Wild edible fruits of Colombia: diversity and use prospects

Frutos silvestres comestibles de Colombia: diversidad y perspectivas de uso

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Abstract

Wild fruits have been an integral part of the diet of rural inhabitants in tropical America. In Colombia, information on the use of wild fruits appears scattered in the ethnobotanical literature and herbaria collections, limiting the design of conservation and use strategies. This review aims to synthesize information about the wild fruit species used in Colombia. We reviewed herbarium collections and literature references. We recorded 703 species in 76 families, among which Fabaceae (66 species), Arecaceae (58), and Passifloraceae (44) were the most diverse. The genera with more species were *Inga* (42), *Passiflora* (42), and *Pouteria* (21). Most species are widely distributed in tropical America, and only 45 (6.4 %) are endemic to Colombia. The regions with the largest number of species were the Amazon (388), Andes (144), and Pacific (111). Most of the recorded species, 613 (87.2 %), are exclusively wild, whereas 90 (12.8 %) are wild or cultivated. Wild edible fruits have a high potential for agriculture, novel products and nutritional improvement; however, it is vital to create strategies to revalorize their use.

Keywords. Biodiversity. Ethnobotany. Underutilized species. Wild foods.

Resumen

Los frutos silvestres han sido una parte integral de la dieta de los habitantes rurales del trópico americano. En Colombia, la información acerca del uso de los frutos silvestres se encuentra dispersa en la literatura etnobotánica y en colecciones de herbario, limitando el diseño de estrategias de conservación y uso. Esta revisión tiene como propósito sintetizar información acerca de los frutos silvestres usados en Colombia. Se revisaron colecciones de herbario y referencias de literatura. Se registraron 703 especies en 76 familias, entre las cuales Fabaceae (66 especies), Arecaceae (58) y Passifloraceae (44) son las más diversas. Los géneros con más especies fueron *Inga* (42), *Passiflora* (42) y *Pouteria* (21). La mayoría de las especies tienen amplia distribución en América tropical, y solo 45 (6.4 %) son endémicas de Colombia. Las regiones con el mayor número de especies son Amazonia (388), Andes (144) y Pacífico (111). La mayoría de especies registradas, 613 (87.2 %), son exclusivamente silvestres, mientras que 90 (12.8 %) son silvestres o cultivadas. Los frutos silvestres tienen un alto potencial para la agricultura, para desarrollar productos novedosos y para mejoramiento nutricional; sin embargo, es necesario crear estrategias para revalorizar su uso.

Palabras clave. Alimentos silvestres. Biodiversidad. Etnobotánica. Especies subutilizadas.

Introduction

Edible wild species grow with or without human action and need to overcome a process of human selection to be considered as domesticated crops (Heywood, 1999). The limits between both categories can be fuzzy, as more factors must be considered when classifying them. Wild edible plants and their products have been important throughout human history, not only for their nutritional benefits and impact on people's diet, but also because they have shaped the ecological distribution and species richness across ecosystems (Levis *et al.*, 2017). Despite their great influence, many of them have been underused due to *knowledge loss*, various factors, such as the arrival of new alternatives, or changes in the ecosystems and cultural diversity, caused a reduction in the use of native species (Byg & Balsev, 2004; Van Zonneveld *et al.*, 2018).

In tropical America, fruits have been an essential component of diet and culture (Hernández & León, 1992). According to Patiño (2002), Europeans found in the Americas many communities that ate fruits as an integral part of their diet. Amerindian people from the Amazon domesticated at least 71 species of fruit trees (Clement, 1999); for Andean cultures, fruits were related to social customs and were products of frequent exchange (Daza, 2013; Martínez y Manrique, 2014). However, while the native fruits were rooted in the diet of New World inhabitants, the European conquerors looked at them with suspicion (Patiño, 2002), introducing new fruit plants that quickly spread throughout the continent (Hernández & León, 1992). Many native species became underutilized due to the depopulation suffered by native American cultures and the transformation of their traditional knowledge after the European conquest (Clement, 1999, van Zonneveld *et al.*, 2018). Only in the 18th century, did American fruit trees begin to gain interest; by then, both native and introduced Old World plants had become part of home gardens (Patiño, 2002). Under this scenario, consumption of native fruits most probably decreased. Nevertheless, wild fruits are still an essential part of people´s alimentary traditions in tropical America (Patiño, 2002; Rivas *et al.*, 2010; Álvarez *et al.*, 2016).

Edible wild fruits contribute significantly to the diet of human communities (Baccheta *et al.*, 2016). Wild fruits are an accessible source of food and income and are well-adapted to local climatic conditions (Bvenura & Sivakmar, 2017). Wild edible species and their varieties are valuable reservoirs of genetic diversity for crops (Bachheta *et al.*, 2016). Genera like *Annona*, *Solanum*, *Theobroma*, *Pouteria*, *Rubus*, *Passiflora*, or *Bactris*, which include valuable commercial fruit trees, also have many wild species. Thus, these species can play an essential role in crop breeding, to increase the adaptability and resilience of commercial crops (Baccheta *et al.*, 2016). This genetic potential of wild fruits can be related to incipient management and domestication (Baccheta *et al.*, 2016). This could be, for example, the case of some palm species of Colombia, for which Bernal *t al.* (2011) identified management practices related to their edible use. It is also the case of species such as *Vaccinium meridionale*, currently in the process of cultivation and domestication in the Colombian Andes (Ligarreto, 2009). Thus, wild fruit trees may have the potential to increase agricultural diversity in many regions of Colombia.

Wild fruits are often richer in micronutrients and bioactive secondary metabolites than cultivated species, and they can benefit human health either by direct consumption or as processed products (Baccheta *et al.*, 2016; Li *et al.*, 2016; Bvenura & Sivakmar, 2017; Pinela *et al.*, 2017). These favorable properties have been identified in numerous tropical fruit plants (Hernández & Barrera, 2010; Montúfar *et al.*, 2010; Kang *et al.*, 2012; Yamaguchi *et al.*, 2015), increasing the interest in the development of nutritional products and dietary supplements (Oliveira *et al.*, 2012; Neri-Numa *et al.*, 2018). Any of these preparations could be considered as functional foods (Baccheta *et al.*, 2016), which in addition to their nutritional properties, have positive physiological effects on consumers, potentially contributing to disease prevention and health improvement (Hilton, 2017). Along with the interest in biochemical research on wild fruit trees, the recovery of traditional knowledge about their management and preparation has contributed to their reintroduction as innovative foods for gastronomy and new cuisines (Baccheta *al.* , 2016). Therefore, wild fruit plants can diversify crop production and bring significant health and economic revenues to local communities, as they represent effective value chains (Kehlenbeck *et al.*, 2013; Omotayo & Aremu, 2020).

In Colombia, the diversity of wild fruits has been documented in several publications. Pérez-Arbeláez (1978), in his work "Plantas Útiles de Colombia" reported 50 species of fruit trees. Later, Romero-Castañeda (1991) compiled the most important synthesis about Colombia's wild fruits, reporting 167 species. However, as new revisions (Acero, 2005; Jiménez-Escobar & Estupiñán-González, 2011; Cárdenas *et al.*, 2012; Mesa

& Galeano, 2013; Ledezma-Rentería & Galeano, 2014; López *et al.*, 2016b) and new field studies (Cárdenas & López, 2000; Cárdenas & Ramírez, 2004; López *et al.*, 2006; Cruz *et al.*, 2009; Estupiñan-González & Jiménez-Escobar, 2010; López *et al.*, 2016a; Álvarez *et al.*, 2016) have been accomplished, the number of reported species has increased. The use of many of these fruits are mostly local, so they have had little recognition for their contribution to Colombians' diet. In 2010, Rivas *et al.*(2010) conducted a study on indigenous food, finding 92 new species that had not been reported in the Colombian Food Composition Tables (TCAC), among which one third were fruits. This growing interest in native foods has allowed the resurgence of some wild fruits, which have gained popularity in specialized markets and in the country's research agendas. However, the information in Colombia about the use, nutritional and productive qualities is still scarce and disperse. Therefore, the present review aims to present a synthesis of the wild edible fruits of Colombia and to discuss their use prospects.

Material and methods

We conducted a literature search on Google Scholar and Science Direct databases. Search terms included "fruits", "native", "Colombia", "edible", "promissory" and "ethnobotany". There was no restriction regarding language or publication year. In total, 74 references among books, articles, technical-scientific reports, and dissertations were included. The search was complemented by a review of herbarium collections, including Colombian National Herbarium (COL), Antioquia University Herbarium (HUA), Javeriana University Herbarium (HPUJ), and Colombian Amazon Herbarium (COAH) (abbreviations follow Index Herbariorum). The list was built at the species level, including the following criteria: all species have at least one report as edible, are native to Colombia, and they are wild; all growth habits were considered. In some cases, where the species has wild and cultivated varieties, we decided to include or exclude it depending on our assessment of the use frequency of the wild variety; for example, we included *Spondias mombin* and *Theobroma bicolor,* but excluded *Bactris gasipaes*. Also, we included all species reported as edible fruits, regardless of whether it is the pericarp, aril, or accessory parts like hypanthium, perianth, or pedicel that are consumed, but excluded those in which only the seeds are consumed. Thus, we included *Anacardium*, *Coccoloba*, and *Gaultheria* species, of which the edible parts are the swollen pedicel or the fleshy calyx, but excluded, for example, *Lecythis* and *Phytelephas*, for which it is the seeds, either mature or immature, that are consumed.

The taxonomy followed the APG system and was based on World Flora Online Consortium and Catálogo de Plantas y Líquenes de Colombia. The spelling of scientific names was verified with the Taxonomic Name Resolution Service v4.0 (Boyle *et al.*, 2013). Based on the literature or herbarium collections, we recoded the region of use for the species. The biogeographic regions were based on Catálogo de Plantas y Líquenes de Colombia and Hernández-Camacho *et al.* (1992). They included Amazon, Caribbean (including the Caribbean islands), Pacific, Orinoco (including Guayana and Serranía de La Macarena), Sierra Nevada de Santa Marta, Andes, Cauca Valley, and Magdalena Valley.

Results

We found records of 703 plant species of wild edible fruits in Colombia distributed in 76 families (Appendix 1). The richest families were Fabaceae (66 species), Arecaceae (58), Passifloraceae (44), Sapotaceae (41), Moraceae (34), Rubiaceae and Melastomataceae (28 species each), Annonaceae (27), Apocynaceae (25), Malvaceae and Myrtaceae (24 species each), and Ericaceae (23) (Table 1). The most reported genera were *Inga* and *Passiflora* (42 species each), followed by *Pouteria* (21), *Bactris* (16), *Annona* (14), *Pourouma* (12), and *Iryanthera* and *Solanum* (10).

The regions with the highest number of species were Amazon (388), Andes (144), Pacific (111), Caribbean (111), and Orinoco (77) (Table 2). For 36 species, the region of use was not identified. We found that only 45 (6.4 %) of the recorded species are endemic. The region with the highest number of endemic species was the Andes, with 28 species, followed by the Pacific and Magdalena valley, with ten species each (Appendix 1).

Eighteen species are used in almost all the regions of Colombia: *Spondias mombin*, *Spondias purpurea*, *Bactris brongniartii*, *Oenocarpus bataua*, *Oenocarpus minor*, *Chrysobalanus icaco*, *Garcinia madruno, Dialium guianense*, *Hymenaea courbaril*, *Inga edulis*, *Bunchosia armeniaca*, *Pseudolmedia laevigata*, *Campomanesia lineatifolia*, *Eugenia victoriana*, *Passiflora foetida*, *Passiflora vitifolia*, *Genipa americana*, and *Pourouma bicolor* (Appendix 1).

Table 1. Botanical families with more than ten wild fruit species recorded in Colombia.

Family	Genera number	Species number
Fabaceae	15	66
Arecaceae	18	58
Passifloraceae	2	44
Sapotaceae	8	41
Moraceae	15	34
Melastomataceae	11	28
Rubiaceae	15	28
Annonaceae	7	27
Apocynaceae	13	25
Malvaceae	8	24
Myrtaceae	11	24
Ericaceae	9	23
Chrysobalanaceae	6	20
Myristicaceae	6	18
Cactaceae	8	15
Urticaceae	3	15
Burseraceae	4	14
Solanaceae	4	14
Clusiaceae	5	13
Lecythidaceae	4	12
Rosaceae	3	11

Table 2. Number of wild edible fruits recorded in Colombia´s biogeographic regions, indicating the type of management (wild or wild and cultivated).

Region	Species number	Wild	Wild and cultivated
Amazon	388	351	37
Andes	144	110	34
Pacific	111	85	26
Carribbean	111	88	23
Orinoco	77	57	20
Magdalena Valley	10	6	4
Sierra Nevada de Santa Marta	8	7	1
Cauca Valley	2	1	1

In contrast, 541 species were reported as used only in one region, mostly in the Amazon (317), followed by the Andes (96), the Caribbean (52), and the Pacific (50).

Most of the species recorded, 613 (87.2 %), are exclusively wild, whereas only 90 (12.8 %) species are both wild and cultivated. Amazon is the region with the highest number of wild species (351), followed by the Andes (110), Caribbean (89), and Pacific (85) (Table 2). Eleven species of wild fruits have been officially reported as threatened in Colombia (Calderón *et al.*, 2002; 2005; Cárdenas & Salinas, 2007), six as endangered and five as vulnerable (Table 3).

Table 3. Wild edible fruits recorded in Colombia under threat of extinction according to the IUCN Red List Categories and Criteria. *Endemic species.

