" OR "Ethnobotanical work" OR "Useful Plants" OR "Local knowledge about plants" OR "Traditional knowledge about plants" OR "Ethnoecology" OR "Ethnobiology" AND "Quilombolas" OR "Quilombola" OR "Quilombo" OR "Maroons." We searched article titles, keywords, and abstracts, for articles published from 1988 (the year of legal recognition of Quilombola communities in the Brazilian constitution) to 2020.

The article's inclusion criterion was the citation of knowledge and use of at least one botanical species for food purposes in Quilombos. In addition to the systematic review, we incorporated data from the free listing obtained at Quilombola communities São Roque, in Santa Catarina (Cantelli 2020). We excluded studies that did not mention the Quilombola community name, articles focusing exclusively on medicinal herbs, gray literature (thesis, dissertations, abstracts), review articles, duplicate articles, non-indexed articles, and books from our review.

We extracted socioeconomic variables from the articles and complemented them with information from the databases of municipal and federal protected areas (ISA 2022), Fundação Palmares (Fundação Palmares 2022), and Instituto Brasileiro de Geografia e Estatística (IBGE 2022).

Regarding the protection of traditional knowledge, we asked for the consent of the National Coordination of Quilombo Articulation (CONAQ), through the signature of a term on consent pointing out the main implications of the ethnobotanical bibliographic review research (Supplementary material). We registered the activities of assessing traditional knowledge on biodiversity from secondary sources in the National Genetic Heritage Management System (SISGen), with registration code AD17227.

Analyses

To provide the scenario of the studies about Quilombola food plant use we briefly summarized the bibliometric data. We calculated percentages of occurrence of each state for the data about autonomy and territorial management of Quilombola communities, based on the following qualitative information: (a) territory entitlement phase: self-identification (first phase of the entitlement process), certification (second phase), territory recognition (third phase), and territory entitlement (final phase); (b) presence of protected areas; (c) biome (Amazon, Atlantic Forest, Caatinga, Cerrado, and transitions between Caatinga/Atlantic Forest, Cerrado/Amazon, or Cerrado/Pantanal); and (d) land management: agriculture/farming, homegardens/yards, or extractivism.

For the data about urbanization/socioeconomic variables and food plants, we did exploratory analyses of clusters to verify the dissimilarity of the Quilombola communities. First, to understand if and how the Quilombola communities were grouped according to urbanization and socioeconomic descriptors, we built a dendrogram with the variables: (a) distance from the nearest urban area (in Km); (b) number of families in the community; (c) municipal human development index (MHDI); and (d) population density of the municipality. For this analysis we used the standardized Euclidean distance and checked the consistency with the cophenetic correlation coefficient; thus Quilombola communities were clustered via the average linkage method. In this dendrogram, the predominant biome of each community was plotted in different colors. Then, we explored these data with a principal component analysis (PCA) to assess which of these variables better explained the Quilombola communities grouping, also considering the biomes and transition areas between them for a better detailing of the results (Hongyu *et al.* 2016, Kassambara 2017). To understand if and how the Quilombola communities were grouped according to the food plants, we built a second dendrogram with the food plant species in each article, considering native plants. For this analysis we considered only those communities with more than five native species, thus we reduced our dataset to 18 communities. We standardized botanical nomenclatures following the *Useflora* database (USEFLORA 2021), and the list of plant species was reviewed with the Kew Names Matching Service (2022), and Flora e Funga do Brasil, through the app *Plantminer*, which is based on the *R package* 'flora' (Carvalho 2017). Data on origin (native to Brazil, naturalized, or exotic) were extracted from Flora e Funga do Brasil (2022), and corrected when needed. For this second dendrogram, we elaborated a matrix of distance considering only native species with data on absence (0) and presence (1). According to the analysis of the cophenetic correlation coefficient, the Sorensen index was chosen to calculate the dissimilarity matrix, and, for the clustering we used the Ward distance. In this dendrogram, we also plotted the predominant biome of each community, in different colors. Finally, to identify and measure associations between the socioeconomic/urbanization data and the plant composition data we used a Canonical Correspondence Analysis (CCA). All analyses were implemented in R through the Factor *Extra*, *Multivariate Analysis*, and *Vegan* packages (Kassambara 2017, R Development Core Team 2014).

Results

Articles

Out of 1,189 articles found in the three databases, only 24 met the search criteria (Figure 1, Supplementary material). The results from the Google Scholar database search showed the highest number of excluded articles (99%) and, at the same time, contributed to 46% of the articles selected in this review. Most of the initially excluded articles were out of the research topic (333) and duplicated (262) (Figure 1).

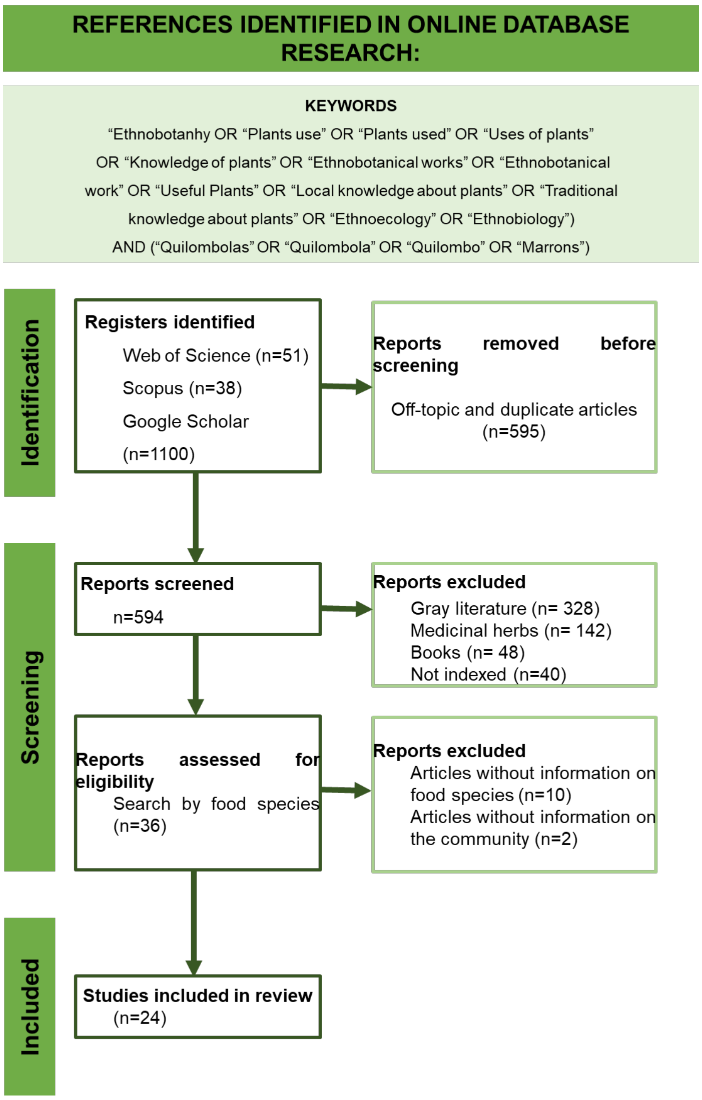

Figure 1. Flowchart of the process of extracting data on food plants from ethnobotany articles in remaining Quilombola communities (image prepared by the author, 2022).

Among the reviewed studies, 14 used interviews with experts through the snowball or key informant methods; 10 carried out a census-type survey; and one evaluated the different data collection methods (Albuquerque *et al.* 1999). In 11 articles, the authors evaluated qualitative data, and in 14 articles, the combined qualitative and quantitative approaches predominated. The articles were published between 2010 and 2020.

Remaining Quilombola Communities: Autonomy and territorial management

We identified 39 Quilombola communities participating in the 24 studies reviewed. Some articles included more than one Quilombola community or more than one study; for example, Aldeia, Morro do Fortunato, and Santa Cruz, in the south of the Atlantic Forest were studied by (Ávila *et al.* 2015, 2017), and the Kalunga Engenho II community in the Cerrado biome was studied in more than one article (Martins *et al.* 2012, Sander *et al.* 2018).

Regarding the environmental context, most Quilombola communities (n=19) are in the Atlantic Forest biome, two in the northeast region, four in the south region, and 12 in the southeast region; 11 in the Caatinga, six of which are in transition areas, between the Caatinga and the Atlantic Forest; eight Quilombola communities in the Cerrado, three in transition areas, between the Cerrado and the Amazon, and one between the Cerrado and the Pantanal; and only one Quilombola community in the Amazon biome.

Regarding territorial autonomy, none of the Quilombola communities has ownership of their territories (full entitlement of the territory). Twenty-three were certified (second phase of the entitlement process), 11 were in the process of recognizing the territory (third phase of the entitlement process), and five were in the first phase of the entitlement process (self-identification). About half of the studied communities (51%) had some juxtaposition with protected areas, most of them under categories with restrictions to the presence of inhabitants and resource use (such as Parks and Ecological Stations); only five of these protected areas are of sustainable use (environmental protection areas or extractive reserves). Regarding the management and use of plant resources, the studies in 29 Quilombola communities (74%) mentioned, mainly, management of cultivated areas via agriculture (farming), followed by the management of vegetable gardens and backyards (16%), and extractivism (10%).

Urbanization and the use of plants for food

Most of these Quilombola communities (59%) are in the surroundings of urban areas, less than 26 Km from the nearest urban centers (average distance from urban centers = 26.0 km, standard deviation = 22.3). Communities' size varied from 5 to about 280 families (avg = 63 families, st. dev. = 62.8). Demographic density in the municipalities where these communities are located is 47.69 inhabitants per square kilometer, on average (st. dev. = 101.57 inhabitants per square kilometer), and the MHDI is 0.65 in average (st. dev. = 0.06). According to these variables, two Quilombola communities are distinguished from the others. Quilombola community Carrasco, located in the Caatinga biome, and Joana Peres, the only entirely located in the Amazon biome (Figure 2). The other communities are clustered in a larger subgroup, where Quilombola communities from the same biome are generally closer to each other.

The clustering of this large subgroup is related to a small distance from the urban area, (Figure 3); with opposition to the separation of the community from Amazon. The first two components of the Principal Component Analysis (PCA) explain 85.3% of the total variance, and the Principal Component 1 (PC1) is positively correlated with demographic density and negatively correlated with the distance from the urban area. The variable with the greatest influence on the results of the Principal Components 2 (PC2) was the distance from the urban area (Figure 3).

