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***Jailza Maria do Nascimento Soares*[1]**
***Janilo Italo Melo Dantas*[two]**

Summary

Vegetable complexes are mixtures of plants, in which several species are associated with each other in closed containers, together with alcoholic and sweet substances, forming over the days a substance used to cure illnesses. They are exemplified by bottles, syrups and lickers. Seeking to understand the biocultural aspects associated with these preparations becomes fundamental, as they play a historical and traditional role for several local populations in Northeast Brazil. Thus, this work aimed to investigate the role and composition of plant complexes used by folk medicine in the state of Alagoas through a systematic review. To do this, we searched for ethnobotanical work carried out in Alagoas that showed plant complexes used in the region. To search for works, we used keywords in Portuguese and English on the Google Scholar and Scielo platforms, which were selected and analyzed. We identified 169 vegetable complexes across 6 categories of use (41 lickers, 41 bottles, 11 medicinal baths, 53 teas, 16 syrups and 7 juices. A total of 70 species were identified (32 are exotic and 38 are native) used in the preparations. Such complexes are used to cure various illnesses, especially those associated with the respiratory system. Plant complexes play a significant role for the people of the region, as in addition to being used for medicinal purposes, they are part of the sociocultural aspects of the region. This work contributes effectively to the dissemination of biocultural aspects associated with plant complexes of popular medicine in the state of Alagoas and serves as a basis for carrying out new related work.

Key words: Ethnobotany. Medicinal plants. Vegetable Mixes

Abstract

Plant complexes are mixtures of plants, in which several species are associated with each other in closed containers, together with alcoholic and sweetened substances, forming over the days a substance used to cure illnesses. They are exemplified by bottles, syrups, and

[1]Graduating in Biological Sciences from the State University of Alagoas-UNEAL, Campus Palmeira dos Índios. Email: jailza1015@gmail.com .

[two]PhD student in Ethnobiology and Nature Conservation at the Federal Rural University of Pernambuco-UFRPE, Recife Campus. Email: janilo_melo@hotmail.com .

lickers. Seeking to understand the biocultural aspects associated with these preparations is essential, as they play a historical and traditional role for different local populations in Northeastern Brazil. Thus, this work aimed to investigate the role and composition of plant complexes used by folk medicine in the state of Alagoas through a systematic review. For this, we carried out searches for ethnobotanical works carried out in Alagoas that showed complex plants used in the region. To search for the works, we used keywords in Portuguese and English on the Google Academic and Scielo platforms, which were selected and analyzed. We identified 169 vegetable complexes through 6 categories of use (41 lickers, 41 bottles, 11 medicinal baths, 53 teas, 16 syrups and 07 juices. A total of 70 species were identified (32 are exotic and 38 are native) used in the preparations .Such complexes are used to cure various illnesses, especially those associated with the respiratory system. This work effectively contributes to the dissemination of biocultural aspects associated with plant complexes in popular medicine in the state of Alagoas and serves as a subsidy for carrying out new related works.

Keywords: Biological Sciences. Alternative Methods. Didactic Tour

1. Introduction

Since the emergence of certain diseases, human beings have started to deal with different adaptive strategies as a form of survival, and among these main strategies, the use of certain medicinal plants stands out. According to the World Health Organization (WHO), medicinal plants are defined as all wild or cultivated plant species, used to prevent pathological relief or used as a source of pharmaceutical production (ANDRADE; COUTO, 2014). Such use is one of the oldest practices in the world and, even today, represents one of the main resources used to cure diseases in different local populations (VEIGA JÚNIOR, 2005).

Over time, with the development of the use of certain medicinal plants and their dissemination among different local populations, medicinal plants began to be used in different ways. For example, in addition to using certain plant species in isolation (a single plant at a time), people also began to use some homemade preparations derived from different medicinal plants, such as the use of “Vegetable Complexes” (DANTAS et al. , 2020). Vegetable complexes are mixtures of plants, in which several plant species are associated with each other, together with different alcoholic or sweet substances, taken to decoction or placed in generally closed containers, in which, as the days go by, the association between different

species and substances, form a preparation used to cure/alleviate different diseases (VANDEBROEK et al., 2010; BUSSMANN et al. 2010). In some cases, when not produced through different combinations of different plant species, these preparations can also be made through different parts/combinations of a given plant species.

Plant complexes can be exemplified by; bottles, syrups, lickers and even teas (DANTAS et al., 2020). The production of plant complexes is varied, resulting from the transmission of socially transmitted cultural information (VANDEBROEK et al., 2010). The production of these preparations has played an important role for local populations dealing with medicinal strategies, as they generally present multifunctionality against health problems or are used preferentially, even with the possibility of isolated use of medicinal plants and the existence of conventional medicines. . Furthermore, plants are sometimes used together through vegetable mixtures, to cure health problems that plants used alone are not capable of curing (GRAS*et al.,*2018). Furthermore, plant complexes have played an important cultural and socioeconomic role, because although modern medicine is advancing every day, traditional medicinal practices, such as the use of plant mixtures, have been maintained and popularized through historical and cultural reasons. .