Species	Family	UICN Category
**Astrocaryum malybo* H.Karst.	Arecaceae	EN
Attalea colenda (O.F. Cook) Balslev & A.J.Hend	Arecaceae	EN
Elaeis oleifera (Kunth) Cortés	Arecaceae	EN
**Oenocarpus circumtextus* Mart.	Arecaceae	VU
Syagrus sancona (Kunth) H.Karst.	Arecaceae	VU
Caryocar amygdaliferum Mutis ex Cav.	Caryocaraceae	VU
Licania platypus (Hemsl.) Fritsch	Chrysobalanaceae	EN
Parinari pachyphylla Rusby	Chrysobalanaceae	EN
Gustavia nana Pittier	Lecythidaceae	EN
Gustavia speciosa (Kunth) DC.	Lecythidaceae	VU
**Passiflora tenerifensis* L.K.Escobar	Passifloraceae	VU

Discussion

Wild edible fruit diversity. The number of wild fruits recorded here far exceeds the figures previously known for Colombia —50 species by Pérez-Arbeláez (1978) and 167 species by Romero-Castañeda (1991). This substantial raise is basically due to the increase of ethnobotanical studies during the last three decades (e.g., Patiño, 2002; Acero, 2005; López *et al.*, 2006; Cruz *et al.*, 2009; Jiménez-Escobar *et al.*, 2011; Jiménez-Escobar & Estupiñán-González, 2011; Cárdenas *et al.*, 2012; Mesa & Galeano, 2013; Ledezma-Rentería & Galeano, 2014; Álvarez *et al.*, 2016; López *et al.* 2016a, b).

Although fruits have been the most frequent food category reported in literature for tropical America (Van den Eynden *et al.*, 2003; Pulido *et al.*, 2008; do Nascimento *et al.*, 2013), their rich botanical diversity in Colombia is remarkable. The variety of Colombian ecosystems can explain this. Thus, Colombia appears to be a place of botanical convergence, rather than a center of origin of wild fruits. Passifloraceae and Ericaceae are the families with the highest numbers of endemic species, almost all them native to the Andes. The use of endemic species is sporadic, and except for Compsoneura cuatrecasasii(2002) and *Hesperomeles goudotiana* (Cardozo *et al.*, 2009), there are no productivity or bromatological studies for them. Three of these endemic species are threatened; however, their condition is not related to overexploitation, but to natural habitat transformation (Calderón *et al.*, 2002; 2005).

Palms appear to be one of the most diverse botanical group in our review. Their fleshy fruits are rich in vitamins, oils, and other nutrients (Montúfar *et al.*, 2010; Kang *et al.*, 2012; Yamaguchi *et al.*, 2015), and they are a frequent component in the diet of rural communities across the territory. *Mauritia flexuosa*, *Euterpe precatoria*, and *Oenocarpus bataua* are widely appreciated in the Amazon and Orinoco (Acero, 2005; Mesa & Galeano, 2013), *Euterpe oleracea* and *Oenocarpus bataua* in the Pacific (Ledezma-Rentería & Galeano, 2014), and *Bactris guineensis* in the Caribbean (Galeano & Bernal, 2010). Even in the Andean region, edible fruits of palm species like *Aiphanes horrida* are usually consumed by rural people (Galeano & Bernal, 2010; López *et al.*, 2016a). Some of these palm species have protocols for their harvest and management, as they have been promoted as non-timber forest products (Bernal & Galeano, 2013; López-Camacho & Murcia-Orjuela, 2020).

The legume and passion-flower families are also some of the most diverse groups, particularly the genera *Inga* and *Passiflora*. The consumption of *Inga* fruits has been frequently reported in ethnobotanical studies in tropical America (Lévi-Strauss, 1952; Cárdenas & López, 2000; Van den Eynden *et al.*, 2003), and species of *Passiflora* are widely recognized for their edible fruits (Romero-Castañeda, 1991; Ocampo *et al.*, 2007). At least 187 species of *Passiflora* are known in Colombia, and there are recent studies focused on their potential and conservation (Ocampo *et al.*, 2007; Ocampo *et al.*, 2010; Ocampo, 2013).

There is also a significant number of wild edible fruits of Sapotaceae, particularly from the genus *Pouteria*, for instance *Pouteria arguacoensium*, a fruit tree endemic to Sierra Nevada de Santa Marta, traditionally used by the indigenous communities (Rivas *et al.*, 2010). Among the Moraceae, although the genus *Ficus* was the most diverse, its fruits are only sporadically consumed, and have no commercial significance. Another diverse botanical group is Myrtaceae, for which there is a growing interest in using *Myrciaria dubia* (Hernández & Barrera, 2010) and *Campomanesia lineatifolia* (López *et al.*, 2016a). Although *Myrciaria dubia* has been extensively used in Peru, reaching an international market, its potential is just beginning to be known in Colombia (Hernández & Barrera, 2010), and its fruits are now sold in some specialized markets. The two most diverse botanical groups of wild fruits used in Colombia's highlands are Ericaceae and Rosaceae. *Vaccinium meridionale* and *Macleania rupestris* are the most used species of Ericaceae. Whereas the former is widely commercialized and has been subject of several studies (Magnitskiy & Ligarreto, 2007; Ávila *et al.*, 2009; Castrillón *et al.*, 2008; Ligarreto, 2009; Medina *et al.*, 2019; Díaz-Uribe *et al.*, 2019), the latter is barely used (Acero & Bernal, 2003; López *et al.*, 2016a). Andean rural people often consume wild *Rubus* species (Rosaceae), but they do not have commercial significance (López *et al.*, 2016a). Apocynaceae, Melastomataceae, Rubiaceae, Malvaceae, and Annonaceae are other diverse families, that include species locally used and barely studied in Colombia.

Differences in the number of species among regions may be associated with ethnobotanical studies and biological and sociocultural aspects. According to Patiño (1989), until the 1990s, ethnobotanical studies in Colombia were focused on the lowlands, especially in the Amazon region. However, in the last two decades, there has been a growing interest in the ethnobotany of the Caribbean

and Andean regions (Cruz *et al.*, 2009; Jiménez-Escobar & Estupiñán-González, 2011; López *et al.*, 2016a, b). In contrast, even today, the literature on the use of native flora of the Magdalena and Cauca valleys and the Sierra Nevada de Santa Marta is scarce, underlining the need to increase ethnobotanical research there. A recent study on food plants in the Magdalena Valley reported the use of only three wild fruits, which could be the result of sociocultural transformations, since virtually the entire indigenous population has disappeared from that region (Villa & García, 2017).

Recording the Amazon as the most diverse region for wild fruits is not unexpected, since they have been an essential component of the diet among the human groups living there (Hernández & León, 1992; Clement, 1999). Several ethnobotanical studies have reported the prevalence of the use of wild fruits in the Amazon (Cárdenas & López, 2000; Cárdenas & Ramírez, 2004; López *et al.*, 2006). On the other hand, although the Andes are usually considered as the most transformed region in Colombia, it has more records of wild edible fruits than the Orinoco or the Pacific, which include extensive natural areas inhabited by human communities having have a deep relationship with the forest. The growing interest in the fruits of Ericaceae and Passifloraceae has contributed to the increase of the reports in this region (López, 2013; Abril, 2010). Likewise, in the Caribbean, recent studies have significantly contributed to the knowledge of useful species, including wild fruits (Cruz *et al.*, 2009; Jiménez-Escobar & Estupiñán-González, 2011; López *et al.*, 2016b).

Prospects of wild edible fruits. The most recognized species in literature are usually widely distributed in tropical America, so their use as food is well-known throughout the region. Due to their high potential for agriculture, for become novel products, and represent nutritional complement, most of them have been categorized as promising species, and have been gaining recent recognition in Colombia. Not surprisingly, some species like *Euterpe precatoria*, *Euterpe oleracea*, *Mauritia flexuosa*, *Bactris guineensis*, *Myrciaria dubia*, and *Vaccinium meridionale* are beginning to be traded in some of the largest cities of Colombia. However, some of these wild fruits have been marketed for decades in Brazil and Perú, whereas in Colombia, where studies on wild edible fruits are scarce, they are only a novelty in specialized markets. Some of the most studied wild fruits in Colombia include Amazonian species, especially *Euterpe precatoria*, *Mauritia flexuosa*, *Oenocarpus bataua*, *Myrciaria dubia* and *Theobroma bicolor* (Hernández *et al.*, 1998; Hernández & Barrera, 2010; Montúfar *et al.*, 2010; Kang *et al.*, 2012; Castro-Rodríguez *et al.*, 2015; Yamaguchi *et al.*, 2015) and the Andean wild fruit *Vaccinium meridionale* (Ligarreto, 2009; Medina *et al.*, 2019; Díaz-Uribe *et al.*, 2019).

Since wild edible fruits have great potential for dealing with food and nutritional insecurity in rural communities (Bvenura & Sivakmar, 2017), it is important to characterize their biochemical and nutritional composition. A significant barrier for encouraging the safe use of our wild edible fruits is the lack of studies on nutritional properties. Rivas *et al.* (2010) pointed out the scarce attention paid in Colombia to studying the chemical composition of traditional foods. A worrisome situation is the frequent reports on wild foods that are toxic to humans (Guill *et al.*, 1997; Spina *et al.*, 2008; Abbet *et al.*, 2014; Pinela *et al.*, 2017). Caution is required with species such as *Thevetia ahouai* or *Lantana camara* reported as possibly toxic (Flores *et al.*, 2001; Sharma *et al.* 2007). Although ethnobotanical reports validate the use of wild fruits, it is crucial to prioritize species with the most significant potential and encourage research on their bromatology. Wild fruits are also important sources of bioactive substances that can be used to develop pharmaceuticals and dietary supplements (Oliveira *et al.*, 2012; Bvenura & Sivakumar, 2017). Several bioactive substances have been identified in the best-known Colombian wild edible fruits; examples include the polyphenolic components with antioxidant properties of *Euterpe precatoria* and *Euterpe oleracea* (Yamaguchi *et al.*, 2015), the heavy concentration of ascorbic acid in *Myrciaria dubia* (Yuyama *et al.*, 2002) and vitamin A in *Aiphanes horrida* and *Mauritia flexuosa* (Balick & Gershoff, 1990; Pacheco, 2005) as well as the rich composition of aminoacids in *Oenocarpus bataua* (Balick & Gershoff, 1981). The search for new sources of bioactive substances should be an important line of research in Colombia, encouraging innovation in the food industry.

Another aspect of wild edible fruits is their potential to treat nutritional deficiencies. Anemia and micronutrient deficiencies (including vitamin A and zinc) are the most prevalent dietary problems in Colombia, particularly acute among rural people (Neufeld, 2012). However, consumption of wild edible fruits could solve some of these nutritional deficiencies. For example, fruits of *Aiphanes horrida* have been considered as an excellent source of Vitamin A (16 000 IU/100 gr) (Balick & Gershoff, 1990), and fruits of *Hymenaea courbaril* are rich in minerals such as iron, calcium, magnesium, zinc, silicon, phosphorus and potassium (Alzate *et al.*, 2008).

Wild edible fruits also provide other exceptional nutritional contents. "Milpeso milk" is a traditional beverage made from fruits of *Oenocarpus bataua*, which contains higher levels of proteins than soy milk (Balick & Gershoff, 1981). Also, the high content of Vitamin C of *Myrciaria dubia* and *Malpighia glabra* and the rich antioxidant contents of *Bactris guineensis* (Osorio *et al.*, 2011), *Vaccinium meridionale* (Garzón *et al.*, 2010), *Mauritia flexuosa* (Restrepo *et al.*, 2016), and *Euterpe* spp. (Yamaguchi *et al.*, 2015) are remarkable. Native fruits are also an alternative source of fiber, helping to decrease the prevalence of cardiovascular diseases, diabetes, obesity, colon cancer, and other diverticular diseases (Oliveira *et al.*, 2012). Fruits of *Byrsonima crassifolia*, for example, were found to have anti-diabetic activity (Pérez-Gutiérrez *et al.*, 2010).

On the other hand, the lack of detailed agronomical studies is a constraint for increasing native fruit production and their market availability (Oliveira *et al.* 2012). We estimate that less than 20 % of Colombian wild fruits have studies on their agricultural production. This condition could be related to the acceptability and accessibility of wild foods. Consumer preference is another factor affecting the cultivation and resurgence of indigenous fruits and vegetables (Bvenura & Sivakumar (2017). Consumers often prefer exotic fruits and vegetables, especially those developed over the years, as they are well-known and easier to get (Bvenura & Sivakumar, 2017). Other aspects, such as low governmental interest, poor markets, lack of added value, and the inability to meet demand and standards, make the spread of wild foods problematic (Bacchetta *et al.*, 2016). Since all these factors could be operating in Colombia, it is relevant to create strategies to re-assess fruits and other wild foods. Bacchetta *et al.* (2016) present some proposals that could be applied here. Firstly, we should prioritize species based on the information available and the prevalence of use. Here, it is essential to distinguish between those fruits of which consumption is just as a minor, incidental snack, from those with extensive use or those related to domesticated species, such as wild fruits of Annonaceae, Passifloraceae, or Myrtaceae. Then, we should assess available data and identify gaps through participatory ethnobotanical inventories. These activities might also involve collecting genetic material that remains as a priority to Colombian authorities due to the low representation of wild fruits in national germplasm banks. Based on the review of records from Instituto Colombiano Agropecuario (ICA) and Medina (2009), we found that only about 31 (4.4 %) species are represented in national germplasm banks. Efforts for *ex situ* conservation of wild fruits could also facilitate conditions for studying their nutritional and agronomic requirements. However, conservation strategies should also include the protection of local knowledge and consumption, as many wild fruits are incorporated in people´s diets around the country (Rivas *et al.*, 2010; Jimenez-Escobar & Estupiñán-González, 2011; Álvarez *et al.*, 2016). Therefore, it is conceivable that wild fruits can play an essential role in different gastronomic traditions, so their commercial prospecting cannot be the only research focus.