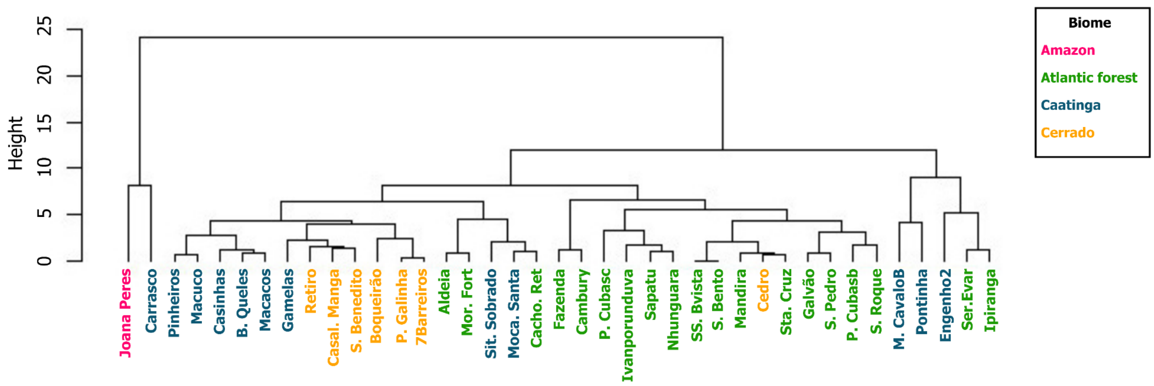

Figure 2. Dendrogram of the standardized Euclidean distance from the Quilombola communities grouped according to socioeconomic variables (number of families, distance from the urban area, Municipal Human Development Index (MHDI), and municipal population density), using the hierarchical average linkage method (n=39).

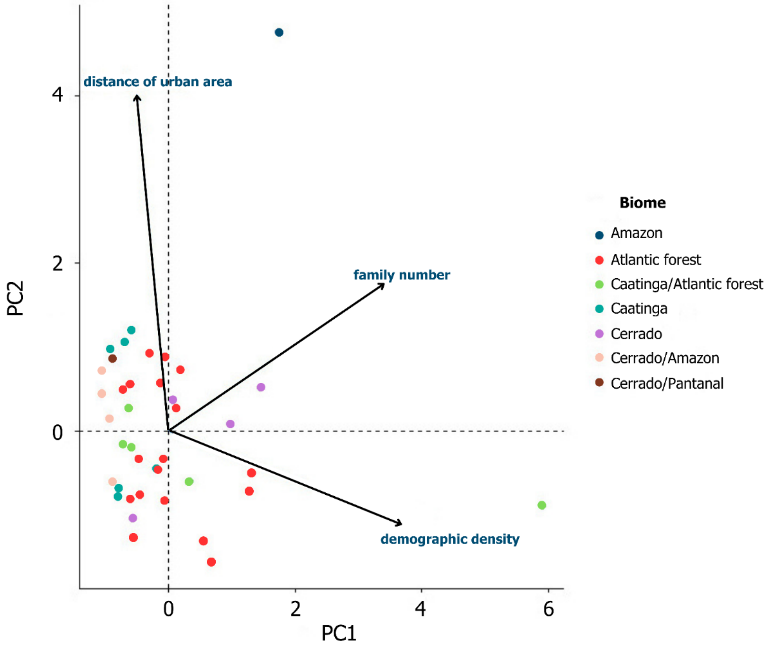

Figure 3. Principal Component Analysis for Remaining Quilombo Communities (points) and quantitative socioeconomic descriptors (arrows): Distance from the urban area (dist_urban_area); number of families per RQC (famil_n); and demographic density as a function of the Principal Components 1 and 2 (PC1 and PC2), which explain 85.3% of the total variance.

Species richness and food plants used by Quilombola communities

A total of 234 species belonging to 63 families were inventoried, with the most frequent families being Arecaceae (34), Myrtaceae (21), and Fabaceae (14) (Table 1).

Table 1. List of food species cited by Quilombo Remnant Communities in Brazil in 24 ethnobotanical studies.

Origin	**Botanical family**	**Species**	**Studies**
Native	Alismataceae	*Echinodorus grandiflorus* (Cham. & Schltr.) Micheli	Crepaldi & Peixoto (2010)
Cultivated	Amaranthaceae	*Beta vulgaris* L.	Ávila *et al.* (2015, 2017)
Cultivated	Amaryllidaceae	*Allium cepa* L.	Cantelli (2020)
Cultivated	Amaryllidaceae	*Allium fistulosum* L.	Ávila *et al.* 2015, 2017), Cantelli (2020), Figueiredo & Barros (2016), Pasa et al, (2015), Silva *et al.* (2014)
Cultivated	Amaryllidaceae	*Allium sativum* L.	Pasa *et al.* (2015), Santos *et al.* (2019)
Cultivated	Amaryllidaceae	*Allium schoenoprasum* L.	Santos *et al.* (2019)
Native	Anacardiaceae	*Anacardium humile* A.St.-Hil.	Silva (2019)
Native	Anacardiaceae	*Anacardium occidentale* L.	Almeida & Bandeira (2010), Assis *et al.* (2019), Crepaldi & Peixoto (2010), Diniz *et al.* (2011), Pasa *et al.* (2015), Santos & Barros (2017), Santos *et al.* (2019), Silva *et al.* (2014) Silva (2019), Viera *et al.* (2008)
Cultivated	Anacardiaceae	*Mangifera indica* L.	Assis *et al.* (2019), Crepaldi & Peixoto (2010), Pasa *et al.* (2015), Rocha *et al.* (2019), Santos & Barros (2017), Santos *et al.* (2019), Silva (2019), Silva *et al.* (2014)
Native	Anacardiaceae	*Schinus terebinthifolia* Raddi	Crepaldi & Peixoto (2010), Rocha *et al.* (2019)
Cultivated	Anacardiaceae	*Spondias dulcis* Parkinson	Crepaldi & Peixoto (2010)
Cultivated	Anacardiaceae	*Spondias purpurea* L.	Santos *et al.* (2019), Silva *et al.* (2014)
Native	Anacardiaceae	*Spondias tuberosa* Arruda	Almeida & Bandeira (2010)
Native	Anacardiaceae	*Tapirira guianensis* Aubl.	Rocha *et al.* (2019)
Native	Annonaceae	*Annona mucosa* Jacq.	Cantelli (2020), Silva *et al.* (2014)
Cultivated	Annonaceae	*Annona muricata* L.	Assis *et al.* (2019), Crepaldi & Peixoto (2010), Santos *et al.* (2019), Silva (2019)
Native	Annonaceae	*Annona salzmannii* A.DC.	Rocha *et al.* (2019)
Cultivated	Annonaceae	*Annona squamosa* L.	Pasa *et al.* (2015), Santos *et al.* (2019), Silva *et al.* (2014)
Native	Annonaceae	*Annona sylvatica* A.St.-Hil.	Cantelli (2020)
Cultivated	Apiaceae	*Coriandrum sativum* L.	Figueiredo & Barros (2016), Santos *et al.* (2019), Silva *et al.* (2014)
Cultivated	Apiaceae	*Daucus carota* L.	Ávila *et al.* (2015, 2017), Cantelli (2020)
Native	Apiaceae	*Eryngium foetidum* L.	Crepaldi & Peixoto (2010), Silva *et al.* (2014)
Cultivated	Apiaceae	*Petroselinum crispum* (Mill.) Fuss	Ávila *et al.* (2015, 2017), Pasa *et al.* (2015), Silva *et al.* (2014)
Cultivated	Apiaceae	*Pimpinella anisum* L.	Ávila *et al.* (2015, 2017)
Native	Apocynaceae	*Hancornia speciosa* Gomes	Almeida & Bandeira (2010), Diniz *et al.* (2011), Rocha *et al.* 2019, Silva *et al.* (2014)
Native	Apocynaceae	*Macoubea guianensis* Aubl.	Rocha *et al.* (2019)
Cultivated	Araceae	*Colocasia esculenta* (L.) Schott	Cantelli (2020), Silva *et al.* (2014)

Native	Araceae	*Xanthosoma sagittifolium* (L.) Schott	Cantelli (2020), Conde *et al.* (2017)
Naturalized	Araceae	*Xanthosoma robustum* Schott	Ávila *et al.* (2015, 2017)
Native	Araucariaceae	*Araucaria angustifolia* (Bertol.) Kuntze	Cantelli (2020), Conde *et al.* (2017)
Native	Arecaceae	*Acrocomia aculeata* (Jacq.) Lodd. ex Mart.	Arruda *et al.* (2014), Martins *et al.* (2014), Silva *et al.* (2014
Native	Arecaceae	*Allagoptera campestris* (Mart.) Kuntze	Martins *et al.* (2014)
Native	Arecaceae	*Allagoptera leucocalyx (*Drude) Kuntze	Arruda *et al.* (2014), Martins *et al.* (2014)
Cultivated	Arecaceae	*Archontophoenix cunninghamiana* (H.Wendl.) H.Wendl. & Drude	Cantelli (2020),
Native	Arecaceae	*Astrocaryum aculeatissimum* (Schott) Burret	Crepaldi & Peixoto (2010)
Native	Arecaceae	*Astrocaryum aculeatum* G.Mey.	Silva *et al.* (2014)
Native	Arecaceae	*Astrocaryum echinatum* Barb.Rodr.	Arruda *et al.* (2014)
Native	Arecaceae	*Astrocaryum huaimi* Mart.	Arruda *et al.* (2014)
Native	Arecaceae	*Attalea compta* Mart.	Martins *et al.* (2014)
Native	Arecaceae	*Attalea eichleri* (Drude) A.J.Hend.	Martins *et al.* (2014)
Native	Arecaceae	*Attalea humilis* Mart.	Crepaldi & Peixoto (2010)
Native	Arecaceae	*Attalea phalerata* Mart. ex Spreng.	Pasa *et al.* (2015), Silva *et al.* (2014)
Native	Arecaceae	*Attalea speciosa* Mart. ex Spreng.	Arruda *et al.* (2014), Martins *et al.* (2014), Pasa *et al.* (2015), Silva *et al.* (2014)
Native	Arecaceae	*Bactris glaucescens* Drude	Arruda *et al.* (2014)
Native	Arecaceae	*Butia purpurascens* Glassman	Martins *et al.* (2014)
Naturalized	Arecaceae	*Cocos nucifera* L.	Silva *et al.* (2014), Silva (2019), Santos *et al.* (2019), Crepaldi & Peixoto (2010), Rocha *et al.* (2019)
Native	Arecaceae	*Desmoncus polyacanthos* Mart.	Crepaldi & Peixoto (2010)
Naturalized	Arecaceae	*Elaeis guineensis* Jacq.	Rocha et al (2019)
Native	Arecaceae	*Euterpe edulis* Mart.	Barroso *et al.* (2010), Cantelli (2020), Conde *et al.* (2017), Martins *et al.* (2014), Prado *et al.* (2013)
Native	Arecaceae	*Euterpe oleracea* Mart.	Crepaldi & Peixoto (2010), Silva *et al.* (2014)
Native	Arecaceae	*Euterpe precatoria* Mart.	Arruda *et al.* (2014)
Native	Arecaceae	*Geonoma pohliana* Mart.	Martins *et al.* (2014)
Native	Arecaceae	*Mauritia flexuosa* L.f.	Arruda *et al.* (2014), Martins *et al.* (2012, 2014), Sander *et al.* (2018)
Native	Arecaceae	*Mauritiella armata* (Mart.) Burret	Martins *et al.* (2014)
Native	Arecaceae	*Oenocarpus bacaba* Mart.	Figueiredo & Barros (2016)
Native	Arecaceae	*Allagoptera caudescens* (Mart.) Kuntze	Crepaldi & Peixoto (2010)
Native	Arecaceae	*Syagrus comosa* (Mart.) Mart.	Arruda *et al.* (2014), Martins *et al.* (2014)
Native	Arecaceae	*Syagrus coronata* (Mart.) Becc.	Almeida & Bandeira (2010)