Currently, plant complexes are used all over the world. In Brazil, and most of it in the Northeast region, it is noticeable that there are several individuals who resort to and emphasize the production and use of certain vegetable complexes, whether for their own use or even for commercialization in different local markets or fairs (DANTAS et al ., 2008). From this perspective, research that addresses plant complexes, and the purposes that these preparations have been performing in different local populations from different regions, are considered essential for the advancement of ethnobotany, as in this case, the development of research associated with these preparations can play a greater cultural, economic, bioprospective and evolutionary understandings associated with the use of medicinal plants.

From the perspective of some authors such as Gras et al. (2018), most ethnobotanical researchers have carried out their studies on the isolated use of plants and their uses, instead of addressing the use of more complex preparations on medicinal plants. However, plant mixtures such as plant complexes constitute an approach

important for different lines of research, as they represent a large volume of cultural information.

Currently, the state of Alagoas has a high biocultural diversity, and the use of medicinal plants associated with vegetable complexes is a practice that runs through popular medicine from the lowlands to the high backlands of the region. However, despite the growing development of ethnobotanical work carried out in the state, there is a need for studies that analyze the widespread use of plant complexes in the region, since carrying out work associated with these preparations, compared to carrying out studies on The isolated use of medicinal plants still requires further investigation. From this perspective, this work proposes to investigate the role and composition of certain plant complexes in popular medicine in the state of Alagoas, seeking to provide greater clarification and understanding regarding these preparations used by different local populations in the region.

2 Methodological Procedure

2.1 Data Collection

The data for this study were collected through a systematic review, using different online databases. The data was collected between the months of November 2020 and January 2021. To this end, ethnobotanical works on medicinal plants were researched, which presented some type of information on plant complexes in the state of Alagoas, Northeast Brazil.

The works were searched on the following platforms: Scientific Electronic Library Online – SciELO and Google Scholar /Google Scholar, as they present a wide coverage of related works. For the search, we used the following keywords in Portuguese: Garrafada+Alagoas, lambedor+Alagoas, syrup+Alagoas, Medicinal Plants+Alagoas, Ethnobotany+Alagoas, Phytoterapics+Alagoas and Pharmacopoeia+Alagoas. Additionally, we use the following keywords in English: Bottled + Alagoas, licker + Alagoas, syrup + Alagoas, Ethnobotany+Alagoas, Medicinal Plants+Alagoas, Phytotherapy+Alagoas and Pharmacopoeia+Alagoas.

As inclusion criteria, all categorical types of work found were considered, such as: scientific articles, books, book chapters, theses, dissertations, scientific abstracts and course completion works. However, we selected only those works that had been carried out exclusively in some location in the state of Alagoas, and that presented some type of plant complexes regardless of the year of publication. Furthermore, certain preparations that were composed of two or more medicinal plants or preparations that were composed of different vegetative parts of a single medicinal plant were considered as plant complexes.

2.2 Botanical Information

The scientific and popular name of the species found were described in this study as evidenced in the works. However, the website http:// floradobrasil.jbrj.gov.br/2020 was used to find additional information about the identified species, such as; botanical family and origin of species (exotic/native).

2.3 Data Analysis

The works found were read and critically reviewed. When analyzing the work we take into account; the types of vegetable complexes (bottles, syrups, lickers, teas and juices), the composition of the vegetable complexes (plant species and substances/products used) and the role played by them (function, indicated diseases and importance). To do this, we organized a database using the Microsoft Excel program. Furthermore, we used this same program to quantify the work and descriptive statistical analyses.

3 Results and Discussion

Through a search on different platforms, a total of 68 works were identified. Of these works, only 48 met the established criteria and were analyzed. Of the 48 works analyzed, 30 consist of scientific articles, 12 abstracts

academics and 6 were book chapters. Of all these studies analyzed, only 12 presented information on plant complexes that were used in this work.

A total of 169 plant complexes described in the works were found, through 06 categories of use (syrup, licking, bottled, tea, juice and medicinal bath). Of the 169 vegetable complexes, 41 were lickers, 16 syrups, 41 bottles, 53 teas, 7 juices and 11 baths, as described in table 2.0 of this study.

3.1 Composition of Plant Complexes

The plant complexes are characterized as quite diverse. In total, 70 medicinal plants were identified as part of the preparations, with emphasis on species from the Lamiaceae family, 10 species (table 1.0). Of the identified species, 32 are exotic and 38 are native

To explain why the species used in plant complexes are more native, we suggest the need to carry out further ethnobotanical work in the state, which seeks to investigate the relationship between local availability of certain medicinal plants and their respective local uses. For example, the fact that most of the species used in plant complexes are more native may have a strong relationship with the characteristics of the species that make up the region, as a large part of the native species used in plant complexes belong exclusively to the caatinga biome, such as such as: the mastic tree (*Myracrodruon urundeuva German*), barbatimão (*Stryphnodendron adstringens Mart. Coville*), catingueira (*Poincianella pyramidalis (Tul.) and*mulungú (*LPQueiroz*) Erythrina velutina Willd (FLORA DO BRASIL, 2020). For example, the “Climate Seasonality Hypothesis” proposed by Albuquerque (2006) predicts that people tend to use more resources that are guaranteed throughout the year. In this case, in caatinga environments, native woody species (perennial plants) are more used than herbaceous species (non-perennial plants). In this sense, we point out the need for related work that can increase our findings.