Although our results account for a wide variety of wild fruits in Colombia, this does not necessarily reflect the reality of their current consumption. According to Rivas *et al.* (2010), native foods consumption has decreased in Colombia over time. Indigenous communities have replaced foods with others with higher social prestige but a lower nutritional value (Rivas *et al.*, 2010). In other cases, consumption patterns have changed, due to recent socioeconomic transformations (Gómez *et al.*, 2006; Álvarez *et al.*, 2016). The drastic decline in consumption of wild foods has been attributed, among other factors, to forest degradation, agriculture, and urbanization (Bvenura & Sivakumar, 2017). However, the recovery of old habits is an essential strategy for promoting health and welfare (Rivas *et al.*, 2010; Oliveira *et al.*, 2012). We expect that the growing trend to reevaluate native biodiversity and traditions will encourage research on our wild edible fruits.

Acknowledgments

We thank staff of the Colombian National Herbarium, Antioquia University Herbarium and Colombian Amazon Herbarium for providing access to their collections. This review article was supported by *Programa Jóvenes Investigadores e Innovadores* (Colciencias-Pontificia Universidad Javeriana).

References

Abbet, Ch., Mayor, R., Roguet, D., Spichiger, R., Hamburger, M. & Potterat, O. (2014). Ethnobotanical survey on wild alpine food plants in Lower and Central Valais (Switzerland). *Journal of Ethnopharmacology, 15,* 1624-634. https://doi.org/10.1016/j.jep.2013.11.022

Abril, D. (2010). *Las ericáceas con frutos comestibles del Altiplano Cundiboyacense*. (Thesis). Bogotá D. C.: Pon-

tificia Universidad Javeriana, Facultad de Ciencias, Departamento de Biología. 41 pp.

Acero, L. E. (1979). *Principales plantas útiles de la Amazonia colombiana*. Bogotá D. C.: Instituto Geográfico Agustín Codazzi (IGAC). 263 pp.

Acero, L. E. (2005). *Plantas útiles de la Cuenca del Orinoco*. Bogotá: Zona Ediciones. 608 pp.

Acero, L. E. & Bernal, H. Y. (2003). *Guía para el cultivo, aprovechamiento y conservación de la uva camarona: Macleania rupestris (HBK) A.C. Smith*. Serie Ciencia y Tecnología No. 27. Bogotá D. C.: Convenio Andrés Bello. 43 pp.

Álvarez, L. M., Gálvez, A. & Salazar, J. C. (2016). Etnobotánica del Darién Caribe colombiano: los frutos del bosque. *Etnográfica, 20*(1), 163-193. https://doi.org/10.4000/etnografica.4244

Alzate, L. M., Arteaga, D. M. & Jaramillo, Y. (2008). Propiedades farmacológicas del algarrobo (*Hymenaea courbaril* L.) de interés para la industria de alimentos. *Revista Lasallista de Investigación, 5*(2), 100-111.

Ariza, W., Huertas, C., Hernández, A., Gelvez, J., González, J. & López, L. (2010). Caracterización y usos tradicionales de Productos Forestales no Maderables (PFNM) en el corredor de conservación Guantiva-La Rusia-Iguaque. *Colombia Forestal, 13*(1), 117-140. https://doi.org/10.14483/issn.2256-201X

Ávila, R., Orozco, O., Ligarreto, G., Magnitskiy, S. & Rodríguez, A. (2009). Influence of mycorrhizal fungi on the rooting of stem and stolon cuttings on the Colombian blueberry (*Vaccinium meridionale* Swartz). *International Journal of Fruit Science, 9*(4), 372-384. https://doi.org/10.1080/15538360903378575

Baccheta, L., Visioli, F., Cappelli, G., Caruso, E., Martin, G., Nemeth, E., Bacchetta, G., Bedini, G., Wezel, A., van Asseldonk, T., van Raamsdonk, L., Mariani, F. & Eatwild Consortium. (2016). A manifesto for the valorization of wild edible plants. *Journal of Ethnopharmacology, 191*, 180-187. https://doi.org/10.1016/j.jep.2016.05.061

Balick, M. J. & Gershoff, S. N. (1981). Nutritional evaluation of the *Jessenia bataua* palm: source of high-quality protein and oil from tropical America. *Economic Botany, 35*, 261-271. https://doi.org/10.1007/BF02859117

Balick, M. J. & Gershoff, S. N. (1990). A nutritional study of *Aiphanes caryotifolia* (Kunth) Wendl. (Palmae) fruit: An exceptional source of vitamin A and high-quality protein from tropical America. *Advances Economic Botany, 8*, 35-40.

Bernal, R. & Galeano, G. (eds.). (2013). *Cosechar sin destruir. Aprovechamiento sostenible de palmas colombianas*. Bogotá D. C.: Facultad de Ciencias, Instituto de Ciencias Naturales, Universidad Nacional de Colombia. 241 pp.

Bernal, R., Torres, C., García, N., Isaza, C., Navarro, J., Vallejo, M. I., Galeano, G. & Balslev, H. (2011). Palm management in South America. *The Botanical Review, 77*, 607-646. https://doi.org/10.1007/s12229-011-9088-6

Botero-Restrepo, H. (2005). *Etnobotánica de la Cuenca Alta del Río Sinú. Córdoba, Colombia*. Medellín: Fondo Para la Acción Ambiental, Fundación BIOZOO, Corporación Autónoma Regional de los valles de Sinú y del San Jorge. 91 pp.

Boyle, B., Hopkins, N., Lu, Z., Raygoza, J. A., Mozzherin, D., Rees, T., Matasci, N., Narro, M.L., Piel, W.H., Mckay, S.J., Lowry, S., Freeland, C., Peet, R. K. & Enquist, B. J. (2013). The taxonomic name resolution service: an online tool for automated standardization of plant names. *BMC Bioinformatics, 14*, 16. https://doi.org/10.1186/1471-2105-14-16

Bvenura, C. & Sivakmar, D. (2017). The role of wild fruits and vegetables in delivering a balanced and healthy diet. *Food Research International, 99*, 15-30. https://doi.org/10.1016/j.foodres.2017.06.046

Byg, A., & Balslev, H. (2004). Factors affecting local knowledge of palms in Nangaritza valley in south-eastern Ecuador. *Journal of Ethnobiology, 24*(2), 255-278.

Caballero, R. (1995). *La etnobotánica en las comunidades negras e indígenas del delta del río Patía*. Quito: Ediciones Abya-Yala. 248 pp.

Calderón, E., Galeano G. & García N. (eds.). (2002). *Libro Rojo de las Plantas Fanerógamas de Colombia. Volumen 1: Chrysobalanaceae, Dichapetalaceae y Lecythidaceae*. Serie Libros Rojos de Fauna, Flora y Hongos Amenazados de Colombia. Bogotá D. C.: Instituto Alexander von Humboldt, Instituto de Ciencias Naturales de la Universidad Nacional de Colombia, Ministerio del Medio Ambiente. 220 pp.

Calderón, E., Galeano G. & García N. (eds.). (2005). *Libro Rojo de Plantas de Colombia. Volumen 2: Palmas, Frailejones y Zamias*. Serie Libros Rojos de Especies Amenazadas de Colombia. Bogotá D. C.: Instituto Alexander von Humboldt–Instituto de Ciencias Naturales de la Universidad Nacional de Colombia–Ministerio de Ambiente, Vivienda y Desarrollo Territorial. 454 pp.

Carbonó, E. (1987). *Estudios etnobotánicos entre los Coguis de la Sierra Nevada de Santa Marta, Colombia*. (Tésis). Bogotá, D.C.: Universidad Nacional de Colombia,

Facultad de Ciencias, Departamento de Biología. 155 pp.
Cárdenas, D. & López, R. (2000). *Plantas útiles de la Amazonía Colombiana–Departamento del Amazonas–Perspectivas de los Productos Forestales No Maderables.* Bogotá D. C.: Instituto Amazónico de Investigaciones Científicas (SINCHI), Ministerio del Medio Ambiente. 113 pp.
Cárdenas, D. & Ramírez, J. (2004). Plantas útiles y su incorporación a los sistemas productivos del departamento del Guaviare (Amazonia Colombiana). *Caldasia, 26*(1), 95-110.
Cárdenas, D. & Salinas N. (2007). *Libro Rojo de Plantas de Colombia. Volumen 4: especies maderables primera parte.* Serie Libros Rojos de Especies Amenazadas de Colombia. Bogotá D. C.: Instituto de Investigaciones Científicas Sinchi–Ministerio de Ambiente, Vivienda y Desarrollo Territorial. 232 pp.
Cárdenas, D., Marín N. & Castaño N. (2012). Plantas alimenticias no convencionales en la Amazonia colombiana y anotaciones sobre otras plantas alimenticias. *Colombia Amazónica, 5*, 59-81.
Cardozo, E.H., Córdoba, S.L., González, J.D., Guzmán, J.R., Lancheros, H.O., Mesa, L.I., Pacheco, R.A., Pérez, B.A., Ramos, F.A., Torres, M.A. & Zúñiga, P.T. (2009). *Especies útiles en la región Andina de Colombia*. Tomo II. Bogotá D. C.: Jardín Botánico de Bogotá. 285 pp.
Castrillón, J. C., Carvajal, E., Ligarreto, G. & Magnitskiy, S. (2008). El efecto de las auxinas sobre el enrazamiento de las estacas de agraz (*Vaccinium meridionales* Swartz) en diferentes sustratos. *Agronomía Colombiana*, 6(1), 16-22.
Castro, F., Ocampo-Durán, A., Recio, L. P. & Sanabria, D. P. (2013). *Palmas nativas de la Orinoquía: biodiversidad productiva. Serie Palmas Nativas No.1.* Bogotá D. C.: Fundación Horizonte Verde. 91 pp.
Castro-Rodríguez, S.Y., Barrera-García, J. A., Carrillo-Bautista, M. P. & Hernández-Gómez, M. S. (2015). *Asaí (Euterpe precatoria)–cadena de valor en el sur de la región amazónica.* Bogotá D. C.: Instituto Amazónico de Investigaciones Científicas (SINCHI). 142 pp.
Clement, C. R. (1999). 1492 and the loss of Amazonian crop genetic resources. I. The relation between domestication and human population decline. *Economic Botany, 53*, 188-202.
https://doi.org/10.1007/BF02866498
Córdoba, S., Guzmán, C., Pérez, J. R., Zúñiga, B. A., Upegui, P. T. & Pacheco, R. A. 2010. *Propagación de Especies Nativas de la Región Andina.* Bogotá D. C.: Jardín Botánico José Celestino Mutis. 235 pp.
Cruz, M. P., Estupiñán, A. C., Jiménez-Escobar, N. D., Sánchez, N., Galeano, G. & Linares, E. (2009). Etnobotánica de la región tropical del Cesar, Complejo Ciénaga de Zapatosa. In Rangel, O., (Ed.). *Colombia, Diversidad Biótica VIII: media y baja montaña de la serranía de Perijá.* Pp. 417-447. Bogotá D. C.: Universidad Nacional de Colombia.
Daza, B. Y. (2013). *Historia del proceso de mestizaje alimentario entre España y Colombia.* (Thesis). Barcelona: Universidad de Barcelona. 494 pp.
Díaz-Uribe, C., Vallejo, W., Camargo, G., Muñoz-Acevedo, A., Quiñones, C., Schott, E. & Zárate, X. (2019). Potential use of an anthocyanin-rich extract from berries of *Vaccinium meridionale* Swartz as sensitizer for TiO2 thin films – An experimental and theoretical study. *Journal of Photochemistry & Photobiology A: Chemistry, 384*, 112050.
https://doi.org/10.1016/j.jphotochem.2019.112050
do Nascimento, V. T., de Lucena, R. F. P., Maciel, M. I. S. & de Albuquerque, U. P. (2013). Knowledge and use of wild food plants in areas of dry seasonal forests in Brazil. *Ecology of Food and Nutrition, 52*(4), 317-343.
https://doi.org/10.1080/03670244.2012.707434
Estupiñán-González, A. C. & Jiménez-Escobar, N. D. 2010. Uso de las plantas por grupos campesinos en la franja tropical del Parque Nacional Natural Paramillo (Córdoba, Colombia). *Caldasia, 32*(1), 21-38.
Figueroa-C, Y. & Galeano G. (2007). Lista comentada de las plantas vasculares del enclave seco interandino de La Tatacoa (Huila, Colombia). *Caldasia, 29*(2), 263-281.
Flores, J. S., Canto-Aviles, G. C. & Flores-Serrano A. G. (2001). Plantas de la flora yucatanense que provocan alguna toxicidad en el humano. *Revista Biomédica 12*: 86-96.
Galeano, G. & Bernal, R. (2010). *Palmas de Colombia-Guía de Campo*. Bogotá D. C.: Editorial Universidad Nacional de Colombia. Instituto de Ciencias Naturales, Facultad de Ciencias-Universidad Nacional de Colombia. 688 pp.
Garzón, G. A., Narváez, C. E., Riedl, K. M. & Schwartz, S.J. (2010). Chemical composition, anthocyanins, non-anthocyanin phenolics and antioxidant activity of wild bilberry (*Vaccinium meridionale* Swartz) from Colombia. *Food Chemistry, 122*(4), 980-986.
https://doi.org/10.1016/j.foodchem.2010.03.017
Gómez, L., Arango, J. U., Siniguí, B., Domicó, M. & Bailarín, O. (2006). Estudio etnobotánico y nutricional de las principales especies vegetales de uso alimentario en territorios de las comunidades Embera de selva de Pavarandó y Chuscal-Tuguridó (Dabei-

ba Occidente de Antioquia). *Gestión y Ambiente, 9*(1), 49-64.