Native	Arecaceae	*Syagrus deflexa* Noblick & Lorenzi	Martins *et al.* (2014)
Native	Arecaceae	*Syagrus oleracea* (Mart.) Becc.	Martins *et al.* (2014), Pasa *et al.* (2015)
Native	Arecaceae	*Syagrus romanzoffiana* (Cham.) Glassman	Cantelli (2020), Martins *et al.* (2014)
Native	Arecaceae	*Syagrus rupicola* Noblick & Lorenzi	Martins *et al.* (2014)
Native	Arecaceae	*Syagrus vermicularis* Noblick	Arruda *et al.* (2014)
Native	Asteraceae	*Achyrocline satureioides* (Lam.) DC.	Cantelli (2020)
Cultivated	Asteraceae	*Artemisia absinthium* L.	Crepaldi & Peixoto (2010)
Cultivated	Asteraceae	*Cichorium endivia* L.	Figueiredo & Barros (2016)
Cultivated	Asteraceae	*Cichorium intybus* L.	Silva *et al.* (2014)
Cultivated	Asteraceae	*Lactuca sativa* L.	Ávila *et al.* (2015, 2017), Cantelli (2020), Pasa *et al.* (2015), Santos *et al.* (2019), Silva *et al.* (2014)
Native	Asteraceae	*Moquiniastrum oligocephalum* (Gardner) G. Sancho	Almeida & Bandeira (2010)
Native	Asteraceae	*Vernonanthura polyanthes* (Sprengel) Vega & Dematteis	Crepaldi & Peixoto (2010)
Native	Bignoniaceae	*Tynanthus cognatus* (Cham.) Miers	Crepaldi & Peixoto (2010)
Native	Bignoniaceae	*Tynanthus fasciculatus* (Vell.) Miers	Cantelli (2020)
Native	Bixaceae	*Bixa arborea* Huber	Diniz *et al.* (2011)
Native	Bixaceae	*Bixa orellana* L.	Conde *et al.* (2017), Crepaldi & Peixoto (2010), Figueiredo & Barros (2016), Santos *et al.* (2019), Silva (2019), Silva *et al.* (2014)
Cultivated	Brassicaceae	*Brassica oleracea* L.	Ávila *et al.* (2015, 2017), Pasa *et al.* (2015), Silva (2019)
Naturalized	Brassicaceae	*Brassica rapa* L.	Conde *et al.* (2017), Silva *et al.* (2014)
Cultivated	Brassicaceae	*Eruca vesicaria* (L.) Cav.	Silva *et al.* (2014)
Cultivated	Brassicaceae	*Rorippa nasturtium-aquaticum* (L.) Hayek	Cantelli (2020), Silva *et al.* (2014)
Native	Brassicaceae	*Coronopus didymus* (L.) Sm.	Crepaldi & Peixoto (2010)
Native	Bromeliaceae	*Ananas ananassoides* (Baker) L.B.Sm.	Silva *et al.* (2014)
Native	Bromeliaceae	*Ananas bracteatus* (Lindl.) Schult. & Schult.f.	Cantelli (2020)
Native	Bromeliaceae	*Ananas comosus* (L.) Merril	Pasa *et al.* (2015), Santos *et al.* (2019), Silva *et al.* (2014)
Native	Cactaceae	*Cereus jamacaru* DC.	Almeida & Bandeira (2010)
Naturalized	Cactaceae	*Nopalea cochenillifera* (L.) Salm-Dyck	Assis *et al.* (2019)
Native	Cactaceae	*Pereskia aculeata* Mill.	Crepaldi & Peixoto (2010)
Naturalized	Caricaceae	*Carica papaya* L.	Ávila *et al.* (2015, 2017), Crepaldi & Peixoto (2010), Pasa *et al.* (2015), Santos *et al.* (2019), Silva (2019), Silva *et al.* (2014)
Native	Caryocaraceae	*Caryocar brasiliense* Cambess.	Diniz *et al.* (2011), Pasa *et al.* (2015), Pinto *et al.* (2016), Silva (2019), Silva *et al.* (2014)

Native	Celastraceae	*Monteverdia erythroxyla* (Reissek) Biral	Rocha *et al.* (2019)
Native	Celastraceae	*Salacia elliptica* (Mart.) G. Don	Silva *et al.* (2014)
Native	Chrysobalanaceae	*Hirtella racemosa* Lam.	Rocha *et al.* (2019)
Native	Clusiaceae	*Garcinia gardneriana* (Planch. & Triana) Zappi	Cantelli (2020), Silva *et al.* (2014)
Cultivated	Clusiaceae	*Garcinia mangostana* L.	Crepaldi & Peixoto (2010)
Naturalized	Combretaceae	*Terminalia catappa* L.	Santos *et al.* (2019)
Naturalized	Convolvulaceae	*Ipomoea batatas* (L.) Lam.	Ávila *et al.* (2015, 2017), Cantelli (2020), Pasa *et al.* (2015)
Cultivated	Cucurbitaceae	*Citrullus lanatus* (Thunb.) Matsum. & Nakai	Silva *et al.* (2014)
Cultivated	Cucurbitaceae	*Coccinia grandis* (L.) Voigt	Silva *et al.* (2014)
Native	Cucurbitaceae	*Cucumis anguria* L.	Pasa *et al.* (2015), Silva *et al.* (2014)
Cultivated	Cucurbitaceae	*Cucumis melo* L.	Cantelli (2020)
Cultivated	Cucurbitaceae	*Cucumis sativus* L.	Cantelli (2020)
Cultivated	Cucurbitaceae	*Cucurbita moschata* Duchesne	Pasa *et al.* (2015)
Cultivated	Cucurbitaceae	*Cucurbita pepo* L.	Cantelli (2020), Silva *et al.* (2014)
Cultivated	Cucurbitaceae	*Lagenaria siceraria* (Molina) Standl.	Crepaldi & Peixoto (2010)
Naturalized	Cucurbitaceae	*Sicyos edulis* Jacq.	Cantelli (2020), Diniz *et al.* (2011), Silva (2019)
Cultivated	Cupressaceae	*Thuja occidentalis* L.	Santos *et al.* (2019)
Native	Cyperaceae	*Cyperus pedunculatus* (R.Br.) J.Kern	Crepaldi & Peixoto (2010)
Native	Dilleniaceae	*Curatella americana* L.	Silva *et al.* (2014)
Cultivated	Dioscoreaceae	*Dioscorea alata* L.	Cantelli (2020), Pasa *et al.* (2015), Silva *et al.* (2014)
Naturalized	Dioscoreaceae	*Dioscorea bulbifera* L.	Silva *et al.* (2014)
Cultivated	Dioscoreaceae	*Dioscorea cayennensis* Lam.	Cantelli (2020)
Native	Dioscoreaceae	*Dioscorea dodecaneura* Vell.	Silva *et al.* (2014)
Cultivated	Ebenaceae	*Diospyros kaki* L.f.	Cantelli (2020)
Native	Erythroxylaceae	*Erythroxylum bezerrae* Plowman	Viera *et al.* (2008)
Native	Euphorbiaceae	*Jatropha gossypiifolia* L. *	Silva *et al.* (2014)
Native	Euphorbiaceae	*Manihot esculenta* Crantz	Assis *et al.* (2019), Ávila *et al.* (2015, 2017), Cantelli (2020), Conde *et al.* (2017), Crepaldi & Peixoto (2010), Diniz *et al.* (2011), Oler *et al.* (2019), Pasa *et al.* (2015), Prado *et al.* 2013, Santos & Barros (2017), Santos *et al.* (2019), Silva *et al.* (2014), Viera *et al.* (2008)
Naturalized	Fabaceae	*Arachis hypogaea* L.	Ávila *et al.* (2015, 2017), Silva *et al.* (2014)
Naturalized	Fabaceae	*Cajanus cajan* (L.) Huth	Pasa *et al.* (2015)
Cultivated	Fabaceae	*Glycine max* (L.) Merr.	Silva *et al.* (2014)
Native	Fabaceae	*Hymenaea courbaril* L.	Silva (2019), Silva *et al.* (2014), Viera *et al.* (2008)