Just as plants varied in the composition of plant complexes, the parts of plants used also tend to be varied to compose certain mixtures. For example, many complexes are composed of; extracts from roots, seeds, flowers, bark and mainly plant leaves. In this way, the data obtained

relate to those of Vandebroek et al. (2010), who, when investigating the importance of vegetable mixtures in the Dominican Republic, showed that various parts of plants are used for many preparations, depending on the health/condition being treated, or according to the individual using that species. Additionally, the data are also related to those of Gras et al. (2018), who carried out a study on the use of vegetable mixtures in local populations in Catalan districts and identified that the aerial part of plants are usually used more in mixtures. Furthermore, Camargo (2011) also argues in his study that the parts of vegetables that make up such traditional preparations can be peels, fruits, leaves, roots or flowers, dried or fresh, as well as being related to data from Cano and Volpato (2003), who, when investigating the use of herbal mixtures in the eastern Cuban region, identified flowers, leaves, bark, fruits and roots as part of the plants used in vegetable mixtures.

Among other types of substances used in the complexes, we can mention honey, sugar and especially alcoholic substances. These data coincide with the arguments of Camargo (2011), which states that many vegetable complexes, such as bottled drinks, consist of combinations of medicinal plants conveyed in alcoholic beverages, honey and other types of substances. As well as relating to the data from Vandebroek et al. (2010), who highlight different sweet and alcoholic substances used in vegetable mixtures in the Dominican Republic.

3.2 Function/Role of Plant Complexes

The plant complexes used by folk medicine in the state of Alagoas are characterized as quite versatile, as the health problems indicated by such complexes are quite diverse. In this way, these data are related to those of Lós et al, (2012), in which, when studying the commercialization of medicinal plants in the municipality of Arapiraca in Alagoas, the authors identified a great versatility of plants and products for medicinal purposes, used to treat diseases associated with various body systems. However, it is clear that most plant complexes are used to cure diseases most often related to the respiratory system, such as illnesses such as flu and cough. This fact can be exemplified mainly by the use of medicinal lickers, and coincides with the data evidenced by Silva et al, (2015) that the

licking, as a medicinal product, is usually used in the Northeast region to treat diseases associated with the respiratory system and is also related to the studies by Gras et al. (2018) and Vandebroek et al. (2010), who also highlight the very frequent use of vegetable mixtures as a form of anti-catarrhal treatment and other respiratory diseases.

When analyzing some works, it was clear that some plants, when used in isolation, are indicated for different functions, when compared to their functions indicated in plant complexes. In this sense, the data are related to the evidence from Gras et al. (2018), who infer that the use of plant complexes in folk medicine can be explained as a response to the cure of multicausal diseases or by a possible multipurpose effect of the mixture as opposed to just the effect of each taxon. This fact can be a very important point, which can serve as a basis for bioprospective studies associated with plant complexes. Based on this, we highlight the importance of carrying out work that analyzes possible synergistic interactions of natural products as highlighted by Casa Nova and Costa, (2017), because for these authors, "often, extracts from medicinal plants can exhibit more pronounced biological activities than their isolated constituents".

3.3 Importance of Plant Complexes

In general, plant complexes play an extremely important role as a form of medicinal use for people, since they have great medicinal versatility, as they are used to cure different types of illnesses. It is also possible to see that the importance of certain vegetable complexes in the state of Alagoas goes beyond medicinal importance, as some of these preparations are also used as a socioeconomic form, through commercialization in different fairs and local markets in the region, as evidenced by Dantas et al, (2020) and Lós et al, (2012). Furthermore, such preparations play an important cultural symbolic role for the region, which has been maintained by local populations for a long time. This fact can be exemplified mainly by the use of lickers and bottles, as according to Camargo (2011), such preparations are part of the historical construction of Brazilian medicines.

The traditional use of plant complexes by local populations in the state of Alagoas can function as a complementary treatment. This is because despite the existence of public health services, many local populations still resort to or prefer only the use of preparations associated with medicinal plants, to cure or alleviate certain illnesses. This is because, in some cases, preparations associated with medicinal plants to cure diseases may be the most accessible for the population (SOUZA-MOREIRA et al., 2010), or even because the use of natural products based on medicinal plants , has been increasingly sought after by different societies, as there is a belief among many consumers that they are safer in terms of toxicity (CANO; VOLPATO, 2003).

Table 1. Plants used in vegetable complexes by folk medicine in the state of Alagoas, as evidenced by ethnobotanical work carried out in the state.