Guill, J. L., Rodríguez-García, I. & Torija, E. (1997). Nutritional and toxic factors in selected wild edible plants. *Plant Foods for Human Nutrition*, 51(2), 99-107. https://doi.org/10.1023/A:1007988815888

Hernández-Camacho, J., Hurtado-Guerra, A., Ortiz-Quijano, R. & Walschburger, T. (1992). Unidades biogeográficas de Colombia. In Halffter, G. (Ed.). *La diversidad biológica de Iberoamérica I: Programa Iberoamericano de Ciencia y Tecnología para el Desarrollo.* Pp. 105-152. México: Instituto de Ecología.

Hernández, M., Casas, A., Martínez, O. & Galvis, J. (1998). Caracterización físicoquímica y fisiológica del fruto del maraco (*Theobroma bicolor* H.B.K.) durante su desarrollo. *Agronomía Colombiana, 15*(2-3), 172-180.

Hernández, M. S. & Barrera, J. A. (2010). *Camu camu*. Bogotá D. C.: Instituto Amazónico de Investigaciones Científicas (SINCHI). 148 pp.

Hernández, B. & León, J. (1992). *Cultivos marginados: otra perspectiva de 1492*. Italia: Organización de las Naciones Unidas para la Alimentación y la Agricultura. 339 pp.

Heywood, V. H. (1999). *Use and potential of wild plants in farm households*. Italy: Food and Agriculture Organization of the United Nations. 113 pp.

Hilton, J. (2017). Growth patterns and emerging opportunities in nutraceutical and functional food categories: Market overview. In Bagchi, D. & Nair, S. (Eds.). *Developing New Functional Food and Nutraceutical Products.* Pp. 1-28. London: Elsevier.

Idárraga, A., Ortiz, R., Callejas, R. & Merello, M. C. (Eds.). (2011). *Flora de Antioquia. Catálogo de las plantas vasculares. Vol. II. Programa Expedición Antioquia-2103. Series Biodiversidad y Recursos Naturales.* Bogotá D. C.: Universidad de Antioquia, Missouri Botanical Garden y Oficina de Planeación Departamental de la Gobernación de Antioquia. Editorial D´Vinni. 939 pp.

Jiménez-Escobar, N. & Estupiñán-González, A. 2011. Useful trees of the Caribbean region of Colombia. *Bioremediation, Biodiversity and Bioavailability, 5*(1), 65-79.

Jiménez-Escobar, N., Albuquerque, U. & Rangel-Ch, O. (2011). Huertos Familiares en la bahía de Cispatá, Córdoba, Colombia. *Bonplandia, 20*(2), 309-328.

Kang, J., Thakali, K. M., Xie, Ch., Kondo, M., Tong, Y., Oub, B., Jensen, G., Medina, M. B., Schauss, A. G. & Wua, X. (2012). Bioactivities of açaí (*Euterpe precatoria* Mart.) fruit pulp, superior antioxidant and anti-inflammatory properties to *Euterpe oleracea* Mart. *Food Chemistry,* 133(3), 671-677. https://doi.org/10.1016/j.foodchem.2012.01.048

Kehlenbeck, K., Asaah, E. & Jamnadass, R. (2013). Diversity of indigenous fruit trees and their contribution to nutrition and livelihoods in sub-Saharan Africa: examples from Kenya and Cameroon. In Fanzo, J., Hunter, D, Borelli, T. & Mattei, F. (Eds.). *Diversifying Food and Diets.* Pp. 257-269. London: Routledge.

Lagos-Burbano, T., Ordóñez-Jurado, H., Criollo-Escobar, H., Burbano, S. & Martínez, Y. (2010). Descripción de Frutales Nativos de la familia Ericaceae en el Altiplano de Pasto, Colombia. *Revista Colombiana de Ciencias Hortícolas*, 4(1), 9-18.

La Rotta, C. (1983). *Observaciones etnobotánicas sobre algunas especies utilizadas por la comunidad indigena andoque (Amazonas, Colombia).* (Thesis). Bogotá D. C: Universidad Nacional de Colombia, Facultad de Ciencias, Departamento de Biología. 117 pp.

La Rotta, C., Miraña, P., Miraña, M., Miraña, B., Miraña, M. & Yucuna, N. (1989). *Especies utilizadas por la Comunidad Miraña. Estudio Etnobotánico.* Bogotá D. C.: Fondo FEN Colombia. 381 pp.

Ledezma-Rentería, E. D. & Galeano, G. (2014). Usos de las palmas en las tierras bajas del Pacífico Colombiano. *Caldasia, 36*(1), 71-84. https://doi.org/10.15446/caldasia.v36n1.43892

Lévi-Strauss, C. (1952). The use of wild plants in tropical South America. *Economic Botany, 6*(3), 252-270.

Levis, C., Costa, F., Bongers, F. & 150 more authors. (2017). Persistent effects of pre-Columbian plant domestication on Amazonian forest composition. *Science*, *355* (6328). https://doi.org/10.1126/science.aal0157

Li, Y., Zhang, J. J., Xu, D. P., Zhou, T., Zhou, Y., Li, S. & Li, H. B. (2016). Bioactivities and health benefits of wild fruits. *International Journal of Molecular Sciences, 17*(8), 2-27. https://doi.org/10.3390/ijms17081258

Ligarreto, G. A. (Ed.). (2009). *Perspectivas del cultivo del agraz o mortiño (Vaccinium meridionale* Swartz*) en la zona altoandina de Colombia.* Bogotá D. C.: Universidad Nacional de Colombia. 134 pp.

López, D. (2013). *Las pasifloras de la Sabana de Bogotá.* (Thesis). Bogotá D. C.: Pontificia Universidad Javeriana, Facultad de Ciencias, Departamento de Biología. 76 pp.

López-Camacho, R. & Murcia-Orjuela, G. (2020). *Productos forestales no maderables (PFNM) en Colombia. Consideraciones para su desarrollo*. Bogotá D. C.:

Ministerio de Ambiente y Desarrollo Sostenible, Unión Europea. 178 pp.

López, R., Navarro, J. A., Montero, M. I., Amaya, K., Rodríguez, M. & Polania, A. (2006). *Manual de identificación de especies no maderables del corregimiento de Tarapacá, Colombia*. Bogotá D. C.: Instituto Amazónico de Investigaciones Científicas (SINCHI) y Cooperación Técnica Alemana (GTZ). 218 pp.

López-C., R., Navarro-L., J. & Caleño, B. (2016a). *Productos Forestales no Maderables de CORPOCHIVOR. Una mirada a los regalos del bosque*. Bogotá D. C.: Corporación Autónoma Regional de Chivor (CORPOCHIVOR) y Universidad Distrital Francisco José de Caldas. 278 pp.

López-C., R., Sarmiento, C., Espitia, L., Barrero, A. M., Consuegra, C. & Gallego, C. B. (2016b). *100 plantas del Caribe colombiano. Usar para conservar: aprendiendo de los habitantes del bosque seco*. Bogotá D. C.: Fondo Patrimonio Natural. 240 pp.

Martínez, A. F. & Manrique, E. J. (2014). Alimentación prehispánica y transformaciones tras la conquista europea del Altiplano Cundiboyacense, Colombia. *Revista Virtual Universidad Católica del Norte, 41*, 96-111.

Magnitskiy, S. A. & Ligarreto, G. A. (2007). El efecto del nitrato de potasio, del ácido giberélico y el ácido indolacético sobre la germinación de semillas de agraz (*Vaccinium meridionales* Swartz). *Revista Colombiana de Ciencias Hortícolas, 1*(2), 137-141.

Medina, C. I, Lobo, M. & Martínez, B. (2009). Revisión del estado de conocimiento sobre la función productiva del lulo (*Solanum quitoense* Lam.) en Colombia. *Ciencia y Tecnología Agropecuaria, 10*(2), 167-179.

Medina, C. I., Martínez, E. & López, C. A. (2019). Phenological scale for the mortiño or agraz (*Vaccinium meridionale* Swartz) in the high Colombian Andean area. *Revista Facultad Nacional de Agronomía Medellín, 72*(3), 8897-8908.
https://doi.org/10.15446/rfnam.v72n3.74460

Mesa, L. & Galeano G. (2013). Usos de las palmas en la Amazonía Colombiana. *Caldasia, 35*(2), 351-369.

Montúfar, R., Laffargue, A., Pintaud, J. C., Hamon, S., Avallone, S. & Dussert, S. (2010). *Oenocarpus bataua* Mart. (Arecaceae): rediscovering a source of high oleic vegetable oil from Amazonia. *Journal of the American Oil Chemists' Society, 87*(2), 167-172.
https://doi.org/10.1007/s11746-009-1490-4

Neri-Numa, I. A., Soriano Sancho, R. A., Pereira, A. P. A., Pastore, G. M. (2018). Small Brazilian wild fruits: Nutrients, bioactive compounds, health-promotion properties and commercial interest. *Food Research International, 103*, 345-360.
https://doi.org/10.1016/j.foodres.2017.10.053

Neufeld, L., Rubio, M. & Gutiérrez, M. (2012). *Nutrición en Colombia II. Actualización del estado nutricional con implicaciones en política*. Nota técnica # 502. Bogotá D. C.: Banco Interamericano de Desarrollo. 50 pp.

Ocampo, J. A., Coppens D'Eeckenbrugge, G., Restrepo, M. T., Jarvis, A., Salazar, M. H. & Caetano, C. M. (2007). Diversity of Colombian Passifloraceae: Biogeography and an updated list for conservation. *Biota Colombiana, 8*(1), 1-45.

Ocampo, J., Coppens d'Eeckenbrugge, G. & Jarvis, A. (2010). Distribution of the genus *Passiflora* L. Diversity in Colombia and its potential as an indicator for biodiversity management in the Coffee Growing Zone. *Diversity, 2*, 1158-1180.
https://doi.org/10.3390/d2111158

Ocampo, J. (2013). Diversidad y distribución de las Passifloraceae en el departamento del Huila en Colombia. *Acta Biológica Colombiana, 18*(3), 511-516.

Oficina de las Naciones Unidas de Servicios para Proyectos [UNOPS]. (1995). *Especies promisorias del Putumayo, una propuesta de desarrollo sustentable*. Bogotá D.C.: Oficina de las Naciones Unidas de Servicios para Proyectos (UNOPS), Programa de Desarrollo Alternativo en Colombia. 206 pp.

Oliveira, V. B., Yamada, L. T., Fagg, C. W. & Brandão, M. (2012). Native foods from Brazilian biodiversity as a source of bioactive compounds. *Food Research International, 48*, 170-179.
https://doi.org/10.1016/j.foodres.2012.03.011

Omotayo, A. O. & Aremu, A. O. (2020). Underutilized African indigenous fruit trees and food–nutrition security: Opportunities, challenges, and prospects. *Food and Energy Security, 9*, 1-16.
https://doi.org/10.1002/fes3.220

Osorio, C., Carriazo, J. G. & Almanza, O. (2011). Antioxidant activity of corozo (*Bactris guineensis*) fruit by electron paramagnetic resonance (EPR) spectroscopy. *European Food Research and Technology, 233*(1), 103-108.
https://doi.org/10.1007/s00217-011-1499-4

Pacheco, L. M. (2005). Nutritional and ecological aspects on buriti or aguaje (*Mauritia flexuosa* Linnaeus filius): A carotene-rich palm fruit from Latin America. *Ecology of Food and Nutrition, 44*(5), 345-358.
https://doi.org/10.1080/03670240500253369

Patiño, V. M. (1989). *Bibliografía etnobotánica parcial, comentada, de Colombia y los países vecinos*. Bogotá D. C.: Instituto Colombiano de Cultura Hispánica. 371 pp.

Patiño, V. M. (2002). *Historia y dispersión de los frutales nativos del Neotrópico*. Cali: Centro Internacional de Agricultura Tropical, Asociación Hortofrutíco-

la de Colombia y Fondo Nacional de Fomento Hortofrutícola. 655 pp.

Pérez-Arbeláez, E. (1978). *Plantas útiles de Colombia.* Cuarta edición. Tercera redacción muy corregida y aumentada. Bogotá D. C.: Litografía Arco. 831 pp.

Pérez-Gutiérrez, R. M., Muñiz-Ramírez, A., Gómez, Y., Bautista, E. (2010). Antihyperglycemic, antihyperlipidemic and antiglycation effects of *Byrsonima crassifolia* fruit and seed in normal and Streptozotocin-induced diabetic rats. *Plant Foods for Human Nutrition, 65*(4), 350-357.
https://doi.org/10.1007/s11130-010-0181-5

Pinela, J., Carvalho, A. M., Ferreira, I. C. F. R. (2017). Wild edible plants: Nutritional and toxicological characteristics, retrieval strategies and importance for today's society. *Food and Chemical Toxicology, 110*, 165-188.
https://doi.org/10.1016/j.fct.2017.10.020

Pulido, M. T., Pagaza-Calderón, E. M., Martínez-Ballesté, A., Maldonado-Almanza, B., Saynes, A. & Pacheco, R. M. (2008). Homegarden as an alternative for sustainability: Challenges and perspectives in Latin America. In Albuquerque, U. P. & Ramos, M. A. (Eds.). *Current Topics in Ethnobotany.* Pp. 55-79. Kerala, India: Research Signpost.

Restrepo, J., Arias, N. & Madriñán, C. (2016). Determinación del valor nutricional, perfil de ácidos grasos y capacidad antioxidante de la pulpa de aguaje (*Mauritia flexuosa*). *Revista de Ciencias, 20*(1), 71-78.

Rivas, X., Pazos, S., Castillo, S. & Pachón, H. (2010). Alimentos autóctonos de las comunidades indígenas y afrodescendientes de Colombia. *Archivos Latinoamericanos de Nutrición, 60*(3), 211-219.

Rodríguez-Mora, D. F., Velásquez-Ávila, H. A., Fernández-Alonso, J. L. & Raz, L. (2019). *Los usos tradicionales de las plantas no maderables de Santa María, Boyacá (Andes Colombianos).* Serie de Guías de Campo del Instituto de Ciencias Naturales de la Universidad Nacional de Colombia No. 22. Bogotá D. C.: AES Colombia y Universidad Nacional de Colombia. 381 pp.