Native	Fabaceae	*Hymenaea rubriflora* Ducke	Rocha *et al.* (2019)
Native	Fabaceae	*Inga blanchetiana* Benth.	Rocha *et al.* (2019)
Native	Fabaceae	*Inga capitata* Desv.	Crepaldi & Peixoto (2010)
Native	Fabaceae	*Inga marginata* Willd.	Cantelli (2020)
Native	Fabaceae	*Inga vera* Willd.	Cantelli (2020)
Native	Fabaceae	*Libidibia ferrea* (Mart. ex Tul.) L.P.Queiroz	Silva *et al.* (2014)
Cultivated	Fabaceae	*Phaseolus vulgaris* L.	Ávila *et al.* (2015, 2017), Cantelli (2020), Prado *et al.* 2013, Santos & Barros (2017), Santos *et al.* (2019), Silva *et al.* (2014)
Cultivated	Fabaceae	*Tamarindus indica* L.	Pasa *et al.* (2015), Silva (2019), Silva *et al.* (2014)
Cultivated	Fabaceae	*Vicia faba* L.	Assis *et al.* (2019), Cantelli (2020), Santos *et al.* (2019)
Cultivated	Fabaceae	*Vigna unguiculata* (L.) Walp.	Assis *et al.* (2019)
Cultivated	Lamiaceae	*Melissa officinalis* L.	Ávila *et al.* (2015, 2017)
Cultivated	Lamiaceae	*Ocimum basilicum* L.	Crepaldi & Peixoto (2010), Figueiredo & Barros, 2016
Naturalized	Lamiaceae	*Ocimum gratissimum* L.	Crepaldi & Peixoto (2010)
Cultivated	Lamiaceae	*Origanum majorana* L.	Cantelli (2020),
Cultivated	Lamiaceae	*Origanum vulgare* L.	Cantelli (2020),
Cultivated	Lamiaceae	*Plectranthus barbatus* Andr.	Crepaldi & Peixoto (2010)
Native	Lamiaceae	*Vitex cymosa Bertero* ex Spreng.	Silva *et al.* (2014)
Cultivated	Lamiaceae	*Plectranthus ornatus* Codd	Ávila *et al.* (2015, 2017)
Cultivated	Lauraceae	*Cinnamomum verum* J.Presl	Cantelli (2020)
Cultivated	Lauraceae	*Laurus nobilis* L.	Ávila *et al.* (2015, 2017)
Naturalized	Lauraceae	*Persea americana* Mill.	Ávila *et al.* (2015, 2017), Cantelli (2020), Crepaldi & Peixoto (2010), Santos *et al.* (2019), Silva *et al.* (2014)
Native	Lecythidaceae	*Bertholletia excelsa* Bonpl.	Figueiredo & Barros, 2016, Silva *et al.* (2014)
Native	Loganiaceae	*Strychnos pseudoquina* A.St.-Hil.	Silva *et al.* (2014)
Cultivated	Lythraceae	*Punica granatum* L.	Pasa *et al.* (2015)
Native	Malpighiaceae	*Byrsonima crassifolia* (L.) Kunth	Almeida & Bandeira (2010)
Native	Malpighiaceae	*Byrsonima gardneriana* A.Juss.	Rocha *et al.* (2019)
Native	Malpighiaceae	*Byrsonima triopterifolia* A.Juss.	Almeida & Bandeira (2010)
Cultivated	Malpighiaceae	*Malpighia emarginata* DC.	Santos *et al.* (2019)
Cultivated	Malpighiaceae	*Malpighia glabra* L.	Conde *et al.* (2017), Crepaldi & Peixoto (2010), Pasa *et al.* (2015), Silva *et al.* (2014)
Cultivated	Malvaceae	*Abelmoschus esculentus* (L.) Moench	Crepaldi & Peixoto (2010), Pasa *et al.* (2015), Santos *et al.* (2019), Silva *et al.* (2014)

Native	Malvaceae	*Pachira glabra* Pasq.	Crepaldi & Peixoto (2010)
Native	Malvaceae	*Guazuma ulmifolia* Lam.	Silva *et al.* (2014)
Native	Malvaceae	*Theobroma cacao* L.	Silva *et al.* (2014)
Native	Malvaceae	*Theobroma grandiflorum* (Willd. ex Spreng.) K.Schum. in Mart.	Pasa *et al.* (2015), Silva *et al.* (2014)
Native	Melastomataceae	*Leandra australis* (Cham.) Cogn.	Cantelli (2020)
Native	Melastomataceae	*Miconia albicans* (Sw.) Steud.	Crepaldi & Peixoto (2010)
Native	Melastomataceae	*Mouriri guianensis* Aubl.	Silva *et al.* (2014)
Native	Meliaceae	*Guarea macrophylla* Vahl	Crepaldi & Peixoto (2010)
Naturalized	Moraceae	*Artocarpus altilis* (Parkinson) Fosberg	Crepaldi & Peixoto (2010), Silva *et al.* (2014)
Naturalized	Moraceae	*Artocarpus heterophyllus* Lam.	Rocha *et al.* (2019), Santos *et al.* (2019), Silva (2019), Silva *et al.* (2014)
Naturalized	Moraceae	*Artocarpus integer* (Thunb.) Merr.	Crepaldi & Peixoto (2010)
Native	Moraceae	*Brosimum glaziovii* Taub.	Crepaldi & Peixoto (2010)
Cultivated	Moraceae	*Ficus carica* L.	Cantelli (2020), Silva *et al.* (2014)
Native	Moraceae	*Ficus clusiifolia* Schott	Crepaldi & Peixoto (2010), Figueiredo & Barros, 2016
Cultivated	Moraceae	*Morus alba* L.	Silva *et al.* (2014)
Cultivated	Moraceae	*Morus nigra* L.	Cantelli (2020),
Cultivated	Musaceae	*Musa paradisiaca* L.	Santos *et al.* (2019), Silva *et al.* (2014)
Naturalized	Musaceae	*Musa acuminata* Colla	Prado *et al.* (2013)
Naturalized	Musaceae	*Musa ×paradisiaca* L.	Pasa *et al.* (2015)
Native	Myrtaceae	Feijoa sellowiana (O.Berg) O.Berg	Cantelli (2020)
Native	Myrtaceae	*Campomanesia guazumifolia* (Cambess.) O.Berg	Cantelli (2020)
Native	Myrtaceae	*Campomanesia xanthocarpa* (Mart.) O.Berg	Cantelli (2020)
Native	Myrtaceae	*Eugenia bergii* Nied.	Ávila *et al.* (2015, 2017), Cantelli (2020), Crepaldi & Peixoto (2010)
Native	Myrtaceae	*Eugenia dysenterica* (Mart.) DC.	Diniz *et al.* (2011), Silva *et al.* (2014)
Native	Myrtaceae	*Eugenia multicostata* D.Legrand	Cantelli (2020)
Native	Myrtaceae	*Eugenia pitanga* (O.Berg) Nied.	Silva *et al.* (2014)
Native	Myrtaceae	*Eugenia stipitata* McVaugh	Silva *et al.* (2014)
Native	Myrtaceae	*Eugenia uniflora* L.	Conde *et al.* (2017)
Native	Myrtaceae	*Myrcia guianensis* (Aubl.) DC.	Conde *et al.* (2017)
Native	Myrtaceae	*Myrcia splendens* (Sw.) DC.	Almeida & Bandeira (2010)
Native	Myrtaceae	*Plinia edulis* (Vell.) Sobral	Rodrigues *et al.* (2020)
Native	Myrtaceae	*Plinia peruviana* (Poir.) Govaerts	Cantelli (2020), Crepaldi & Peixoto (2010), Pasa *et al.* (2015), Silva *et al.* (2014)
Native	Myrtaceae	*Psidium cattleyanum* Sabine	Cantelli (2020), Conde *et al.* (2017), Prado *et al.* 2013;

Naturalized	Myrtaceae	*Psidium guajava* L.	Figueiredo & Barros (2016), Pasa *et al.* (2015), Santos *et al.* (2019), Silva (2019), Silva *et al.* (2014)
Native	Myrtaceae	*Psidium guineense* Sw.	Conde *et al.* (2017), Crepaldi & Peixoto (2010), Rocha *et al.* (2019)
Native	Myrtaceae	*Psidium guyanense* Pers.	Silva *et al.* (2014)
Naturalized	Myrtaceae	*Syzygium cumini* (L.) Skeels	Crepaldi & Peixoto (2010), Pasa *et al.* (2015), Rocha *et al.* (2019)
Exotic	Myrtaceae	*Syzygium malaccense* (L.) Merr. & L.M.Perry	Crepaldi & Peixoto (2010), Silva *et al.* (2014)
Native	Ochnaceae	*Ouratea hexasperma* (A.St.-Hil.) Baill.	Rocha *et al.* (2019)
Cultivated	Oxalidaceae	*Averrhoa carambola* L.	Silva *et al.* (2014); Silva (2019)
Native	Passifloraceae	*Passiflora edulis* Sims	Cantelli (2020), Conde *et al.* (2017), Pasa *et al.* (2015), Santos *et al.* (2019), Silva (2019), Silva *et al.* (2014)
Naturalized	Pedaliaceae	*Sesamum indicum* L.	Silva (2019), Silva *et al.* (2014)
Native	Piperaceae	*Piper gaudichaudianum* Kunth	Cantelli (2020)
Cultivated	Piperaceae	*Piper nigrum* L.	Crepaldi & Peixoto (2010), Silva (2019), Silva *et al.* (2014)
Cultivated	Poaceae	Hyparrhenia dichroa Stapf	Assis *et al.* (2019)
Naturalized	Poaceae	*Cymbopogon citratus* (DC.) Stapf	Ávila *et al.* (2015, 2017), Cantelli (2020)
Cultivated	Poaceae	*Oryza sativa* L.	Cantelli (2020)
Cultivated	Poaceae	*Saccharum officinarum* L.	Pasa *et al.* (2015) ; Silva *et al.* (2014); Silva (2019); Crepaldi & Peixoto (2010); Cantelli (2020),
Cultivated	Poaceae	*Zea mays* L.	Assis *et al.* (2019), Ávila *et al.* (2017), Cantelli (2020), Pasa *et al.* (2015), Prado *et al.* 2013, Santos & Barros (2017), Santos *et al.* (2019), Silva (2019), Silva *et al.* (2014)
Native	Primulaceae	*Myrsine umbellata* Mart.	Crepaldi & Peixoto (2010)
Naturalized	Rosaceae	*Eriobotrya japonica* (Thunb.) Lindl.	Ávila *et al.* (2015, 2017), Cantelli (2020)
Cultivated	Rosaceae	*Fragaria ×ananassa* Duchesne ex Rozier	Ávila *et al.* (2015, 2017)
Cultivated	Rosaceae	*Malus pumila* Mill.	Ávila *et al.* (2015, 2017)
Cultivated	Rosaceae	*Prunus domestica* L.	Cantelli (2020)
Cultivated	Rosaceae	*Prunus persica* (L.) Batsch	Cantelli (2020)
Native	Rosaceae	*Rubus erythroclados* Mart. ex Hook.f.	Cantelli (2020)
Native	Rosaceae	*Rubus rosifolius* Sm.	Cantelli (2020), Conde *et al.* (2017) , Silva *et al.* (2014)
Naturalized	Rubiaceae	*Coffea arabica* L.	Silva *et al.* (2014)
Native	Rubiaceae	*Genipa americana* L.	Crepaldi & Peixoto (2010), Silva (2019)
Native	Rubiaceae	*Guettarda viburnoides* Cham. & Schltdl.	Silva *et al.* (2014)
Cultivated	Rubiaceae	*Morinda citrifolia* L.	Silva *et al.* (2014)
Native	Rutaceae	*Citrus ×latifolia* (Yu.Tanaka) Yu.Tanaka	Silva *et al.* (2014)