Popular name	Scientific name	Botanical Family	Origin of Species
Aroeira	*Myracrodruon urundeuva*German	Anacardiaceae	Native
Seriguela	*Spondias purpurea L.*	Anacardiaceae	Native
aloe	*Aloe vera*(L.) Burm. f.	Asphodelaceae	Exotic
Grajaú	*Fridericia chica*(Hmm. & Bonpl.) LGLohmann	Bignoneaceae	Native
Umburana	*Commiphora leptophloeos*(Mart.) J.B.Gillett	Burseraceae	Native
Fox Tail	*Harrisia adscendens*(Gurke) Britton and Rose	Cactaceae	Native
muçambê	*Tarenaya spinosa*(Jacq.) Raf.	Capparaceae	Native
Pratudo	*Kalanchoe cf. crenate*(Andrews) Haw.	Crassulaceae	Exotic
Good name	*Monteverdia rigida*(Mart.) Biral	Celastraceae	Exotic
São Caetano Melon	*Momordica charantia*L.	Cucurbitaceae	Native
Purple Spinning Top	*Jatropha gossypiifolia*L.	Euphorbiaceae	Native
Stone Break	*Phyllanthus amarus*Schumach.	Euphorbiaceae	Native
Castor Carrapateira	*Ricinus communis*L.	Euphorbiaceae	Native
Small Leaf Mint	*Mentha × villosa*Huds.	Lamiaceae	Native
Sambacaitá	*Mesosphaerum pectinatum*(L.) Kuntze	Lamiaceae	Native
Basil	*Ocimum americanum*L.	Lamiaceae	Native
Big Leaf Mint	*Plectranthus amboinicus*(Lour.) Spreng.	Lamiaceae	Native
Boldo	*Plectranthus ornatos Codd.*	Lamiaceae	Native

Rosemary	*Rosmarinus officinalis L.*	Lamiaceae	Native
Mororó	*Bauhinia cheilantha*(Bong.) Steud.	Leg. Dogs	Native
Jatobá	*Hymenaea courbaril*L.	Fabaceae	Native
Catingueira	*Poincianella pyramidalis*(Tul.) LPQueiroz	Leg. Dogs	Native
Angico	*Anadenanthera colubrina*var.*cebil*(Griseb.) Altschul	Leg. Me.	Exotic
Tamarind	*Tamarindus indica*L.	Leg. Me.	Exotic
Mulungú	*Erythrina velutina*Willd.	Leg. Pap.	Native
Pomegranate	*Punica granatum*L.	Lythraceae	Native
Acerola	*Malpighia emarginata*A.D.	Malpighiaceae	Native
Hibiscus	*Hibiscus rosa-sinensis*L.	Malvaceae	Native
Pitanga	*Eugenia Pitanga*L.	Myrtaceae	Exotic
guava tree	*Psidium guajava*L.	Myrtaceae	Native
Holy grass	*Cymbopogon citratus*(DC.) Stapf	Poaceae	Exotic
Juazeiro	*Ziziphus cotinifolia*Reissek	Rhamnaceae	Exotic
Noni	*Morinda citrifolia L.*	Rubiaceae	Exotic
lemon tree	*Citrus*sp.	Rutaceae	Exotic
Orange	*Citrus x aurantium*L.	Rutaceae	Exotic
Quixabeira	*Sideroxylon obtusifolium*(They gnaw. & Schult.) TDPenn.	Sapotaceae	Exotic
Pepper	*Capsicum frutescens*L.	Solanaceae	Exotic
Lemongrass	*Lippia alba*(Mill.) NEBr.	Verbenaceae	Exotic

Bull's Forehead	*Kallstroemia tribuloides*(Mart.) Steud.	Zygophyllaceae	Exotic
Rosemary	*Rosmarinus officinalis*	Lamiaceae	Exotic
garlic	*Allium sativum*	Amaryllidaceae	Native
boldo	*Cymbopogon citratus*	Poaceae	Exotic
garlic	*Allium cepa*	Amaryllidaceae	Exotic
Lemongrass	*Lippia alba*	Verbenaceae	Native
Pepper mint	*Mentha piperita*	Lamiaceae	Native
Elderberry	*Sambucus australis Cham. & Schltdl*	Adoxaceae	Exotic
Passion fruit	*Passiflora edulis*	Passifloraceae	Native
St. Mary's Weed	*Chenopodium ambrosioides*	Amaranthaceae	Native
Not recommended	*Abarema cochliacarpos*	Fabaceae	Exotic
Lemon	*Lemon - Citrus × lemon*	Rutaceae	Exotic
coral flower	*Jatropha multifida L*	Euphorbiaceae	Native
African basil	*Ocimum gratissimum L.*	Lamiaceae	Native