Romero-Castañeda, R. (1991). *Frutas silvestres de Colombia.* Segunda edición. Bogotá D. C.: Instituto Colombiano de Cultura Hispánica. 661 pp.

Salinas, N., Betancur, J. (2005). *Las ericáceas de la vertiente pacífica de Nariño, Colombia*. Bogotá D. C.: Instituto de Ciencias Naturales e Instituto de Investigación de Recursos Biológicos Alexander von Humboldt. 212 pp.

Sarmiento, E. (1986). *Frutas en Colombia.* Bogotá D. C.: Ediciones Cultural Colombiana Ltda. 155 pp.

Sharma, S. M., Sharma, S., Pattabhi, V., Mahato, S. B., & Sharma P. D. (2007). A Review of the hepatotoxic plant *Lantana camara*. *Critical Reviews in Toxicology, 37*(4), 313-352.
https://doi.org/10.1080/10408440601177863

Spina, M., Cuccioloni, M., Sparapani, L., Acciarri, S., Eleuteri, A. M., Fioretti, E. & Angeletti, M. (2008). Comparative evaluation of flavonoid content in assessing quality of wild and cultivated vegetables for human consumption. *Journal of the Science of Food and Agriculture, 88*, 294-304.
https://doi.org/10.1002/jsfa.3089

Toro, J. L. (2012). *Árboles de las Montañas de Antioquia.* Medellín: Corporación Autónoma Regional del Centro de Antioquia (CORANTIOQUIA). 203 pp.

UNOPS-Oficina de las Naciones Unidas de Servicios para Proyectos. (1995). *Especies promisorias del Putumayo, una propuesta de desarrollo sustentable. Programa de desarrollo alternativo en Colombia.* Bogotá D. C.: Oficina de las Naciones Unidas de Servicios para Proyectos. 205 pp.

Van den Eynden, V., Cueva, E. & Cabrera, O. (2003). Wild foods from Southern Ecuador. *Economic Botany, 57*(4), 576-603.

Van Zonneveld, M., Larranaga, N., Blonder, B., Coradin, L., Hormaza, J. I. & Hunter, D. (2018) Human diets drive range expansion of megafauna-dispersed fruit species. *Proceedings of the National Academy of Sciences*, 1-6.
https://doi.org/10.1073/pnas.1718045115

Villa, D. & García, N. (2017). Food plants in home gardens of the middle Magdalena basin of Colombia. *Caldasia, 39*(2), 292-309.
https://doi.org/10.15446/caldasia.v39n2.63661

Yamaguchi, K. K. L., Pereira, L. F. R., Lamarão, C. V., Lima, E. S. & Veiga-Junior, V. F. (2015). Amazon acai: Chemistry and biological activities: A review. *Food Chemistry, 179*, 137-151.
https://doi.org/10.1016/j.foodchem.2015.01.055

Yuyama, K., Aguiar, J. & Yuyama, L. 2002. Camu-camu: um fruto fantástico como fonte de vitamina C. *Acta Amazonica, 32*(1),169-174.
https://doi.org/10.1590/1809-43922002321174

Supplementary material

Appendix 1. List of wild edible fruits of Colombia. *Endemic species. Management: w (wild), w/c (wild/cultivated). Use region: Ama (Amazon), And (Andes), Car (Caribbean), Cau (Cauca Valley), Mag (Magdalena Valley), Pac (Pacific), Ori (Orinoco), SNSM (Sierra Nevada de Santa Marta).

Family	Species	Mangement	Use regions	Representative reference	Voucher
Achariaceae	*Mayna grandifolia* (H. Karst.) Warb.	w	Car, Pac	Romero-Castañeda, 1991	COL91085
Achariaceae	*Mayna odorata* Aubl.	w	Ama	Patiño, 2002	COL315663
Actinidiaceae	*Saurauia bullosa* Wawra	w	And		COL73280
Actinidiaceae	**Saurauia cuatrecasana* R.E. Schult.	w	And		COL335310
Actinidiaceae	**Saurauia pulchra* Sprague	w	And	Romero-Castañeda, 1991	COL13053
Actinidiaceae	*Saurauia scabra* (Kunth) D.Dietr.	w	And		COL74155
Anacardiaceae	*Anacardium excelsum* (Bertero ex Kunth) Skeels	w/c	Pac	Romero-Castañeda, 1991	
Anacardiaceae	*Anacardium giganteum* Hancock ex Engl.	w	Ama	Cárdenas & López, 2000	COL562711
Anacardiaceae	*Anacardium parvifolium* Ducke	w	Ama	Cárdenas & López, 2000	
Anacardiaceae	*Campnosperma panamense* Standl.	w	Pac	Romero-Castañeda, 1991	
Anacardiaceae	*Spondias mombin* L.	w/c	Ama, Car, Ori, Pac	Romero-Castañeda, 1991	
Anacardiaceae	*Spondias purpurea* L.	w/c	And, Car, Ori, Pac	Patiño, 2002	COL160254
Anacardiaceae	*Spondias radlkoferi* Donn.Sm.	w/c	And	Idárraga *et al.*, 2011	COL275819
Anacardiaceae	*Tapirira retusa* Ducke	w	Ama	Cárdenas *et al.*, 2012	
Annonaceae	*Annona cordifolia* (Szyszył.) Poepp. ex Maas & Westra	w	Ama		COAH50038
Annonaceae	*Annona duckei* Diels	w	Ama		COAH41064
Annonaceae	*Annona glabra* L.	w/c	Car, Ori, Pac	Romero-Castañeda, 1991	COL544763
Annonaceae	*Annona hypoglauca* Mart.	w	Ama	Cárdenas & López, 2000	COL64147
Annonaceae	*Annona jahnii* Saff.	w	Ori		COAH73688
Annonaceae	*Annona montana* Macfad.	w/c	Ama	Acero, 1979	
Annonaceae	*Annona mucosa* Jacq.	w/c	Ama, And	Patiño, 2002	COAH49459
Annonaceae	*Annona nitida* Mart.	w	Ama		COAH57668
Annonaceae	*Annona punicifolia* Triana & Planch.	w	Car	Figueroa-C & Galeano, 2007	COL536170
Annonaceae	*Annona purpurea* Moç. & Sessé ex Dunal	w/c	Car	Romero-Castañeda, 1991	COL571247

Family	Species	Mangement	Use regions	Representative reference	Voucher
Annonaceae	*Annona rensoniana* (Standl.) H.Rainer	w	And, Pac	Patiño, 2002	COL570543
Annonaceae	**Annona rufinervis* (Triana & Planch.) H.Rainer	w	Car	López *et al.*, 2016b	
Annonaceae	*Annona scandens* Diels ex Pilg.	w	Ama	Cárdenas *et al.*, 2012	
Annonaceae	*Annona spraguei* Saff.	w	Pac	Idárraga *et al.*, 2011	
Annonaceae	*Duguetia cauliflora* R.E.Fr.	w	Ama	Cárdenas *et al.*, 2012	
Annonaceae	*Duguetia odorata* (Diels) J.F.Macbr.	w	Ama	Cárdenas *et al.*, 2012	
Annonaceae	*Duguetia quitarensis* Benth.	w	Ama	Cárdenas *et al.*, 2012	
Annonaceae	*Duguetia spixiana* Mart.	w	Ama	Cárdenas *et al.*, 2012	
Annonaceae	*Duguetia stenantha* R.E.Fr.	w	Ama	Patiño, 2002	COL554452
Annonaceae	*Fusaea longifolia* (Aubl.) Saff.	w	Ama	Cárdenas *et al.*, 2012	
Annonaceae	*Guatteria schomburgkiana* Mart.	w	Ama	Cárdenas *et al.*, 2012	
Annonaceae	*Oxandra xylopioides* Diels	w	Pac	Álvarez *et al.*, 2016	
Annonaceae	*Rollinia cuspidata* Mart.	w	Ama	Patiño, 2002	COL204153
Annonaceae	*Rollinia edulis* Planch. & Triana	w	Ama	Romero-Castañeda, 1991	
Annonaceae	*Rollinia exsucca* (DC.) A.DC.	w	Ama	Cárdenas *et al.*, 2012	
Annonaceae	*Unonopsis guatterioides* (A.DC.) R.E.Fr.	w	Ama	Cárdenas & López, 2000	
Annonaceae	*Unonopsis spectabilis* Diels	w	Ama	Cárdenas *et al.*, 2012	
Apocynaceae	*Ambelania occidentalis* Zarucchi	w	Ama	Cárdenas & López, 2000	
Apocynaceae	*Aspidosperma spruceanum* Benth. ex Müll.Arg.	w	Ama	Cárdenas & López, 2000	
Apocynaceae	*Couma catingae* Ducke	w	Ama	Cárdenas & López, 2000	COL179966
Apocynaceae	*Couma macrocarpa* Barb.Rodr.	w	Ama	Patiño, 2002	
Apocynaceae	*Couma utilis* (Mart.) Müll.Arg	w	Ama	Romero-Castañeda, 1991	
Apocynaceae	*Lacmellea edulis* H.Karst.	w	And, Ori	Romero-Castañeda, 1991	COL69699
Apocynaceae	*Lacmellea floribunda* (Poepp.) Benth. & Hook.f.	w	Pac	Romero-Castañeda, 1991	
Apocynaceae	*Lacmellea gracilis* (Müll.Arg.) Markgr.	w	Ama	López *et al.*, 2006	
Apocynaceae	*Lacmellea lactescens* (Kuhlm.) Markgr.	w	Ama	Cárdenas & López, 2000	
Apocynaceae	*Lacmellea speciosa* Woodson	w	Pac	Romero-Castañeda, 1991	COL294946
Apocynaceae	*Macoubea guianensis* Aubl.	w/c	Ama	Acero, 1979	COL533301

Family	Species	Mangement	Use regions	Representative reference	Voucher
Apocynaceae	*Macoubea sprucei* (Müll.Arg.) Markgr.	w	Ama	Cárdenas *et al.*, 2012	
Apocynaceae	*Malouetia tamaquarina* (Aubl.) A.DC.	w	Ama	Cárdenas *et al.*, 2012	
Apocynaceae	*Molongum lucidum* (Kunth) Zarucchi	w	Ama	Cárdenas & López, 2000	COL362462
Apocynaceae	*Mucoa duckei* (Markgr.) Zarucchi	w	Ama	Cárdenas & López, 2000	COL12591
Apocynaceae	*Neocouma ternstroemiacea* (Müll. Arg.) Pierre	w	Ama	Cárdenas & López, 2000	
Apocynaceae	*Parahancornia fasciculata* (Poir.) Benoist	w	Ama	Cárdenas *et al.*, 2012	
Apocynaceae	*Parahancornia krukovii* Monach.	w	Ama	Acero, 1979	
Apocynaceae	*Parahancornia oblonga* (Benth. ex Müll.Arg.) Monach.	w	Ama, Ori	Acero, 2005	COL312350
Apocynaceae	*Parahancornia peruviana* Monach.	w	Ama	Cárdenas & López, 2000	COL147101
Apocynaceae	*Parahancornia surrogata* Zarucchi	w	Ama	Cárdenas & López, 2000	COL250976
Apocynaceae	*Rhigospira quadrangularis* (Müll. Arg.) Miers	w	Ama	Acero, 1979	COL309598
Apocynaceae	*Tabernaemontana sananho* Ruiz & Pav.	w	Ama, And, Pac		COL428465
Apocynaceae	*Tabernaemontana siphilitica* (L.f.) Leeuwenb.	w	Pac	Romero-Castañeda, 1991	
Apocynaceae	*Thevetia ahouai* (L.) A.DC.	w	Car, Pac	Romero-Castañeda, 1991	
Araceae	*Spathiphyllum friedrichsthalii* Schott	w	Pac	Romero-Castañeda, 1991	
Arecaceae	*Acrocomia aculeata* (Jacq.) Lodd. ex Mart.	w	And, Car, Ori	Patiño, 2002	COL284144
Arecaceae	*Aiphanes horrida* (Jacq.) Burret	w/c	And, Ori	Idárraga *et al.*, 2011	COL275852
Arecaceae	*Astrocaryum acaule* Mart.	w	Ama	Galeano & Bernal, 2010	COL30253
Arecaceae	*Astrocaryum aculeatum* G.Mey.	w/c	Ama	Mesa & Galeano, 2013	COL554642
Arecaceae	*Astrocaryum chambira* Burret	w/c	Ama	Mesa & Galeano, 2013	COL271235
Arecaceae	*Astrocaryum gynacanthum* Mart.	w	Ama	Cárdenas *et al.*, 2012	
Arecaceae	**Astrocaryum malybo* H.Karst.	w	Car	Estupiñan-González & Jiménez-Escobar, 2010	COL524188
Arecaceae	*Astrocaryum standleyanum* L.H.Bailey	w	Car, Pac	Patiño, 2002	COL290977
Arecaceae	*Attalea butyracea* (Mutis ex L.f.) Wess.Boer	w/c	Ama	Mesa & Galeano, 2013	COL284782