Cultivated	Rutaceae	*Citrus aurantiifolia* (Christm.) Swingle	Pasa *et al.* (2015), Santos *et al.* (2019), Silva (2019), Silva *et al.* (2014)
Cultivated	Rutaceae	*Citrus limon* (L.) Osbeck	Ávila *et al.* (2015, 2017), Cantelli (2020), Crepaldi & Peixoto (2010), Figueiredo & Barros, 2016, Silva *et al.*,2014; Silva (2019)
Cultivated	Rutaceae	*Citrus reticulata* Blanco	Cantelli (2020), Santos *et al.* (2019), Silva *et al.*,2014
Cultivated	Rutaceae	*Citrus sinensis* (L.) Osbeck	Cantelli (2020), Crepaldi & Peixoto (2010), Silva (2019), Silva *et al.*,2014
Cultivated	Rutaceae	*Citrus ×aurantium* L.	Figueiredo & Barros, 2016, Pasa *et al.* (2015), Santos & Barros (2017), Silva (2019), Silva *et al.* (2014)
Native	Sapindaceae	*Talisia esculenta* (Cambess.) Radlk.	Silva *et al.* (2014), Viera *et al.* (2008)
Native	Sapotaceae	*Chrysophyllum gonocarpum* (Mart. & Eichler ex Miq.) Engl.	Cantelli (2020)
Native	Sapotaceae	*Pouteria caimito* (Ruiz & Pav.) Radlk.	Silva *et al.* (2014)
Native	Sapotaceae	*Pouteria ramiflora* (Mart.) Radlk.	Silva *et al.* (2014)
Cultivated	Solanaceae	*Capsicum annuum* L.	Cantelli (2020), Pasa *et al.* (2015), Santos *et al.* (2019), Silva *et al.*,2014
Native	Solanaceae	*Capsicum baccatum* L.	Crepaldi & Peixoto (2010)
Naturalized	Solanaceae	*Capsicum chinense* Jacq.	Silva *et al.* (2014)
Naturalized	Solanaceae	*Capsicum frutescens* L.	Santos *et al.* (2019), Silva (2019)
Cultivated	Solanaceae	*Solanum aethiopicum* L.	Silva *et al.* (2014)
Native	Solanaceae	*Solanum lycocarpum* A.St.-Hil.	Conde *et al.* (2017)
Cultivated	Solanaceae	*Solanum lycopersicum* L.	Ávila *et al.* (2015, 2017), Cantelli (2020), Santos *et al.* (2019)
Cultivated	Solanaceae	*Solanum melongena* L.	Pasa *et al.* (2015), Silva *et al.* (2014)
Cultivated	Solanaceae	*Solanum tuberosum* L.	Ávila *et al.* (2015, 2017), Cantelli (2020), Crepaldi & Peixoto (2010), Prado *et al.* (2013)
Native	Urticaceae	*Cecropia pachystachya* Trécul	Crepaldi & Peixoto (2010)
Cultivated	Vitaceae	*Vitis vinifera* L.	Cantelli (2020)
Native	Ximeniaceae	*Ximenia americana* L.	Almeida & Bandeira (2010), Rocha *et al.* (2019), Santos *et al.* (2019)
Cultivated	Zingiberaceae	*Curcuma longa* L.	Cantelli (2020), Silva *et al.* (2014)
Cultivated	Zingiberaceae	*Zingiber officinale* Roscoe	Cantelli (2020), Silva *et al.* (2014)

Some of the most frequent species in the Quilombola ethnobotanical studies are *Manihot esculenta* (manioc), in 13 articles; *Anacardium occidentale* (cashew) (n=10); *Zea mays* (maize) (n=10); and *Mangifera indica* (mango) (n=9).

The communities with the most identified food species were Quilombola communities Sete Barreiro and Pé de Galinha (94 species), both located in transition areas between the Cerrado and Amazon biomes (Silva *et al.* 2014); and the Atlantic Forest communities: São Roque with 69 species (Cantelli 2020), and Cachoeira do Retiro with 65 species cited (Crepaldi & Peixoto 2010) (Figure 4).

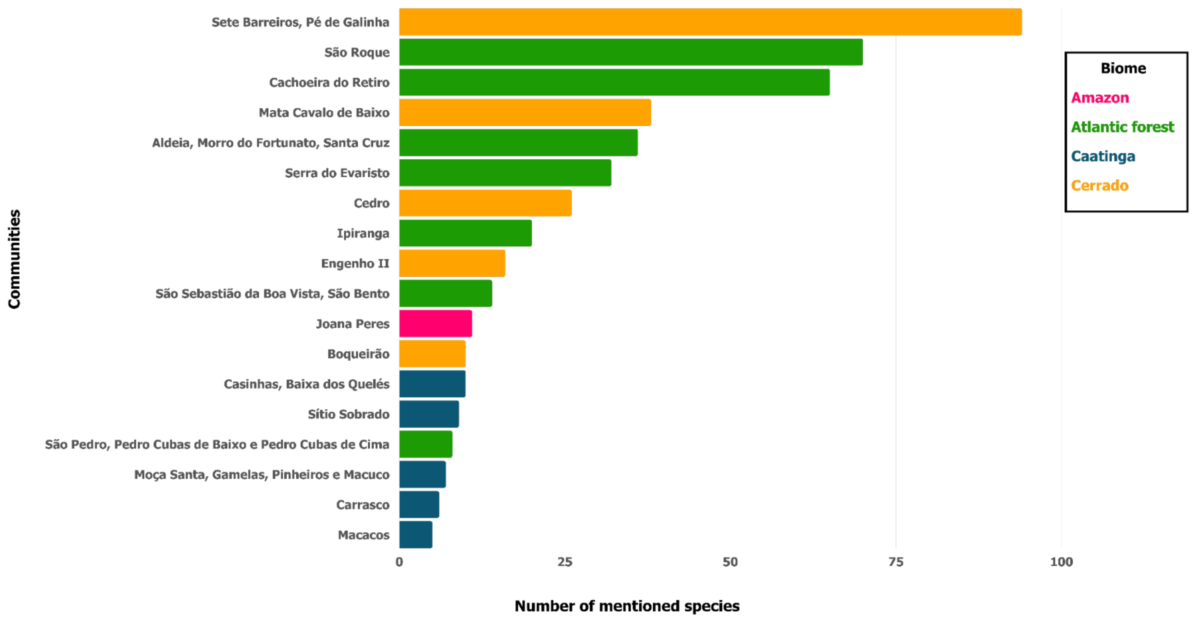

Figure 4. Number of food species present in studies with Quilombola communities from the bibliographic review, considering studies with at least five food species (n=18).

Regarding the origin, 121 species are native, and among them, 51 were mentioned only in studies in the Atlantic Forest biome, 32 in the Cerrado-Amazon transition areas, 11 in the Cerrado, eight in the Caatinga, and one in the Amazon biome.

Clustering communities according to the dissimilarity of native food species resulted in a cophenetic correlation between the distance matrix and the clustering matrix of 0.78, showing a correlation between species and clusters (Figure 5). Two main clusters were formed (average distance = 0.88). The first cluster is composed only of communities from the Caatinga and Atlantic Forest biomes, while in the second cluster, all analyzed biomes are represented. The most floristically similar communities were Carrasco and Sítio Sobrado (distance= 0.14), located in the Caatinga biome.

According to the permutation test for CCA under the reduced model, there was no significant correspondence ($p>0.05$) between the matrices of the socioeconomic descriptors and of food plants used; in other words, there is no significant relationship between the arrangement of Quilombola communities according to socioeconomic/urbanization descriptors and according to the set of native plants used in each community.

Discussion

The bibliometric analysis showed that, from a high number of publications about Quilombola and food plants, few contained sufficient information to combine data about the communities and plants used. Among the articles excluded in the final screening phase, most of them had no information about the plant species used as food, and two had no information about the community. Both gaps are critical to adequately relate the knowledge holders to the biodiversity used, a concern supported by the Nagoya Protocol and the Convention on Biological Diversity (CBD 2010), and the ethic recommendations for ethnobiology research (ISE 2006). The purposes and methodologies used in the studies may influence the registered food species richness; nevertheless, more than 200 species of plants for food were registered as used by 39 Quilombola communities from north to south of Brazil, demonstrating the importance of these communities as active agents of biodiversity conservation and the importance of plants for their food sovereignty. Most Quilombola communities are in municipalities with low demographic density and in the surroundings of urbanized areas. We also observed that the distribution of studies may reflect different research efforts, with a concentration of studies in the Atlantic Forest. The Quilombola communities from the Cerrado and Atlantic Forest biome represent the highest percentage of articles in the review, and the greatest richness of native plant resources described in relation to the other biomes. This probably reflects the efforts of local research groups (Liporacci *et al.* 2017, Oliveira *et al.* 2009), and also the the highest population density in the country). Surprisingly, only one study was focused on the Amazon, the largest Brazilian biome.