Ciguleira	*Aloe Vera (L.) Burm. F.*	Lamiaceae	Exotic
Aroeira	*Myrachondruon urundeuva FR.All.*	Anacardiaceae	Native
Basil	Ocimum sp	Amaranthaceae	Exotic
Aloe vera	*Aloe Vera (L.) Burm. F*	Liliaceae	Exotic
Barbatimão	*Stryphnodendron adstringens Mart. Coville*	Leguminoseae	Native
Cress	*watercress nasturtium officinale*	Brassicaceae	Exotic
Jurubeba	*Solanum asperolanatum*	Solanaceae	Exotic
Indian mulberry	*Morinda citrifolia*	Rubiaceae	Exotic
Mastruz	*Chenopodium ambrosioides L.*	Amaranthaceae	Exotic
purge potato	*Operculina alata*	Convolvulaceae	Native
Jurema	*Mimosa tenuiflora (Willd.) Poir.*	Fabaceae	Native
Hooker	*Guapira laxa (Netto) Furlan*	Nyctaginaceae	Exotic
Papaconha	*Carapichea ipecacuanha (Brot.) L. Andersson (ENI)*	Rubiaceae	Exotic
Blackberry	*Rubus sellowii Cham. & Schltdl. (ENI)*	Rosaceae	Native
Barbatimão	*Abarema cochliacarpos (Gomes) Barneby & JWGrimes (MAC 54483*	Fabaceae	Native
Cow's Paw	*Bauhinia cheilantha (Bong.) Steud. (ENI)*	Fabaceae	Exotic
Juca	*Libidibia ferrea (Mart. ex Tul.) LPQueiroz (ENI)*	Fabaceae	Native

Anise	*Pimpinella anisum L.*	Apiaceae	Exotic

Table 2. Types of plant complexes used by folk medicine in the state of Alagoas, as evidenced by ethnobotanical work carried out in the state.

Plant complexes	Plants used	Medicinal Function	Work/Author
Syrup 1	rosemary	Skin diseases, fever and pain	Griz et al, (2017)
Syrup 2	garlic	Respiratory diseases and calming	Griz et al, (2017)
Syrup 3	boldo	Gastrointestinal illnesses, sedatives, and fever	Griz et al, (2017)
Syrup 4	Garlic	Respiratory diseases	Griz et al, (2017)
Syrup 5	Lemongrass	Respiratory diseases, gastrointestinal diseases, skin diseases, soothing and pain	Griz et al, (2017)
Syrup 6	Pepper mint	Gastrointestinal and respiratory illnesses, fever, pain and menstrual cramps	Griz et al, (2017)
Syrup 7	Elderberry	Fever and diuretic problems	Griz et al, (2017)
Syrup 8	Big Leaf Mint, Leaf Mint Small and Umburana	The flu	Dantas et al, (2020)
Syrup 9	Small Leaf Mint and Lemon Balm	The flu	Dantas et al, (2020)
Syrup 10	Big Leaf Mint, Leaf Mint Little and Lemon	Flu and Viruses	Dantas et al, (2020)
Syrup 11	Big Leaf Mint, Leaf Mint Little and Ginger	Flu and sore throat	Dantas et al, (2020)
Syrup 12	Big Leaf Mint, Ginger and Rosemary	The flu	Dantas et al, (2020)
Syrup 13	Ciguleira	Cough and flu	Santos et al, (2020)
Syrup 14	aloe	Kidney Diseases/Cancer/Inflammation	Santos et al, (2020)
Syrup 15	Cress	The flu	Melro et al, (2020)
Syrup 16	African basil	Pain, fever, bleeding, pressure and flu	Melro et al, (2020)
Bath 1	Pau darco and Pratudo	Fever	Dantas et al, (2020)
Bath 2	Aroeira	Inflammation/Fever/General pain/Ear pain	Santos et al, 2020

Bath 3	Basil	the flu	Santos et al, (2020)
Bath 4	Barbatimão	inflammation	Santos et al, (2020)
Bath 5	Eucalyptus, Small Leaf Mint and Basil	Fever	Dantas et al, (2020)
Bath 6	Mastic and Rosemary	Respiratory fatigue	Dantas et al, (2020)
Bath 7	Aroeira and Angico	Fever	Dantas et al, (2020)
Bath 8	Castor and Mint from Folha Grande	Fever and diarrhea	Dantas et al, (2020)
Bath 9	Big leaf mint and eucalyptus	Fever	Dantas et al, (2020)
Bath 10	Pau darco and Pratudo	Fever	Dantas et al, (2020)
Bath 11	Aroeira	Inflammation, Gastritis, Infection, Fibroid, Scarring, Inflammation in the uterus, Uncontrolled menstruation	Lima et al. (2016)
Tea 7	Lemon balm and Big leaf mint	Stress, flu and fever	Dantas et al, (2020)
Tea 8	Big Leaf Mint, Leaf Mint small and elderberry	The flu	Dantas et al, (2020)
Tea 9	Capim Santo, Mint of the Big Leaf, Spearmint da Folha Pequena, Eucalyptus	Headache and flu	Dantas et al, (2020)
Tea 10	Big Leaf Mint, Leaf Mint small, Quebra Pedra and Barbatimão	Flu, Prostate and Kidney Stones	Dantas et al, (2020)
Tea 11	None and Lemon Balm	Fever	Dantas et al, (2020)
Tea 12	Angico and Aroeira	Gastritis	Dantas et al, (2020)
Tea 13	Big Leaf Mint, Leaf Mint small and Rosemary	The flu	Dantas et al, (2020)
Tea 14	Tamarind and Big Leaf Mint	The flu	Dantas et al, (2020)
Tea 15	Mint from Folha Grande and Juazeiro	The flu	Dantas et al, (2020)
Tea 16	Mastruz, Big Leaf Mint, Little Leaf, Rosemary, Juazeiro and Pomegranate	Flu, Fever, Cough and headache	Dantas et al, (2020)
Tea 17	Folha Grande and Arruda Mint	The flu	Dantas et al, (2020)
Tea 18	Elderberry and Big Leaf Mint	Fever	Dantas et al, (2020)
Tea 19	Rosemary and lemon	The flu	Dantas et al, (2020)