Family	Species	Mangement	Use regions	Representative reference	Voucher
Arecaceae	*Attalea colenda* (O.F.Cook) Balslev & A.J.Hend	w	Pac	Patiño, 2002	COL521234
Arecaceae	*Attalea insignis* (Mart.) Drude	w	Ama, Ori	Mesa & Galeano, 2013	COL30968
Arecaceae	*Attalea maripa* (Aubl.) Mart.	w/c	Ama, Ori	Mesa & Galeano, 2013	COL537375
Arecaceae	*Attalea sagotii* (Trail ex Thurn) Wess.Boer	w	Ama	Cárdenas *et al.*, 2012	
Arecaceae	*Bactris balanophora* Spruce	w	Ori	Acero, 2005	
Arecaceae	*Bactris bidentula* Spruce	w	Ama, Ori	Galeano & Bernal, 2010	COL325485
Arecaceae	*Bactris brongniartii* Mart.	w	Ama, Car, Mag, Ori	Galeano & Bernal, 2010	COL30271
Arecaceae	*Bactris coloradonis* L.H.Bailey	w	Pac	Galeano & Bernal, 2010	COL333451
Arecaceae	*Bactris concinna* Mart.	w	Ori	Castro *et al.*, 2013	
Arecaceae	*Bactris elegans* Barb.Rodr. & Trail	w	Ama	Mesa & Galeano, 2013	
Arecaceae	*Bactris fissifrons* Mart.	w	Ama	Mesa & Galeano, 2013	
Arecaceae	*Bactris guineensis* (L.) H.E.Moore	w	Ama, Car, Ori	Romero-Castañeda, 1991	COL293182
Arecaceae	*Bactris hirta* Mart.	w	Ama	Mesa & Galeano, 2013	
Arecaceae	*Bactris hondurensis* Standl.	w	Pac	Ledezma-Rentería & Galeano, 2014	
Arecaceae	*Bactris macroacantha* Mart.	w	Ama	Galeano & Bernal, 2010	COL325520
Arecaceae	*Bactris major* Jacq.	w	Car, Ori, Pac	Galeano & Bernal, 2010	COL532868
Arecaceae	*Bactris manriquei* R.Bernal & Galeano	w	Pac		COL554648
Arecaceae	*Bactris maraja* Mart.	w	Ama, Car, Ori	Galeano & Bernal, 2010	COL418548
Arecaceae	*Bactris martiana* A.J.Hend.	w	Ama	Mesa & Galeano, 2013	COL40737
Arecaceae	*Bactris pilosa* H.Karst.	w	And, Car, Ori	Jiménez-Escobar & Estupiñán-González, 2011	COL280893
Arecaceae	*Desmoncus giganteus* A.J.Hend.	w	Ori	Castro *et al.*, 2013	
Arecaceae	*Desmoncus mitis* Mart.	w	Ori	Castro *et al.*, 2013	
Arecaceae	*Desmoncus polyacanthos* Mart.	w	Ori	Castro *et al.*, 2013	
Arecaceae	*Dictyocaryum lamarckianum* (Mart.) H.Wendl.	w	SNSM	Romero-Castañeda, 1991	COL83230
Arecaceae	*Elaeis oleifera* (Kunth) Cortés	w	Car, Pac	Patiño, 2002	COL333266
Arecaceae	*Euterpe catinga* Wallace	w	Ama, Ori	Mesa & Galeano, 2013	COL519745

Family	Species	Mangement	Use regions	Representative reference	Voucher
Arecaceae	*Euterpe oleracea* Mart.	w	Ama, Pac	Mesa & Galeano, 2013	COL290536
Arecaceae	*Euterpe precatoria* Mart.	w	Ama, Ori, Pac	Mesa & Galeano, 2013	COL149092
Arecaceae	*Leopoldinia piassaba* Wallace	w	Ama, Ori	Galeano & Bernal, 2010	COL208889
Arecaceae	*Leopoldinia pulchra* Mart.	w	Ama, Ori	Mesa & Galeano, 2013	COL478723
Arecaceae	*Manicaria martiana* Burret	w	Ama	Mesa & Galeano, 2013	
Arecaceae	*Manicaria saccifera* Gaertn.	w	Ama, Pac	Mesa & Galeano, 2013	COL30882
Arecaceae	*Mauritia carana* Wallace ex Archer	w	Ama, Ori	Galeano & Bernal, 2010	
Arecaceae	*Mauritia flexuosa* L.f.	w	Ama, Ori	Mesa & Galeano, 2013	COL2356
Arecaceae	*Mauritiella aculeata* (Kunth) Burret	w	Ama, Ori	Mesa & Galeano, 2013	
Arecaceae	*Mauritiella armata* (Mart.) Burret	w	Ama	Galeano & Bernal, 2010	
Arecaceae	*Mauritiella pumila* (Wallace) Burret	w	Ori	Castro *et al.*, 2013	
Arecaceae	*Oenocarpus bacaba* Mart.	w	Ama, Ori	Mesa & Galeano, 2013	COL508414
Arecaceae	*Oenocarpus balickii* F.Kahn	w	Ama, Ori	Mesa & Galeano, 2013	COL554662
Arecaceae	*Oenocarpus bataua* Mart.	w	Ama, Car, Ori, Pac	Mesa & Galeano, 2013	COL537376
Arecaceae	**Oenocarpus circumtextus* Mart.	w	Ama	Galeano & Bernal, 2010	COL554670
Arecaceae	**Oenocarpus makeru* R.Bernal, Galeano & A.J.Hend.	w	Ama	Galeano & Bernal, 2010	
Arecaceae	*Oenocarpus mapora* H.Karst.	w	Ama,Pac	Acero, 2005	COL271253
Arecaceae	*Oenocarpus minor* Mart.	w	Ama, Car, Ori, Pac	Galeano & Bernal, 2010	COL522531
Arecaceae	*Sabal mauritiiformis* (H.Karst.) Griseb. & H.Wendl.	w	Car	López *et al.*, 2016b	
Arecaceae	*Socratea exorrhiza* (Mart.) H.Wendl.	w	Ama, And	Mesa & Galeano, 2013	COL288163
Arecaceae	*Syagrus sancona* (Kunth) H.Karst.	w	Ori	Castro *et al.*, 2013	
Arecaceae	*Wettinia fascicularis* (Burret) H.E. Moore & J.Dransf.	w	And	Galeano & Bernal, 2010	COL411668
Arecaceae	*Wettinia quinaria* (O.F.Cook & Doyle) Burret	w	Pac	Ledezma-Rentería & Galeano, 2014	
Berberidaceae	**Berberis rigidifolia* Kunth	w	And	s.r.	
Bignoniaceae	**Parmentiera stenocarpa* Dugand & L.B.Sm.	w	Pac	Romero-Castañeda, 1991	COL139639
Boraginaceae	*Cordia alba* (Jacq.) Roem. & Schult.	w	Car	Romero-Castañeda, 1991	

Family	Species	Mangement	Use regions	Representative reference	Voucher
Boraginaceae	*Cordia bifurcata* Roem. & Schult.	w	Pac	Álvarez *et al.*, 2016	
Boraginaceae	*Cordia nodosa* Lam.	w	Ama, Car, Ori	Jiménez-Escobar *et al.*, 2011	COL44412
Boraginaceae	*Tournefortia hirsutissima* L.	w		Romero-Castañeda, 1991	
Bromeliaceae	*Aechmea corymbosa* (Mart. ex Schult. & Schult.f.) Mez	w	Ama	Cárdenas & López, 2000	
Bromeliaceae	*Aechmea hoppii* (Harms) L.B.Sm.	w	Ama	Romero-Castañeda, 1991	COL104702
Bromeliaceae	*Aechmea magdalenae* (André) André ex Baker	w	Pac	Romero-Castañeda, 1991	
Bromeliaceae	*Aechmea rubiginosa* Mez	w	Ama, Ori	Cárdenas & López, 2000	COL313688
Bromeliaceae	*Ananas bracteatus* (Lindl.) Schult. & Schult.f.	w	Ama	Cárdenas *et al.*, 2012	
Bromeliaceae	*Bromelia chrysantha* Jacq.	w	Car, Pac	Romero-Castañeda, 1991	COL523535
Bromeliaceae	*Bromelia karatas* L.	w	And	Romero-Castañeda, 1991	COL165102
Bromeliaceae	*Bromelia pinguin* L.	w	Car	Romero-Castañeda, 1991	COL112042
Bromeliaceae	**Bromelia trianae* Mez	w	Mag	Romero-Castañeda, 1991	
Burseraceae	*Dacryodes chimantensis* Steyerm. & Maguire	w/c	Ama, Ori	López *et al.*, 2006	COL570738
Burseraceae	*Dacryodes granatensis* Cuatrec.	w	Ama	Cárdenas *et al.*, 2012	
Burseraceae	*Dacryodes negrensis* Daly & M.C.Martínez	w	Ama	Cárdenas *et al.*, 2012	
Burseraceae	*Dacryodes nitens* Cuatrec.	w	Ama	Cárdenas & López, 2000	
Burseraceae	*Dacryodes peruviana* (Loes.) H.J.Lam	w	Ama	Cárdenas & López, 2000	COL551978
Burseraceae	*Dacryodes roraimensis* Cuatrec.	w	Ama	Cárdenas & López, 2000	COL307122
Burseraceae	*Protium altsonii* Sandwith	w	Car	Botero-Restrepo, 2005	
Burseraceae	*Protium crassipetalum* Cuatrec.	w	Ama	Cárdenas *et al.*, 2012	
Burseraceae	*Protium decandrum* (Aubl.) Marchand	w	Ama	Cárdenas & López, 2000	
Burseraceae	*Protium nodulosum* Swart	w	Ama	Cárdenas & Ramírez, 2004	
Burseraceae	*Protium sagotianum* Marchand	w	Ama	Cárdenas *et al.*, 2012	
Burseraceae	*Tetragastris panamensis* (Engl.) Kuntze	w	Ori	Acero, 1979	COL556123
Burseraceae	*Trattinnickia burserifolia* Mart.	w	Ama	Cárdenas *et al.*, 2012	
Burseraceae	*Trattinnickia glaziovii* Swart	w	Ama	Cárdenas *et al.*, 2012	

Family	Species	Mangement	Use regions	Representative reference	Voucher
Cactaceae	*Acanthocereus tetragonus* (L.) Hummelinck	w/c	Car	Romero-Castañeda, 1991	
Cactaceae	*Cereus hexagonus* (L.) Mill.	w	And	Romero-Castañeda, 1991	
Cactaceae	*Cereus repandus* (L.) Mill.	w	Car	Romero-Castañeda, 1991	COL92664
Cactaceae	*Epiphyllum phyllanthus* (L.) Haw.	w		Romero-Castañeda, 1991	
Cactaceae	*Hylocereus lemairei* (Hook.) Britton & Rose	w		Romero-Castañeda, 1991	
Cactaceae	*Hylocereus undatus* (Haw.) Britton & Rose	w/c	And	Figueroa-C & Galeano, 2007	
Cactaceae	*Melocactus curvispinus* Pfeiff.	w	And, Car	Figueroa-C & Galeano, 2007	
Cactaceae	*Opuntia caracassana* Salm-Dyck	w	Car	Romero-Castañeda, 1991	
Cactaceae	*Opuntia elatior* Mill.	w	And	Patiño, 2002	
Cactaceae	*Pereskia aculeata* Mill.	w		Romero-Castañeda, 1991	
Cactaceae	*Pereskia bleo* (Kunth) DC.	w/c	Car	Romero-Castañeda, 1991	COL113326
Cactaceae	*Pereskia guamacho* F.A.C.Weber	w	Car	Romero-Castañeda, 1991	COL14413
Cactaceae	*Selenicereus grandiflorus* (L.) Britton & Rose	w	Car	López *et al.*, 2016b	
Cactaceae	*Stenocereus griseus* (Haw.) Buxb.	w	And, Car	Romero-Castañeda, 1991	
Cactaceae	**Stenocereus humilis* (Britton & Rose) D.R.Hunt	w	And		COL545602
Campanulaceae	**Centropogon lehmannii* Zahlbr.	w	And	Romero-Castañeda, 1991	COL22740
Cannabaceae	*Celtis iguanaea* (Jacq.) Sarg.	w	Car	Romero-Castañeda, 1991	COL114463
Cannabaceae	*Trema micrantha* (L.) Blume	w	And, Car	Cruz *et al.*, 2009	COL570947
Capparaceae	*Crateva tapia* L.	w	Car, Pac	Romero-Castañeda, 1991	
Capparaceae	*Morisonia americana* L.	w		Romero-Castañeda, 1991	
Cardiopteridaceae	*Dendrobangia boliviana* Rusby	w	Ama	Cárdenas *et al.*, 2012	
Caricaceae	**Carica goudotiana* (Triana & Planch.) Solms	w	And, Pac	Romero-Castañeda, 1991	COL99985
Caricaceae	*Jacaratia digitata* (Poepp. & Endl.) Solms	w		Patiño, 2002	
Caricaceae	*Vasconcellea cauliflora* (Jacq.) A.DC.	w	And	Idárraga *et al.*, 2011	
Caryocaraceae	*Caryocar amygdaliferum* Mutis ex Cav.	w	Ama	Cárdenas *et al.*, 2012	
Caryocaraceae	*Caryocar villosum* (Aubl.) Pers.	w	Ama	Cárdenas *et al.*, 2012	