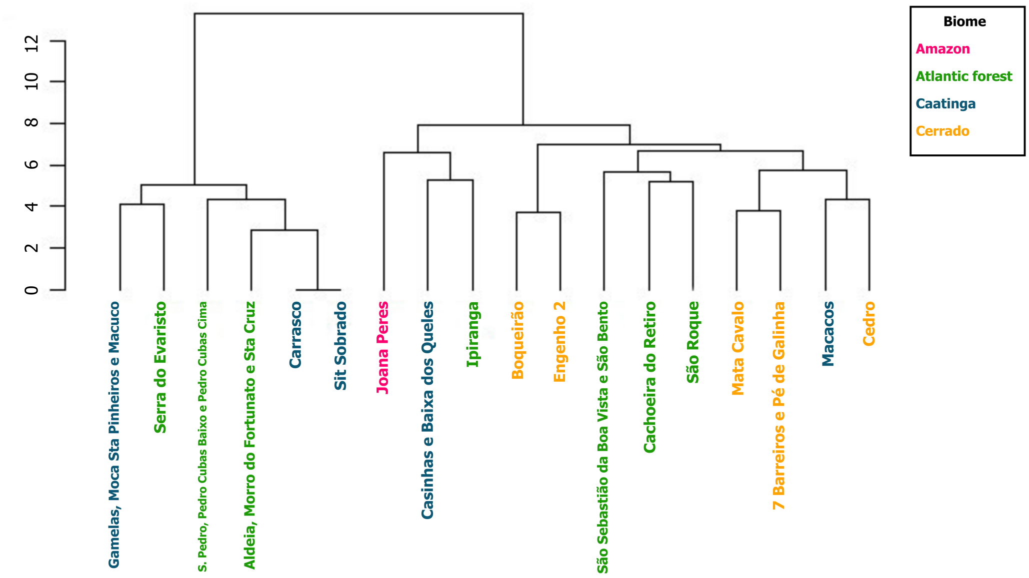

Figure 5. Dendrogram of the Quilombola communities grouped according to the native food species cited per study (n = 18 studies), grouped via Ward's method.

When analyzing territorial autonomy, we observed that although Quilombolas' rights to their territories date back to 1988, it was only in 2010 that the literature started to focus on Quilombola's use of food plants. We also found that none of the Quilombola communities participating in the reviewed studies were fully entitled. Less than 30% are in the third phase of the process (before full entitlement), and the others are in the initial steps. This situation favors various vulnerabilities and pressures on people, on the knowledge they hold, and on local resources management. Considering the pace of legal processes and the lack of funds for the institutions responsible for policies aimed at Quilombola communities, Quilombola populations may take hundreds of years to officially retake their territories. The Quilombola populations the management of plant resources is based on small-scale farming (e.g. Gonçalves *et al.* 2022, Prado *et al.* 2013), use of homegardens (e.g. Ávila *et al.* 2017), and extractivism (e.g. Rocha *et al.* 2019), the territorial fragility can be reduced when there is an overlap with protected areas of sustainable use such as extractive reserves and environmental protection areas. However, half of the communities have an overlap with protected areas, and most of them with areas of full protection, which imposes several restrictions on traditional activities.

The Quilombola communities contemplated in the studies included in this review present different forms of obtaining food plants, which, in general, are consumed through minimal processing of fruits, leaves, stems, and roots from a short chain of commerce and local agriculture. Cultivation, processing, and preparation are carried out by specialists and non-specialists and are, verbally and non-verbally, transmitted through observation of practices between generations (Ávila *et al.* 2015, Claasen & Chigeza 2019). However, extractivism and cultivation activities become unsustainable as cities and large enterprises approach traditional territories; in the same way, environmental disasters, climate change, and the health crisis expose these communities to greater dependence on public policies and government actions.

Most Quilombola communities are near urbanized areas, in municipalities with low demographic density. Urban centers can be considered segmented spaces according to people's economic, educational, and health status (Weiss *et al.*, 2018). This segregation makes metropolises an extension of the colonization process, with its history and principles passed on by these structures (Fanon 1968, Kipfer 2007). At the same time, there are Quilombos and people from Terreiros managing afro-diasporic territories against colonizers, maintaining specific ways of life, and promoting intrinsic relationships with Brazilian biomes (Castro 2021, Pagnocca *et al.* 2020, Santos 2015).

An example of this process is observed in the Quilombola community Aldeia, located in the south of the Atlantic Forest, which followed the urbanization process in its surroundings and is currently considered urban. As a result, the practice of family farming, marine fishing, and the cultivation of small livestock for self-consumption has decreased due to the various impacts of urbanization. The strategies employed for the cultivation of food plants were land leasing and the formation of backyards mainly managed by women; these are protected cultivation sites for the multiplication of vegetables, fruits, and spices and have high agrobiodiversity compared to other nearby Quilombola communities (Ávila *et al.* 2017, Pereira 2022). Despite necropolitics preventing the Quilombola communities from having food autonomy, these communities are resilient and adapt by finding alternatives to maintain their traditional ecological knowledge.

At the same time, in the Amazon biome at Quilombola community Joana Peres, the community farthest from the urban center (100 km), the extractive practices of Brazil nuts (*Bertholletia excelsa*), family farming, and estuarine fishing are essential factors for ensuring food security (Figueiredo & Barros 2016). These people, more or less dependent on these resources, continue to maintain knowledge and biodiversity conservation practices directly related to food use, varying according to the impacts that the proximity of colonizing structures imposes.

Clusters of Quilombola communities based on native food plants used did not reflect the plant composition in each biome, except for some similarities between some communities in Atlantic Forest and Caatinga. We observed no relationship between the groupings formed by socioeconomic and urbanization variables and those formed based on food plants used. The composition and richness of inventoried species are directly related to the purpose, objectives, and methods used by each analyzed article. Some of them, for example, selected a single plant resource for their study due to its importance in the local context; in these cases, the biocultural importance of Quilombola knowledge communities gains relevance to describe the specific processes and practices of each Quilombola community. In the Cerrado biome, for example, two studies described the knowledge and use of buriti (*Mauritia flexuosa*), showing different interactions and uses for the same resource. One of these studies was carried out at Quilombola community Engenho II, Quilombo Kalunga, which presented the different palm tree management types in food, using the fruit and the stipe in the production of molasses, ice cream, wine, and pancakes (Martins *et al.* 2012). The other included three communities (Boqueirão, Retiro, and Casalvasco Manga), close to urban areas in the transition between the Cerrado and the Amazon biome and showed that women were mainly responsible for the minimal processing of the buriti fruit into juice, sweets, and oil. In these communities, the increase in women per capita income has negatively influenced resource use (Sander *et al.* 2018). In the Atlantic Forest biome, Quilombola communities Cambury and Fazenda have identified, based on participatory resource assessment methodologies, cambucá (*Plinia edulis*) as a high-priority food resource for conservation and management of territories (Rodrigues *et al.* 2020). In five other communities in the same biome: Ivaporunduva, Sapatu, Nhunguara, and Mandira, the juçara palm tree (*Euterpe edulis*) was the species selected for a study. Through participatory methodologies, the Quilombola ecological knowledge on the conservation of the species and associated fauna was described (Barroso *et al.* 2010), showing the centrality of this species in Quilombola management of the forest and backyards.

For the whole group of studies, the food plant most cited by the Quilombola communities (n=13) was manioc, an essential plant for maintaining food and nutritional security for millions of Brazilian families. A source of carbohydrates, produced with low inputs and with ease of vegetative propagation (Clement *et al.* 2010), the manioc varieties in traditional agriculture are managed according to the social dynamics of exchanges and mass selection, favoring resilience and dietary diversity (Cavechia *et al.* 2014). At Quilombola community São Benedito, in a transition area between Cerrado and Pantanal, 11 manioc varieties identified in the gardens were observed with high rates of genetic diversity in relation to other crops in the region (Oler *et al.* 2019). In São Roque community, in Atlantic Forest, the occasional scarcity of locally produced items such as manioc, sweet potatoes, rice, and beans put the food security of Quilombola families in a vulnerable situation (Gonçalves *et al.* 2022).

Territoriality, food plants and food sovereignty

The access to food plants, with emphasis on items produced through management of farming areas, homegardens, and areas used for extractivism, depends on the access to an ensured territory. Apart from the slow legal process of territory recognition, other drivers can pressure the Quilombola use and management of food plants, such as the urbanization and the presence of protected areas. We noticed that resilience and adaptation to local ecosystems shape the territoriality of these populations and that the food necropolitics, the nutricide, provoked against black populations, inside and outside Africa, is due not only to the lack of food, but also to the harm of the food transition, considering both the nutritional quality and the compulsory mode of eating resulting from urban life and the commodification of food (Mbembe 2005). Therefore, adapted public policies focusing on local food production and Quilombola plant knowledge are central to fostering socio-biodiversity and the local economy. Although it was not a focus of this review, these public policies must also consider gender issues (see also Bairros 1995, Carneiro 2003, Castro 2021). For example, in a Quilombola community studied by Gonçalves *et al.* (2022), the number of families headed by women experiencing moderate or severe food insecurity is halved when considering family units headed by men.

The main programs and public policies implemented in Brazil aimed at supporting the commercialization of socio-biodiversity products are the National School Feeding Program, which allocates 30% of the amount transferred by the federal government to be invested in the direct purchase of products from family farming; and the Food Acquisition Program, which aims to promote access to food for food insecure people and encourage family farming (Brasil 2009). From the latter, a list of native species of Brazilian socio-biodiversity was produced to support the commercialization of *in natura* species or their derivative products (Brasil 2016). Updated in 2018, the list currently includes 101 species, with 48 species in common with the list from this revision.

Therefore, we verified the potential of ethnobotanical studies in supporting the composition of these lists, aiming at integrating actions to promote the preservation, improvement, consumption, and commercialization of native species of interest and use by traditional people (Silva *et al.* 2022). Among the species mentioned by the Quilombola communities that are not on the socio-biodiversity list (Brasil 2016), we highlight those produced in backyards and vegetable gardens managed by women, and species of the Arecaceae family, due to their importance in all biomes, and the several related usess: *Astrocaryum aculeatissimum, Astrocaryum aculeatum, Astrocaryum echinatum, Astrocaryum huaimi, Attalea compta, Attalea eichleri, Attalea humilis, Attalea phalerata, Attalea speciosa*, and *Bactris glaucescens*.