Tea 20	Eucalyptus and Aroeira	Fever	Dantas et al, (2020)
Tea 21	Folha Grande Mint and For everything	Fever	Dantas et al, (2020)
Tea 22	Big Leaf Mint and Rosemary	The flu	Dantas et al, (2020)
Tea 23	Arruda and Rosemary	The flu	Dantas et al, (2020)
Tea 24	Rosemary, Lemongrass and Boldo	Headache and diarrhea	Dantas et al, (2020)
Tea 25	Monkey Cane and Pomegranate	Fever	Dantas et al, (2020)
Tea 26	Boldo, Eucalyptus and Basil	Fever	Dantas et al, (2020)
Tea 27	Rosemary and Eucalyptus	Headache	Dantas et al, (2020)
Tea 28	Boldo and Eucalyptus	Fever	Dantas et al, (2020)
Tea 29	Pratudo and Boldo	Diarrhea and fever	Dantas et al, (2020)
Tea 30	For everything and Mint da Folha Grande	The flu	Dantas et al, (2020)
Tea 31	Pratudo and Umburana	The flu	Dantas et al, (2020)
Tea 32	Pau Darco and Pomegranate	Fever	Dantas et al, (2020)
Tea 33	Quixabeira and Pau Darco	Migraine	Dantas et al, (2020)
Tea 34	Pau Darco, Quixabeira and Babosa	Headache and Fever	Dantas et al, (2020)
Tea 35	Aroeira and For everything	Fever and headache	Dantas et al, (2020)
Tea 36	Umburana and Rosemary	The flu	Dantas et al, (2020)
Tea 37	Lemongrass and Rosemary	Fever	Dantas et al, (2020)
Tea 38	Ginger and Bilberry	Headache and Diarrhea	Dantas et al, (2020)
Tea 39	For everything and Eucalyptus	Fever	Dantas et al, (2020)
Tea 40	Mastruz	Vermifuge, sinusitis, chronic phlegm, cough, bronchitis, fever, throat inflammation	Wanderley et al, (2017)
Tea 41	Small leaf mint	General fatigue, digestive atony, palpitations, migraine	Wanderley et al, (2017)
Tea 42	Small leaf mint, ginger, garlic, caatingueira	Flu and diarrhea	Dantas: Torres (2019)
Tea 43	Lemongrass	Insomnia and calming	Torres (2015)

Tea 44	Elderberry	Cough, flu and fever	Lima et al. (2016)
Tea 45	Anise	Soothing, Malaise, Swollen belly, Constipated intestine, Pressure high, Anxiety, Insomnia, Colic, Belly pain	Lima et al. (2016)
Tea 46	Pau d'arco	Heart, Kidneys, Headache, Inflammation, Diabetes, Stones kidneys	Lima et al. (2016)
Tea 47	Cow's Paw	Thick blood, diabetes and kidney stones	Lima et al. (2016)
Tea 48	Barbatimão	Circulation, Inflammation, Gastritis, Cancer, Infection, Inflammation vaginal, Inflammation in the teeth, Tumor, Inflammation in the uterus, Urinary tract infection, Intestinal infection, Kidney stones, Inflammation in utero, Rheumatism, Mi om The.	Lima et al. (2016)
Tea 49	Blackberry	Gastritis and menopause	Lima et al. (2016)
Tea 50	Papaconha	Flu and injury	Lima et al. (2016)
Tea 51	Jar	Menstrual flow	Lima et al. (2016)
Tea 52	Cat nail	Myoma and cyst	Lima et al. (2016)
Tea 53	Plum	Anti-inflammatory issues	Santos et al. (2013)
Bottle 1	Big Leaf Mint, Aloe Vera, Rosemary and Ginger	Flu and Headache	Dantas et al, (2020)
Bottle 2	Big Leaf Mint, Leaf Mint small, Rosemary and Mastruz	The flu	Dantas et al, (2020)
Bottle 3	Small Leaf Mint, Pratudo and Aloe Vera	The flu	Dantas et al, (2020)
Bottle 4	Small Leaf Mint, Leaf Mint Grande, Arruda and Ginger	The flu	Dantas et al, (2020)
Bottle 5	Aroeira, Pau Darco, Cajueiro Roxo and Umburana	Gastritis	Dantas et al, (2020)
Bottle 6	Aroeira, Darco wood and Umburana	Strokes	Dantas et al, (2020)
Bottle 7	For everything, Small Leaf Mint and Orange	Flu and Fever	Dantas et al, (2020)
Bottle 8	Mastruz, Mint of the Big Leaf, Mint of Small leaf, rosemary, pomegranate and Juazeiro	Cough, Inflammation, Flu and Fever	Dantas et al, (2020)
Bottle 9	Mastruz, Capim Santo, Aroeira and Angico	Gastritis	Dantas et al, (2020)
Bottle 10	Umburana, Angico, Mint da Folha Grande,	Flu, Gastritis, Diarrhea, Fatigue and Headache	Dantas et al, (2020)