Family	Species	Mangement	Use regions	Representative reference	Voucher
Celastraceae	*Cheiloclinium anomalum* Miers	w	Ama	Cárdenas *et al.*, 2012	
Celastraceae	*Peritassa laevigata* (Hoffmanns. ex Link) A.C.Sm.	w		Romero-Castañeda, 1991	
Celastraceae	*Salacia gigantea* Loes.	w	Ama	Cárdenas *et al.*, 2012	
Celastraceae	*Salacia impressifolia* (Miers) A.C.Sm.	w	Ama	Cárdenas *et al.*, 2012	
Chrysobalanaceae	*Chrysobalanus icaco* L.	w/c	Ama, Car, Mag, Pac	Romero-Castañeda, 1991	COL474075
Chrysobalanaceae	*Chrysochlamys weberbaueri* Engl.	w	Ama	Cárdenas & López, 2000	COL305555
Chrysobalanaceae	*Couepia chrysocalyx* (Poepp.) Benth. ex Hook.f.	w/c	Ama	Cárdenas & López, 2000	COL214734
Chrysobalanaceae	*Couepia dolichopoda* Prance	w	Ama	Cárdenas & López, 2000	
Chrysobalanaceae	*Couepia krukovii* Standl.	w/c	Ama		COAH16771
Chrysobalanaceae	*Couepia obovata* Ducke	w	Ama		COAH3787
Chrysobalanaceae	*Couepia subcordata* Benth. ex Hook.f.	w/c	Ama	Acero, 1979	COL290993
Chrysobalanaceae	*Couepia ulei* Pilg.	w	Ama	Cárdenas & López, 2000	
Chrysobalanaceae	*Hirtella americana* L.	w	Car	Cruz *et al.*, 2009	COL530713
Chrysobalanaceae	*Hirtella carbonaria* Little	w	Pac	Toro, 2012	COL104119
Chrysobalanaceae	*Hirtella racemosa* Lam.	w		Romero-Castañeda, 1991	
Chrysobalanaceae	*Hirtella triandra* Sw.	w	Car, SNSM	Romero-Castañeda, 1991	COL264540
Chrysobalanaceae	*Licania macrocarpa* Cuatrec.	w/c	Pac	Acero, 1979	COL492126
Chrysobalanaceae	*Licania platypus* (Hemsl.) Fritsch	w	Ama	Romero-Castañeda, 1991	COL271151
Chrysobalanaceae	*Licania pyrifolia* Griseb.	w/c	And, Ori	Romero-Castañeda, 1991	COL114202
Chrysobalanaceae	*Licania triandra* Mart. ex Hook.f.	w	Ama	Cárdenas & López, 2000	
Chrysobalanaceae	*Parinari klugii* Prance	w	Ama	Cárdenas & López, 2000	
Chrysobalanaceae	*Parinari montana* Aubl.	w	Ama	Cárdenas & López, 2000	
Chrysobalanaceae	*Parinari pachyphylla* Rusby	w	Car, Ori	Romero-Castañeda, 1991	COL206552
Chrysobalanaceae	*Parinari parilis* J.F.Macbr.	w	Ama	Cárdenas & López, 2000	
Clusiaceae	*Clusia lineata* (Benth.) Planch. & Triana	w	Ama	Cárdenas *et al.*, 2012	
Clusiaceae	*Garcinia benthamiana* (Planch. & Triana) Pipoly	w	Car	López *et al.*, 2016b	
Clusiaceae	*Garcinia brasiliensis* Mart.	w	Ama	Cárdenas & López, 2000	
Clusiaceae	*Garcinia elliptica* Wall. ex Wight	w	Ama	Cárdenas *et al.*, 2012	

Family	Species	Mangement	Use regions	Representative reference	Voucher
Clusiaceae	*Garcinia intermedia* (Pittier) Hammel	w	And, Car, Pac	Patiño, 2002	COL350023
Clusiaceae	*Garcinia macrophylla* Mart.	w	Ama, Ori	Idárraga *et al.*, 2011	COL590595
Clusiaceae	*Garcinia madruno* (Kunth) Hammel	w/c	Ama, And, Car, Ori, Pac	Romero-Castañeda, 1991	COL520400
Clusiaceae	*Garcinia magnifolia* (Pittier) Hammel	w	Pac	Idárraga *et al.*, 2011	COL224240
Clusiaceae	*Garcinia spruceana* Engl.	w	Ama	Cárdenas *et al.*, 2012	
Clusiaceae	*Lorostemon bombaciflorus* Ducke	w	Ama	Cárdenas *et al.*, 2012	
Clusiaceae	*Lorostemon colombianus* Maguire	w	Ama	Cárdenas *et al.*, 2012	
Clusiaceae	*Platonia insignis* Mart.	w/c	Ama, Ori	Patiño, 2002	
Clusiaceae	*Symphonia globulifera* L.f.	w	Pac	Acero, 1979	COL66130
Combretaceae	*Buchenavia macrophylla* Eichler	w	Ama	Cárdenas *et al.*, 2012	
Convolvulaceae	*Maripa panamensis* Hemsl.	w	Pac	Romero-Castañeda, 1991	
Cucurbitaceae	*Melothria trilobata* Cogn.	w	Pac	Romero-Castañeda, 1991	COL544764
Cucurbitaceae	*Psiguria triphylla* (Miq.) C.Jeffrey	w	Ama	Cárdenas *et al.*, 2012	
Cucurbitaceae	*Rytidostylis carthagenensis* (Jacq.) Kuntze	w		s.r.	
Dilleniaceae	*Curatella americana* L.	w	Ama	Cárdenas *et al.*, 2012	
Ebenaceae	*Diospyros nigra* (J.F.Gmel.) Perrier	w		Patiño, 2002	
Ericaceae	**Cavendishia adenophora* Mansf.	w	And	Idárraga *et al.*, 2011	
Ericaceae	*Cavendishia bracteata* (Ruiz & Pav. ex J.St.Hil.) Hoerold	w	And	Romero-Castañeda, 1991	
Ericaceae	**Cavendishia guatapeensis* Mansf.	w	And	Toro, 2012	
Ericaceae	**Cavendishia nitida* (Kunth) A.C.Sm.	w	And	Idárraga *et al.*, 2011	COL44859
Ericaceae	*Cavendishia pubescens* (Kunth) Hemsl.	w	And	Patiño, 2002	COL66957
Ericaceae	*Disterigma acuminatum* (Kunth) Nied.	w	And	Lagos-Burbano *et al.*, 2010	
Ericaceae	*Disterigma alaternoides* (Kunth) Nied.	w	And	Idárraga *et al.*, 2011	COL137256
Ericaceae	*Disterigma dumontii* Luteyn	w	And	Salinas & Betancur, 2005	
Ericaceae	*Disterigma empetrifolium* (Kunth) Nied.	w	And	Idárraga *et al.*, 2011	
Ericaceae	*Gaultheria erecta* Vent.	w	And	Idárraga *et al.*, 2011	COL582247

Family	Species	Mangement	Use regions	Representative reference	Voucher
Ericaceae	*Gaultheria foliolosa* Benth.	w	And	Lagos-Burbano *et al.*, 2010	
Ericaceae	*Gaultheria insipida* Benth.	w	And	Lagos-Burbano *et al.*, 2010	
Ericaceae	*Gaylussacia buxifolia* Kunth	w	And	Romero-Castañeda, 1991	
Ericaceae	*Macleania hirtiflora* (Benth.) A.C.Sm.	w	And		COL511407
Ericaceae	*Macleania rupestris* (Kunth) A.C.Sm.	w	And	Romero-Castañeda, 1991	COL570549
Ericaceae	**Plutarchia guascensis* (Cuatrec.) A.C. Sm.	w	And	Romero-Castañeda, 1991	
Ericaceae	**Plutarchia monantha* A.C. Sm.	w	And		COL63061
Ericaceae	*Satyria breviflora* Hoerold	w	And	Toro, 2012	
Ericaceae	*Thibaudia floribunda* Kunth	w	And	Romero-Castañeda, 1991	COL63259
Ericaceae	**Thibaudia grantii* A.C. Sm.	w	And	Romero-Castañeda, 1991	
Ericaceae	*Vaccinium corymbodendron* Dunal	w	And	Idárraga *et al.*, 2011	
Ericaceae	*Vaccinium floribundum* Kunth	w	And	Romero-Castañeda, 1991	COL531479
Ericaceae	*Vaccinium meridionale* Sw.	w/c	And	Romero-Castañeda, 1991	
Fabaceae	*Abarema auriculata* (Benth.) Barneby & J.W.Grimes	w	Ama	Cárdenas & López, 2000	
Fabaceae	*Abarema leucophylla* (Benth.) Barneby & J.W.Grimes	w	Ama	Cárdenas *et al.*, 2012	
Fabaceae	*Cassia grandis* L.f.	w	Car, Ori	Patiño, 2002	
Fabaceae	*Cassia leiandra* Benth.	w		s.r.	
Fabaceae	*Cynometra marginata* Benth.	w	Ama	Cárdenas & López, 2000	
Fabaceae	*Dialium guianense* (Aubl.) Sandwith	w	Ama, Car, Ori, Pac	Romero-Castañeda, 1991	COL530700
Fabaceae	*Dipteryx punctata* (S.F.Blake) Amshoff	w	Ama	Cárdenas *et al.*, 2012	
Fabaceae	*Enterolobium cyclocarpum* (Jacq.) Griseb.	w	Ama	Cárdenas *et al.*, 2012	
Fabaceae	*Enterolobium schomburgkii* (Benth.) Benth.	w	Ama	Cárdenas *et al.*, 2012	
Fabaceae	*Hydrochorea marginata* (Benth.) Barneby & J.W.Grimes	w	Ama	Cárdenas *et al.*, 2012	
Fabaceae	*Hymenaea courbaril* L.	w/c	Ama, Car, Ori, Pac	Romero-Castañeda, 1991	COL266343
Fabaceae	*Hymenaea intermedia* Ducke	w	Ama		COL435332
Fabaceae	*Hymenaea oblongifolia* Huber	w	Ama	Cárdenas & Ramírez, 2004	COL299255

Family	Species	Mangement	Use regions	Representative reference	Voucher
Fabaceae	*Hymenaea parvifolia* Huber	w	Ama	Cárdenas & López, 2000	COL271222
Fabaceae	*Inga acreana* Harms	w	Ama		COL14882
Fabaceae	*Inga acrocephala* Steud.	w	Ama	Acero, 1979	
Fabaceae	*Inga alba* (Sw.) Willd.	w	Ama	Cárdenas & Ramírez, 2004	COL311685
Fabaceae	*Inga brachystachya* Ducke	w	Ama	Cárdenas & López, 2000	
Fabaceae	*Inga capitata* Desv.	w/c	Ori	La Rotta, 1989	COL393444
Fabaceae	*Inga chocoensis* T.S.Elias	w	Pac	Caballero, 1995	
Fabaceae	*Inga ciliata* C.Presl	w	Ama		COAH9396
Fabaceae	*Inga cinnamomea* Benth.	w	Ama		COL89600
Fabaceae	*Inga cocleensis* Pittier	w	And	Ariza *et al.*, 2010	COL390299
Fabaceae	*Inga coerulescens* Walp.	w	Ama	Cárdenas *et al.*, 2012	
Fabaceae	*Inga coruscans* Willd.	w/c	And		COL88036
Fabaceae	*Inga densiflora* Benth.	w/c	And		COL67777
Fabaceae	*Inga disticha* Benth.	w	Ama	Cárdenas *et al.*, 2012	
Fabaceae	*Inga edulis* Mart.	w/c	Ama, Car, Ori, Pac	Romero-Castañeda, 1991	COL540665
Fabaceae	*Inga fastuosa* (Jacq.) Willd.	w	Ama	Cárdenas *et al.*, 2012	
Fabaceae	*Inga goldmanii* Pittier	w	Pac	Álvarez *et al.*, 2016	
Fabaceae	*Inga heterophylla* Willd.	w		s.r.	
Fabaceae	*Inga ingoides* (Rich.) Willd.	w/c		Romero-Castañeda, 1991	
Fabaceae	*Inga lateriflora* Miq.	w	Ama	Cárdenas *et al.*, 2012	
Fabaceae	*Inga laurina* (Sw.) Willd.	w	Pac		COL383381
Fabaceae	*Inga leiocalycina* Benth.	w	Ama		COAH34651
Fabaceae	*Inga macrophylla* Willd.	w/c	Ama, Ori	Cárdenas & López, 2000	COL306354
Fabaceae	*Inga marginata* Willd.	w	Ori		COAH55721
Fabaceae	*Inga melinonis* Sagot	w	Ama	Cárdenas *et al.*, 2012	
Fabaceae	*Inga multijuga* Benth.	w/c	Ama	Cárdenas & López, 2000	
Fabaceae	*Inga nobilis* Willd.	w	Ama, And, Pac	Caballero, 1995	COL115376
Fabaceae	*Inga oerstediana* Benth.	w/c	And, Car	Jiménez-Escobar & Estupiñán-González, 2011	COL126613
Fabaceae	*Inga pezizifera* Benth.	w	And	Idárraga *et al.*, 2011	COL300988
Fabaceae	*Inga pilosula* (Rich.) J.F.Macbr.	w/c	Ama	Cárdenas & Ramírez, 2004	COL169982

Family	Species	Mangement	Use regions	Representative reference	Voucher
Fabaceae	*Inga plumifera* Benth.	w	Ama		COAH40635
Fabaceae	*Inga pruriens* Poepp.	w	Ama	Cárdenas & López, 2000	
Fabaceae	*Inga punctata* Willd.	w	Ama, And		COL513015
Fabaceae	*Inga sapindoides* Willd.	w	Ama		COAH40005
Fabaceae	*Inga semialata* (Vell.) C.Mart.	w	Ama, And	Ariza *et al.*, 2010	COL243125
Fabaceae	*Inga sertulifera* DC.	w	Ama		COAH29295
Fabaceae	*Inga spectabilis* (Vahl) Willd.	w/c	And, Car, Pac	Cárdenas & Ramírez, 2004	COL88049
Fabaceae	*Inga splendens* Willd.	w	Ama		COAH61533
Fabaceae	*Inga stenoptera* Benth.	w	Ori	Cárdenas & Ramírez, 2004	COL214195
Fabaceae	*Inga tessmannii* Harms	w	Ama	Cárdenas *et al.*, 2012	
Fabaceae	*Inga thibaudiana* DC.	w	Ama	Cárdenas & Ramírez, 2004	
Fabaceae	*Inga venusta* Standl.	w	Ama	Cárdenas *et al.*, 2012	
Fabaceae	*Inga vera* Willd.	w/c	And, Car, Pac	Idárraga *et al.*, 2011	COL571523
Fabaceae	*Parkia igneiflora* Ducke	w	Ama	Cárdenas *et al.*, 2012	
Fabaceae	*Parkia multijuga* Benth.	w	Ama	Cárdenas & Ramírez, 2004	
Fabaceae	*Parkia nitida* Miq.	w	Ama	Cárdenas & López, 2000	
Fabaceae	*Pithecellobium dulce* (Roxb.) Benth.	w/c		s.r.	
Fabaceae	*Pithecellobium hymenaeafolium* (Willd.) Benth.	w	Car	Romero-Castañeda, 1991	
Fabaceae	*Pithecellobium lanceolatum* (Willd.) Benth.	w	And, Car	Romero-Castañeda, 1991	COL356390
Fabaceae	*Senna obtusifolia* (L.) H.S.Irwin & Barneby	w	Car	Cruz *et al.*, 2009	COL530902
Fabaceae	*Swartzia racemosa* Benth.	w	Ama	Cárdenas *et al.*, 2012	
Fabaceae	*Uribea tamarindoides* Dugand & Romero	w	Car	Romero-Castañeda, 1991	COL80310
Fabaceae	*Zygia longifolia* (Willd.) Britton & Rose	w	Ama		COAH7956
Humiriaceae	*Humiria balsamifera* Aubl.	w	Ama	Cárdenas *et al.*, 2012	
Hypericaceae	*Vismia baccifera* (L.) Planch. & Triana	w	Car	Jiménez-Escobar & Estupiñán-González, 2011	
Icacinaceae	*Poraqueiba sericea* Tul.	w/c	Ama	Romero-Castañeda, 1991	COL59625