During the COVID-19 pandemic, we found that the public policies developed for the food security of these populations benefited large corporations through cards or vouchers, institutionalizing the commodification of food, the food transition, and nutricide (Castro & Moreira 2020). The list of food plants provided by this review can support these public policies focused on Quilombola communities, respecting their local practices and traditional knowledge. Therefore, targeting public policies considering the specificities of traditional populations can strengthen the local economy and the Quilombola food agrobiodiversity.

Preliminary information from the 2022 census indicates that more than 95% of Quilombolas live in territories without full entitlement and that around 1/3 of them, or 430,000 people, live in the Amazon region. The ethnobotanical scenario depicted here reflects the Quilombola territorial insecurity, and new studies must consider the biocultural importance of these populations, especially in the understudied region of the Amazon.

Conclusion

The most studied biomes present a greater diversity of knowledge and more native plants used as food resources, but this result may be influenced by the concentration of research efforts in the Atlantic Forest and Cerrado. Efforts are needed to develop studies focusing on the Quilombola communities of the Amazon, Pantanal, and Pampas biomes, which had little or no information in this review. This systematic review also indicated knowledge gaps in relation to Quilombola communities more distant from urban areas.

The recognition of the way of life and territoriality of Quilombolas can guarantee the exercise of food sovereignty for the populations that suffer the most from food vulnerability. Although they demonstrate socioeconomic similarities, and similarities in the whole set of food plants used, Quilombola communities present specificities in the knowledge of food species, especially in relation to the native ones. Thus, the current scenario indicates that the sovereignty of Quilombola populations involves recognizing the diversity of their ways of life, in different biomes and different socio-biodiversity contexts. We also suggest more efforts regarding information compilation on the cultivated varieties and greater articulation with public policies directed to these populations are also needed.

Today, we are dealing with the consequences of historical fractures generated by the coloniality legacy. To change this scenario for an expected different future, this review highlights the need for a particular and close look at Quilombola food sovereignty, mediated by territoriality and traditional knowledge of food plants.

Declarations

Ethics approval and consent to participate: The consent was requested for the National Coordination of Quilombo Articulation (CONAQ). All the activities of assessing traditional knowledge on biodiversity from secondary sources were registered in the National Genetic Heritage Management System (SISGen), registration code AD17227.

Consent for publication: Not applicable.

Availability of data and materials: Supplementary material at: https://forms.gle/3jvUkXjfMHLbMJtM8

Competing interests: The authors declare that they have no conflict of interest with other authors, research groups or sources of research funding.

Funding: This study was funded in part by the Higher Education Personnel Improvement Coordination-Brazil (CAPES)-Finance Code 001 and through the PROCAD project coordinated by L. C. Ming, M. C. Gonçalves thanks CAPES for a doctoral scholarship. N. Hanazaki thanks CNPq for a research productivity scholarship (309613/2015-9 and 304515/2019-1).

Authors' contributions: M. C. Gonçalves data collection, analysis, and manuscript writing. N. Hanazaki data collection, and manuscript writing.

Acknowledgements

Thanks to P.A.Ferrari, S. Zank, B. Moraes, L. F. Trajano, M. E. Cabral, M. H. Ramos, D. L. Medeiros for helping with data organization. To J. A. B. Mendes and the National Coordination of Quilombo Articulation (CONAQ).

Literature Cited

Albuquerque UP, Ramos MA, Ferreira Júnior WS, Medeiros PM. 1999. Investigation Methods. In: Albuquerque UP, Ramos MA, Ferreira Júnior WS, Medeiros PM (eds). Ethnobotany for Beginners. Springer Briefs in Plant Science, Springer International Publishing, pp. 27–37.

Albuquerque, UP 1999. Referências para o estudo da etnobotânica dos descendentes culturais do africano no Brasil. Acta Farmacéutica Bonaerense 18(4): 299-306.

Albuquerque WR, Filho WF. 2006. Uma história do negro no Brasil. Fundação Cultural Palmares, Brasília, DF, Brasil.

Almeida VS, Bandeira FPSF. 2010. O significado cultural do uso de plantas da caatinga pelos quilombolas do Raso da Catarina, município de Jeremoabo, Bahia, Brasil. Rodriguésia 61(2):195-209.

Arruda JC, Silva CJ, Sander NL, Barros FB. 2014. Traditional ecological knowledge of palms by quilombolas communities on the Brazil-Bolivia border, Meridional Amazon. Novos Cadernos NAEA 17(2):123-40.

Assis AA, Baldauf C, Silva MRF. 2019. Sistema sócioecológico da comunidade quilombola do Sobrado, Portalegre – Rio Grande do Norte, Brasil: conhecimentos, injustiça e resistência. Revista Biodiversidade 18(1):160-83.

Ávila JVC, Mello AS, Beretta ME, Trevisan R, Fiaschi P, Hanazaki N. 2017. Agrobiodiversity and in situ conservation in quilombola home gardens with different intensities of urbanization. Acta Botanica Brasilica 31(1):1–10.

Ávila JVC, Zank S, Valadares KMO, Maragno JM, Hanazaki N. 2015. The Traditional knowledge of Quilombola about plants: does urbanization matter? Ethnobotany Research and Applications 14:453–62.

Bairros L. 1995. Nossos feminismos revisitados. Estudos Feministas 3(2):458-63.

Barbas-Rhoden L. 2010. Edible Medicines: An Ethnopharmacology of Food. Ethnobiology Letters 1:14–5.

Barroso RM, Reis A, Hanazaki N. 2010. Etnoecologia e etnobotânica da palmeira juçara (*Euterpe edulis* Martius) em comunidades quilombolas do Vale do Ribeira, São Paulo. Acta Botanica Brasilica 24(2):518–28.

Brasil. 2009. Lei nº 11.947, de 16 de junho de 2009. Diário Oficial da União, Brasília, DF. https://www.planalto.gov.br/ccivil_03/_ato2007-2010/2009/lei/l11947.htm (access 09/04/2023).

Brasil. 2016. Portaria Interministerial n° 163, de 11 de Maio de 2016. Diário Oficial da União, Brasília.

Cantelli D. 2020. Influências do gênero nos conhecimentos tradicionais vinculados à biodiversidade: estudo de caso em comunidades quilombolas de Santa Catarina. Dissertação de Mestrado, Universidade Federal de Santa Catarina.

Carneiro S. 2003. Mulheres em movimento. Estudos Avançados 17(49):117–32.

Carvalho RMA, Lima GFC. 2013. Comunidades quilombolas, territorialidade e legislação no Brasil: uma análise histórica. Política & Trabalho, 39: 329-346.

Carney J. 2004. Navegando contra a corrente: o papel dos escravos e da flora africana na botânica do período colonial. Revista África, (22-23), 25-47.

Carney J, Rosomoff, RN 2009. In the shadow of slavery: Africa's botanical legacy in the Atlantic world. Univ of California Press.

Castro FP, Moreira SLS. 2020. A mercantilização da comida e da vida pela lógica capitalista, racista e patriarcal. In: Paradis CG, Castro FP, Lacerda M, Teixeira M, Nobre M, Faria N, Moreira SLS. Neoliberalismo, trabalho e democracia: trilhas feministas. Sempreviva Organização Feminista, São Paulo, pp. 33–46.

Castro FP. 2021. Racismo e sistemas alimentares. https://www.ancestralidades.com/post/racismo-e-sistemas-alimentares (Accessed 15/09/2022).

Cavechia LA, Cantor M, Begossi A, Peroni N. 2014. Resource-use patterns in swidden farming communities: implications for the resilience of cassava diversity. Human Ecology 42(4):605–16.

CBD. Convention on Biological Diversity. 2010. The Nagoya Protocol. https://www.cbd.int/abs/about/ (Accessed 29/08/2023)

Claasen N, Chigeza S. 2019. Traditional food knowledge in a globalized world: Mediation and mediatization perceived by Tswana women in South Africa. In: Dürrschmidt, J, Kautt, Y (eds). Globalized Eating Cultures: Mediation and Mediatization, Palgrave Macmillan, pp. 129-155.

Clement CR, Cristo-Araújo M, D'Eeckenbrugge GC, Pereira AA, Picanço-Rodrigues D. 2010. Origin and domestication of native Amazonian crops. Diversity 2(1):72-106.

Comissão Pró-indio de São Paulo. CPI. 2022. Quilombolas Communities in Brazil. https://cpisp.org.br/direitosquilombolas/observatorio-terras-quilombolas/quilombolas-communities-in-brazil/ (Accessed 16/12/2022).

Conde BE, Ticktin T, Fonseca AS, Macedo AL, Orsi TO, Chedier LM, Rodrigues E, Pimenta DS. 2017. Local ecological knowledge and its relationship with biodiversity conservation among two Quilombola groups living in the Atlantic Rainforest, Brazil. PLoS ONE 12(11):e0187599.

Conti IL, Coelho-De-Souza G. 2014. Povos e comunidades tradicionais: a produção de políticas públicas de segurança alimentar e nutricional. Amazônica. Revista de Antropologia 5(3):780.

Costa IR. 2008. Conaq: Um movimento nacional dos quilombolas- Projeto Vida de Negro. Jornal Írohín :0-5.

Crepaldi MOS, Peixoto AL. 2010. Use and knowledge of plants by "Quilombolas" as subsidies for conservation efforts in an area of Atlantic Forest in Espírito Santo State, Brazil. Biodiversity and Conservation 19:37–60.

Diniz RF, Tubaldini MAS, Gontijo BM, Dupin PC. 2011. Conhecimentos etnobotânicos em quintais agrobiodiversos do Vale do Jequitinhonha/MG: saberes tradicionais e reprodução sociocultural em territórios quilombolas. Proceedings of VI Visões do Vale- Vale do Jequitinhonha: cultura e desenvolvimento Conference; Belo Horizonte (MG).

Eltis D. 2007. A brief overview of the Trans-Atlantic Slave Trade. Voyages: The trans-atlantic slave trade database, 1700-1810. https://www.slavevoyages.org/. Accessed 25 Ago 2023

Etkin N. 2006. Edible Medicines: An Ethnopharmacology of Food. University of Arizona Press, Tucson, Arizona, USA.

Fanon F. 1968. Da violência. In: Os Condenados da Terra. Civilização Brasileira, Rio de Janeiro, RJ, pp. 22–74.

Ferdinand M. 2022. Uma ecologia decolonial: pensar a partir do mundo caribenho. Ubu Editora, São Paulo.