	Passion fruit from Estralo, Rue and Babosa		
Bottle 11	Aroeira, Rosemary and Orange	Wounds and Infection	Dantas et al, (2020)
Bottle 12	Folha Grande Mint, Eucalyptus, Juazeiro, Pueijo and Rosemary	Fever, Diarrhea, Headache and Flu	Dantas et al, (2020)
Bottle 13	Pomegranate, Mastruz, Big Leaf Mint and Quixabeira	Gastritis	Dantas et al, (2020)
Bottle 14	Pomegranate, Big Leaf Mint and Aloe Vera	Diarrhea	Dantas et al, (2020)
Bottle 15	Folha Grande and Aroeira Mint	Flu and Fever	Dantas et al, (2020)
Bottle 16	Angico and Aroeira	Flu and Diarrhea, Headache and Fever	Dantas et al, (2020)
Bottle 17	Big Leaf Aloe and Mint	Dandruff and headache	Dantas et al, (2020)
Bottle 18	Aloe Vera and Aroeira	Gastritis and Flu	Dantas et al, (2020)
Bottle 19	Rosemary and For everything	Flu and fever	Dantas et al, (2020)
Bottle 20	Angico, Aroeira and Umburana	Fever, Migraine and gastritis	Dantas et al, (2020)
Bottle 21	Angico, Big Leaf Mint	Fever	Dantas et al, (2020)
Bottle 22	Aroeira, Angico and Rosemary	Flu, Fever and Cough	Dantas et al, (2020)
Bottle 23	Aloe vera and for everything	Gastritis	Dantas et al, (2020)
Bottle 24	Angico, Aroeira and Mint da Folha Grande	Flu, headache and dandruff	Dantas et al, (2020)
Bottle 25	Aroeira, Angico and Ginger	Flu, Headache and Fever	Dantas et al, (2020)
Bottle 26	Umburana and Aroeira	Fever	Dantas et al, (2020)
Bottle 27	Abarema cochliacarpos	Skin diseases, wound healing, cancer, pain and inflammation	Griz et al, (2017)
Bottle 28	Aloe vera and ginger	Gastritis and anemia	Dantas et al, (2019)
Bottle 29	Rosemary	Flu/Throat, Stomach ache, Fever	Santos: Silva (2015)
Bottle 30	Angico	Inflammation, fever, pain, boil	Santos:Silva (2015)
Bottle 31	Aroeira	Inflammation,	Santos:Silva (2015)

		itch, bone fractured	
Bottle 32	Good name	Cough, pain, boil, blow	Santos: Silva (2015)
Bottle 33	Catingueira	Stomach ache, inflammation, blow	Santos:Silva (2015)
Bottle 34	Juazeiro	Snake antivenom, cough, flu	Santos: Silva (2015)
Bottle 35	Jurema	Inflammation, pain belly	Santos:Silva (2015)
Bottle 36	Jurubema	The flu	Santos:Silva (2015)
Bottle 37	Stone Break	Kidney	Santos:Silva (2015)
Bottle 38	Hooker	Stomach swollen/animal	Santos: Silva (2015)
Bottle 39	Sambacaitá	Inflammation, boil, wash the parts intimate	Santos:Silva (2015)
Bottle 40	Juca	Rheumatism and diabetes	Lima et al. (2016)
Bottle 41	Aroeira and barbatimão	Injuries	Dantas: Silva (2020)
Licker 1	Big Leaf Mint, Leaf Mint small and garlic	Cough	Dantas et al, (2020)
Licker 2	Big Leaf Mint and Leaf Mint small	Flu, Cough and Fever	Dantas et al, (2020)
Licker 3	Sambacaitá and Erva Cidreira	General Inflammations	Dantas et al, (2020)
Licker 4	Big Leaf Mint, Leaf Mint small, Garlic and Lemon	The flu	Dantas et al, (2020)