Figueiredo RAA, Barros FB. 2016. Caçar, preparar e comer o "bicho do mato": Práticas alimentares entre os quilombolas na reserva extrativista ipaú-Anilzinho (Pará). Boletim do Museu Paraense Emilio Goeldi: Ciências Humanas 11(3):691–713.

Fundação Palmares. 2020. Tabela de CRQ completa. https://www.palmares.gov.br/wp-content/uploads/2015/07/TABELA-DE-CRQ-COMPLETA-QUADRO-GERAL-20-07-2020.pdf (Accessed 13/10/2022).

Gaoue OG, Coe MA, Bond M, Hart G, Seyler BC, McMillen H. 2017. Theories and major hypotheses in ethnobotany. Economic Botany 71:269-87.

Gonçalves MC, Silva FR, Cantelli D, Santos MR, Aguiar PV, Pereira ES, Hanazaki N. 2022. Traditional agriculture and food sovereignty: Quilombola knowledge and management of food crops. Journal of Ethnobiology 42(2):241–60.

Hongyu K, Sandanielo VLM, Oliveira Junior GJ. 2016. Análise de Componentes Principais: resumo teórico, aplicação e interpretação. ES Engineering and Science 5(1):83–90.

IBGE. Base Territorial, Censos e Povos e Comunidades Tradicionais. 2021. Instituto Brasileiro de Geografia e Estatística, Rio de Janeiro, RJ. https://censo2022.ibge.gov.br/sobre/povos-e-comunidades-tradicionais.html (Accessed 09/04/2023).

IBGE. Portal do IBGE. Instituto Brasileiro de Geografia e Estatística, Rio de Janeiro, RJ. https://www.ibge.gov.br/pt/inicio.html (Accessed 13/10/2022).

ISA. 2022. Unidades de Conservação no Brasil. Instituto Socioambiental, São Paulo, SP. https://uc.socioambiental.org/pt-br (Accessed 08/11/2022).

ISE. 2006. International Society of Ethnobiology Code of Ethics (with 2008 additions). http://ethnobiology.net/code-of-ethics/ (Accessed 29/08/2023)

Kassambara A. 2017. Practical Guide to Cluster Analysis in R. CreateSpace Independent Publishing Platform.

Katz E. 2021. Biodiversidade e alimentação. In: Cunha MC, Magalhães SB, Adams C (eds). Povos tradicionais e biodiversidade no Brasil: contribuições dos povos indígenas, quilombolas e comunidades tradicionais para a biodiversidade, políticas e 40 ameaças. Sociedade Brasileira para o Progresso da Ciência - SBPC, São Paulo, SP, pp. 163–205.

Kew Names Matching Service, 2022. http://namematch.science.kew.org/api (Accessed 13/10/2022).

Kipfer S. 2007. Fanon and space: Colonization, urbanization, and liberation from the colonial to the global city. Environment and Planning D: Society and Space 25(4):701-26.

Liporacci HSN, Hanazaki N, Ritter MR, Araújo EL. 2017. Where are the Brazilian ethnobotanical studies in the Atlantic Forest and Caatinga? Rodriguesia 68(4):1225–40.

Maffi L. 2018. Biocultural diversity. In: The International Encyclopedia of Anthropology, pp. 1-14.

Martins RC, Filgueiras TS, Albuquerque UP. 2012. Ethnobotany of *Mauritia flexuosa* (Arecaceae) in a Maroon Community in Central Brazil. Economic Botany 66(1):91–8.

Martins RC, Filgueiras TS, Albuquerque UP. 2014. Use and diversity of Palm (Arecaceae) resources in Central Western Brazil. The Scientific World Journal 2014:1-14.

Mbembe A. 2006. Necropolitica. Raisons politiques 21(1):29–60.

Medeiros PM, Ladio AH, Albuquerque UP. 2013. Patterns of medicinal plant use by inhabitants of Brazilian urban and rural areas: A macroscale investigation based on available literature. Journal of Ethnopharmacology 150(2):729–46.

Mudimbe VY. 2013. A Invenção de Africa: gnose, filosofia e a ordem do conhecimento. Mangualde (Portugal), Luanda: Edições Pedago; Edições Mulemba.

Nascimento MB. 2018a. Historiografia do Quilombo. In: Oduduwa AO (ed). Beatriz Nascimento, Quilombola e Intelectual: Possibilidades nos dias de destruição. Editora Filhos da África, Rio de Janeiro, pp. 125–149.

Nascimento MB. 2018b. Quilombos: Mudança Social e Conservantismo? In: Oduduwa AO (ed). Beatriz Nascimento, Quilombola e Intelectual: Possibilidades nos dias de destruição. Editora Filhos da África, Rio de Janeiro, pp. 66–79.

O'Dwyer EC. 2008. Terras de Quilombo no Brasil: direitos territoriais em construção. Ariús -Revista de Ciências Humanas e Artes 14(1-2):9-16.

Oler JRL, Hoogerheide ESS, Pinto JMA, Tiago AV, Silva JFV, Veasey EA. 2019. Influence of the use of manioc on its genetic diversity conservation in a quilombo community in Mato Grosso, Brazil. Genetics and Molecular Research 18(3):1-15.

Oliveira FC, Albuquerque UP, Fonseca-Kruel VS, Hanazaki N. 2009. Avanços nas pesquisas etnobotânicas no Brasil. Acta Botanica Brasilica 23(2):590–605.

Pagnocca TS, Zank S, Hanazaki N. 2020. "The plants have axé": investigating the use of plants in Afro-Brazilian religions of Santa Catarina Island. Journal of ethnobiology and ethnomedicine 16:1-13.

Pasa MC, David M, Fiebig GA, Nardez TMB, Maziero EL. 2015. A etnobotânica na comunidade quilombola em Nossa Senhora do Livramento, Mato Grosso, Brasil. Revista Biodiversidade 14(2):1-17.

Pasquini MW, Mendoza JS, Sánchez-Ospina C 2018. Traditional food plant knowledge and use in three Afro-descendant communities in the Colombian Caribbean coast: part I generational differences. Economic Botany 72:278-294.

Pereira L. 2022. A luta da comunidade remanescente de quilombo Aldeia (SC) pela implementação de políticas públicas em seu território tradicional. Universidade Federal de Santa Catarina.

Pinto LCL, Morais LMO, Guimarães AQ, Almada ED, Barbosa PM, Drumond MA. 2016. Conhecimento tradicional e usos de *Caryocar brasiliense* Cambess. (Pequi) por quilombolas de Minas Gerais, Brasil: Subsídios para o manejo sustentável. Brazilian Journal of Biology 76(2):511–9.

Prado HM, Murrieta RSS, Adams C, Brondizio ES. 2013. Complementary Viewpoints: Scientific and Local Knowledge of Ungulates in the Brazilian Atlantic Forest. Journal of Ethnobiology 33(2):180-202.

R Development Core Team. 2014. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria.

Rocha FV, Lima RB, Cruz DD. 2019. Conservation priorities for woody species used by a quilombo community on the coast of Northeastern Brazil. Journal of Ethnobiology 39(1):158-79.

Rodrigues E, Cassas F, Conde BE, Cruz C, Barretto EHP, Santos G, *et al.* 2020. Participatory ethnobotany and conservation: a methodological case study conducted with Quilombola communities in Brazil's Atlantic Forest. Journal of Ethnobiology and Ethnomedicine 16:1-12.

Sander NL, Silva CJ, Arruda JC. 2018. Non-timber Forest Products of *Mauritia flexuosa* L. f.: Loss or Permanence of TEK in Quilombola Communities of Southern Amazon? Revista Ibero-Americana de Ciências Ambientais 9(1):43–55, 2018.

Santos AB. 2015. Colonização, Quilombos, Modos e Significações. INCTI; UnB, Brasília.

Santos JÁ, Silveira AP, Gomes VS. 2019. Knowledge and use of the flora in a quilombola community of Northeastern Brazil. Floresta e Ambiente 26(3):e20170932.

Santos TAC, Barros FB. 2017. Cada pessoa tem uma ciência de plantar: plantas cultivadas pelos quilombolas da Bocaína, MT, Brasil. Hoehnea 44(2):211-35.

Silva ACC, Oliveira DM, Gomes LJ. 2022. What does the list of Brazilian sociobiodiversity species of food value show us? Rodriguésia 73:1-12.

Silva JS. 2019. Saber tradicional etnobotânico na comunidade Quilombola do Cedro no Sudoeste de Goiás. Extensão Rural 26(2):17–36.

Silva M, Oliveira-Lima J, Cristina D, Silva H, Costa H. 2014. Comparação entre formas de amostragem em estudos etnobotânicos na Comunidade Rural do Carrasco, município de Arapiraca, Alagoas, Brasil. Polibotánica 37:153-65.

USEFLORA. 2021. Banco de dados sobre sobre o uso, manejo e domesticação de plantas nas Américas. Florianópolis, Universidade Federal de Santa Catarina. www.useflora.ufsc.br (Accesed 09/04/2023).

Van Andel TR, Van 'T Klooster CIEA, Quiroz D, Towns AM, Ruysschaert S, Van Den Berg M. 2014. Local plant names reveal that enslaved Africans recognized substantial parts of the New World flora. Proc Natl Acad Sci.: 111(50).

Vandebroek I, Balick MJ. 2012. Globalization and loss of plant knowledge: challenging the paradigm. PlosOne 7(5):1-6.

Vandebroek I, Voeks R. 2018. The gradual loss of African indigenous vegetables in tropical America: A review. Economic Botany 72: 543-571.

Voeks R. 2013. Ethnobotany of Brazil's African Diaspora: The Role of Floristic Homogenization. In: Voeks R, Rashford J, editors. African Ethnobotany in the Americas. Springer, New York; p. 395–416.

Wittman H 2011. Food sovereignty: a new rights framework for food and nature?. Environment and Society, 2(1): 87-105.

Weiss DJ, Nelson A, Gibson HS, Temperley W, Peedell S, Lieber A, *et al.* 2018. A global map of travel time to cities to assess inequalities in accessibility in 2015. Nature 553(7688):333–6.

Zimmerer KS, Olivencia YJ, Rodríguez LP, López-Estébanez N, Álvarez FA, Olmo RM, *et al.* 2022. Assessing social-ecological connectivity of agricultural landscapes in Spain: Resilience implications amid agricultural intensification trends and urbanization. Agricultural Systems 203:1-17.