Licker 5	Big Leaf Mint, Leaf Mint Small and Chive	Stress	Dantas et al, (2020)
Licker 6	Aroeira and Purple Cashew Tree	Inflammation in the uterus and flu	Dantas et al, (2020)
Licker 7	Muçambê, Catingueira, Mint of the Big Leaf, Passion fruit from Estralo, Angico and Aroeira	Asthma and Bronchitis	Dantas et al, (2020)
Licker 8	Large Leaf Mint, Leaf Mint small and drooling	The flu	Dantas et al, (2020)
Licker 9	Big Leaf Mint and Aloe Vera	The flu	Dantas et al, (2020)
Licker 10	Big Leaf Mint, Rosemary and Lemon	Flu and fever	Dantas et al, (2020)
Licker 11	Big Leaf Mint, Aloe Vera and Boldo	Headache and Flu	Dantas et al, (2020)
Licker 12	Large Leaf Mint, Leaf Mint small Rosemary and Aloe	Headache	Dantas et al, (2020)
Licker 13	Rosemary, Bom Nome, Big Leaf Mint and Umburana	Flu and headache	Dantas et al, (2020)
Licker 14	Big Leaf Mint, Leaf Mint small and ginger	Cough	Dantas et al, (2020)
Licker 15	Mastruz, Ginger and Mint from the Big Leaf	The flu	Dantas et al, (2020)
Licker 16	Large Leaf Mint, Small Leaf Mint, Rosemary, Mastruz, Pra Tudo, Boldo and Eucalyptus	Flu and headache	Dantas et al, (2020)
Licker 17	Big Leaf Mint, Leaf Mint Small, Rosemary and Bilberry	Migraine and Dizziness	Dantas et al, (2020)
Licker 18	Big Leaf Mint, Leaf Mint small and for everything	Headache and Flu	Dantas et al, (2020)
Licker 19	Big Leaf Mint, Ginger, Garlic and Rue	Flu and Headache	Dantas et al, (2020)
Licker 20	Orange, Eucalyptus and Capim Santo	Fever	Dantas et al, (2020)

Licker 21	Orange, Eucalyptus, Capim Santo, Peppermint Big Leaf and Small Leaf Mint	The flu	Dantas et al, (2020)
Licker 22	Big Leaf Mint, Leaf Mint small, Mastruz and Muçambê	Fever	Dantas et al, (2020)
Licker 23	Lemon, Mint da Folha Grande and Capim Santo	Flu and headache	Dantas et al, (2020)
Licker 24	Big Leaf Mint, For Everything and Pomegranate	Flu and Fever	Dantas et al, (2020)
Licker 25	For Everything, Rosemary, Small Leaf Mint and Rue	The flu	Dantas et al, (2020)
Licker 26	Small leaf mint, mastic, garlic and para All	Headache, Flu and Fever	Dantas et al, (2020)
Licker 27	Lemon Balm, Big Leaf Mint, Garlic and Scallion	the flu	Dantas et al, (2020)
Licker 28	Para Tudo and Mint da Folha Grande	Flu and Fatigue	Dantas et al, (2020)
Licker 29	Small Leaf Mint and Chamomile	Headache	Dantas et al, (2020)
Licker 30	For Everything, Big Leaf Mint and Garlic	Headache	Dantas et al, (2020)
Licker 31	Big leaf mint and rosemary	Flu and fever	Dantas et al, (2020)
Licker 32	Muçambê, Juazeiro, Alecrim and Angico	The flu	Dantas et al, (2020)
Licker 33	Juazeiro, Alecrim and Angico	Flu and fever	Dantas et al, (2020)
Licker 34	For everything, Mastruz and Mint da Folha Grande	The flu	Dantas et al, (2020)
Licker 38	Mastruz and Capim Santo	Flu and Cough	Dantas et al, (2020)
Licker 39	Small leaf mint	Menstrual cramps, scarring, fever, system pain respiratory, cardiovascular and gastrointestinal	Cerqueira (2013)
Licker 40	purge potato	Stroke sequelae, purification against skin diseases, leucorrhoea	Wanderley et al, (2017)
Licker 41	Mastruz	Fever, Cough, Flu, Headache, Worm, Fatigue, Stomach pain, Intestinal infection, Craving, Weakness, Pneumonia, Vaginal inflammation, Hemorrhoids	Lima et al. (2016)
Juice 1	Pepper mint	Gastrointestinal and respiratory illnesses, fever/pain, and menstrual cramps	Griz et al, (2017)

Juice 2	Passion fruit	Respiratory and cardiovascular diseases and calming	Griz et al, (2017)
Juice 3	St. Mary's Weed	Worms	Griz et al, (2017)
Juice 4	lemon	the flu	Melro et al, (2020)
Juice 5	coral flower	bleeding	Melro et al, (2020)
Juice 6	Jurubeba	Infections	Melro et al, (2020)
Juice 7	Indian mulberry	infections	Melro et al, (2020)

Final considerations

Carrying out this work reveals part of the relationship between the culture of individuals and plant resources, effectively contributing to the dissemination of biocultural aspects associated with plant complexes in popular medicine in the state of Alagoas. However, the systematic review showed that there are few studies on the subject in the state or that in any way present information about plant complexes. Therefore, we highlight the need for further work that seeks to investigate the use of medicinal plants associated with these preparations in different local populations in the region, since the development of studies associated with plant complexes is considered minimal, when compared to carrying out studies on the isolated use of medicinal plants. Consequently, this work serves as a subsidy for cultural appreciation and as an incentive for the development of other studies on the practice of using plant complexes in the region.

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