Family	Species	Mangement	Use regions	Representative reference	Voucher
Lamiaceae	*Callicarpa acuminata* Kunth	w	Pac	Álvarez *et al.*, 2016	
Lamiaceae	*Vitex capitata* Vahl	w		Romero-Castañeda, 1991	
Lamiaceae	*Vitex compressa* Turcz.	w	Car	López *et al.*, 2016b	
Lamiaceae	*Vitex cymosa* Bertero ex Spreng.	w/c	Car	Romero-Castañeda, 1991	COL571371
Lamiaceae	*Vitex flavens* Kunth	w	Car	López *et al.*, 2016b	
Lamiaceae	*Vitex gigantea* Kunth	w	Mag	Patiño, 2002	
Lamiaceae	*Vitex orinocensis* Kunth	w		Romero-Castañeda, 1991	
Lamiaceae	*Vitex triflora* Vahl	w	Ama	Cárdenas *et al.*, 2012	
Lauraceae	*Anaueria brasiliensis* Kosterm.	w	Ama	Cárdenas *et al.*, 2012	
Lauraceae	*Beilschmiedia brasiliensis* (Kosterm.) Kosterm.	w	Ama	Cárdenas & Ramírez, 2004	COL312343
Lauraceae	*Nectandra cuspidata* Nees & Mart.	w	Ama	Cárdenas *et al.*, 2012	
Lauraceae	*Ocotea floribunda* (Sw.) Mez	w	Ama	Cárdenas *et al.*, 2012	
Lauraceae	*Ocotea javitensis* (Kunth) Pittier	w	Ama	Cárdenas *et al.*, 2012	
Lauraceae	*Ocotea oblonga* (Meisn.) Mez	w	Ama	Acero, 1979	
Lauraceae	*Persea cuneata* Meisn.	w	Ama	Cárdenas *et al.*, 2012	
Lecythidaceae	*Couroupita guianensis* Aubl.	w	Ama	UNOPS, 1995	
Lecythidaceae	*Eschweilera itayensis* R.Knuth	w	Ama	Cárdenas *et al.*, 2012	
Lecythidaceae	*Eschweilera parvifolia* Mart. ex DC.	w	Ama	Cárdenas *et al.*, 2012	
Lecythidaceae	*Grias cauliflora* L.	w	Pac	Álvarez *et al.*, 2016	
Lecythidaceae	**Grias haughtii* R.Knuth	w	Mag	Romero-Castañeda, 1991	COL48645
Lecythidaceae	*Grias neuberthii* J.F.Macbr.	w	Ama	Cárdenas & López, 2000	
Lecythidaceae	*Gustavia angustifolia* Benth.	w	Pac	Patiño, 2002	
Lecythidaceae	*Gustavia hexapetala* (Aubl.) Sm.	w	Ama	Cárdenas *et al.*, 2012	
Lecythidaceae	*Gustavia nana* Pittier	w	Pac	Romero-Castañeda, 1991	COL82151
Lecythidaceae	*Gustavia poeppigiana* O.Berg	w	Ama	Cárdenas *et al.*, 2012	
Lecythidaceae	*Gustavia speciosa* (Kunth) DC.	w		Romero-Castañeda, 1991	
Lecythidaceae	*Gustavia superba* (Kunth) O.Berg	w	Car, Pac	Romero-Castañeda, 1991	COL416360
Loganiaceae	*Strychnos bredemeyeri* (Schult.) Sprague & Sandwith	w	Pac	Álvarez *et al.*, 2016	
Malpighiaceae	*Bunchosia argentea* (Jacq.) DC.	w	And, Pac	Álvarez *et al.*, 2016	COL529975
Malpighiaceae	*Bunchosia armeniaca* (Cav.) DC.	w/c	Ama, And, Car, Pac	Romero-Castañeda, 1991	COL42663

Family	Species	Mangement	Use regions	Representative reference	Voucher
Malpighiaceae	*Bunchosia pseudonitida* Cuatrec.	w	Car, Cau	Cruz *et al.*, 2009	COL88219
Malpighiaceae	*Byrsonima crassifolia* (L.) Kunth	w	Car, Ori	Romero-Castañeda, 1991	COL356350
Malpighiaceae	*Byrsonima crispa* A.Juss.	w	Ama, Ori		COL582091
Malpighiaceae	*Byrsonima verbascifolia* (L.) DC.	w	Ama, Ori		COL100041
Malpighiaceae	*Malpighia emarginata* DC.	w/c	Ama, Car	Romero-Castañeda, 1991	COL121267
Malpighiaceae	*Malpighia glabra* L.	w/c	And, Car, Mag	Cruz *et al.*, 2009	COL160282
Malvaceae	*Guazuma ulmifolia* Lam.	w/c	Car, Pac	Romero-Castañeda, 1991	COL543470
Malvaceae	*Herrania albiflora* Goudot	w		Romero-Castañeda, 1991	
Malvaceae	*Herrania cuatrecasana* García-Barr.	w	Ama	Cárdenas *et al.*, 2012	
Malvaceae	*Herrania nitida* (Poepp.) R.E.Schult.	w/c	Ama	Cárdenas & Ramírez, 2004	COL489790
Malvaceae	*Herrania nycterodendron* R.E. Schult.	w	Ama	López *et al.*, 2006	
Malvaceae	*Herrania purpurea* (Pittier) R.E. Schult.	w	And, Pac	Álvarez *et al.*, 2016	COL125341
Malvaceae	*Matisia alata* Little	w	Pac	Patiño, 2002	COL65376
Malvaceae	*Matisia bicolor* Ducke	w	Ama	Cárdenas *et al.*, 2012	
Malvaceae	*Matisia glandifera* Planch. & Triana	w	Ama, Ori	Cárdenas & López, 2000	COL307064
Malvaceae	*Matisia malacocalyx* (A.Robyns & S.Nilsson) W.S.Alverson	w	Ama	Cárdenas *et al.*, 2012	
Malvaceae	*Matisia ochrocalyx* K.Schum.	w	Ama	Cárdenas *et al.*, 2012	
Malvaceae	*Pachira aquatica* Aubl.	w	Ama	Cárdenas & López, 2000	
Malvaceae	*Patinoa almirajo* Cuatrec.	w/c	Pac	Romero-Castañeda, 1991	
Malvaceae	**Quararibea hirta* (Cuatrec.) Cuatrec.	w	Pac	Patiño, 2002	
Malvaceae	**Quararibea leptandra* Cuatrec.	w	Pac	Patiño, 2002	
Malvaceae	*Sterculia rugosa* R.Br.	w	Ama	Cárdenas & López, 2000	
Malvaceae	*Sterculia speciosa* K. Schum.	w	Ama	Cárdenas *et al.*, 2012	
Malvaceae	*Theobroma bicolor* Humb. & Bonpl.	w/c	Ama, Ori, Pac	Romero-Castañeda, 1991	COL169403
Malvaceae	*Theobroma glaucum* H. Karst.	w	Ama, Car, Pac	Cárdenas & Ramírez, 2004	COL310791
Malvaceae	*Theobroma microcarpum* Mart.	w	Ama	Cárdenas *et al.*, 2012	
Malvaceae	*Theobroma obovatum* Klotzsch ex Bernoulli	w	Ama	Cárdenas & Ramírez, 2004	COL403122
Malvaceae	*Theobroma simiarum* Donn. Sm.	w	Ama, Pac	La Rotta, 1989	COL271224

Family	Species	Mangement	Use regions	Representative reference	Voucher
Malvaceae	*Theobroma stipulatum* Cuatrec.	w	Pac	Romero-Castañeda, 1991	COL520735
Malvaceae	*Theobroma subincanum* Mart.	w/c	Ama, Ori	Romero-Castañeda, 1991	COL308736
Marantaceae	*Calathea latifolia* (Willd. ex Link) Klotzsch	w	SNSM	Carbonó, 1987	
Melastomataceae	*Aciotis purpurascens* (Aubl.) Triana	w	Pac	Caballero, 1995	
Melastomataceae	*Bellucia grossularioides* (L.) Triana	w	Ama, Pac	Romero-Castañeda, 1991	COL541108
Melastomataceae	*Bellucia pentamera* Naudin	w	And, Car	Cárdenas & Ramírez, 2004	COL277389
Melastomataceae	*Conostegia subcrustulata* (Beurl.) Triana	w	And	Rodríguez-Mora *et al.*, 2019	
Melastomataceae	*Clidemia capitellata* (Bonpl.) D. Don	w	And	López *et al.*, 2016a	
Melastomataceae	*Clidemia ciliata* Pav. ex D. Don	w	And, Car	López *et al.*, 2016a	COL79867
Melastomataceae	*Clidemia hirta* (L.) D. Don	w	Ama	Romero-Castañeda, 1991	COL184552
Melastomataceae	*Clidemia sericea* D. Don	w	Ori, Pac		COL315134
Melastomataceae	**Huilaea macrocarpa* L. Uribe	w	And	Romero-Castañeda, 1991	
Melastomataceae	*Leandra aristigera* (Naudin) Cogn.	w	Ama	Cárdenas *et al.*, 2012	
Melastomataceae	*Maieta guianensis* Aubl.	w	Ama	Cárdenas *et al.*, 2012	
Melastomataceae	*Miconia argyrophylla* DC.	w	Ama	Cárdenas *et al.*, 2012	
Melastomataceae	*Miconia biglandulosa* Gleason	w	Ama	Cárdenas *et al.*, 2012	
Melastomataceae	*Miconia ciliata* (Rich.) DC.	w	Ama	Cárdenas *et al.*, 2012	
Melastomataceae	*Miconia dodecandra* Cogn.	w	Ama	Cárdenas *et al.*, 2012	
Melastomataceae	*Miconia ligustrina* (Sm.) Triana	w	And	Romero-Castañeda, 1991	COL103066
Melastomataceae	*Miconia nervosa* (Sm.) Triana	w	Ama	Cárdenas *et al.*, 2012	
Melastomataceae	*Miconia phanerostila* Pilg.	w	Ama	Cárdenas *et al.*, 2012	
Melastomataceae	*Miconia tomentosa* (Rich.) D. Don ex DC.	w	Ama	Cárdenas *et al.*, 2012	
Melastomataceae	*Miconia variabilis* Gamba & Almeda	w	Ama	Cárdenas *et al.*, 2012	
Melastomataceae	*Mouriri cauliflora* Mart. ex DC.	w	Ama	Cárdenas *et al.*, 2012	
Melastomataceae	*Mouriri grandiflora* DC.	w	Ama	La Rotta, 1983	COL208877
Melastomataceae	*Mouriri guianensis* Aubl.	w	Ori	Acero, 2005	
Melastomataceae	*Mouriri myrtifolia* Spruce ex Triana	w	Ama	Cárdenas *et al.*, 2012	
Melastomataceae	*Mouriri nigra* (DC.) Morley	w	Ama	Cárdenas & López, 2000	

Family	Species	Mangement	Use regions	Representative reference	Voucher
Melastomataceae	*Mouriri vernicosa* Naudin	w	Ama	La Rotta, 1983	COL271147
Melastomataceae	*Myriaspora egensis* Mart. ex DC.	w		Romero-Castañeda, 1991	
Melastomataceae	*Tococa guianensis* Aubl.	w	Ama	Cárdenas *et al.*, 2012	
Meliaceae	*Guarea grandifolia* DC.	w	Ama	Cárdenas *et al.*, 2012	
Meliaceae	*Guarea guidonia* (L.) Sleumer	w	Ama	Cárdenas *et al.*, 2012	
Meliaceae	*Guarea kunthiana* A.Juss.	w	Ama	Cárdenas *et al.*, 2012	
Menispermaceae	*Abuta grandifolia* (Mart.) Sandwith	w	Ama	López *et al.*, 2006	COL46204
Metteniusaceae	*Metteniusa edulis* H.Karst.	w	SNSM	Patiño, 2002	COL309614
Moraceae	*Batocarpus amazonicus* (Ducke) Fosberg	w	Ama	Cárdenas & López, 2000	
Moraceae	*Batocarpus orinocensis* H.Karst.	w/c	Ama	Cárdenas & Ramírez, 2004	COL299912
Moraceae	*Brosimum acutifolium* Huber	w	Ama	Cárdenas & López, 2000	
Moraceae	*Brosimum alicastrum* Sw.	w	Car	López *et al.*, 2016b	
Moraceae	*Brosimum guianense* (Aubl.) Huber	w	Ama	Cárdenas *et al.*, 2012	
Moraceae	*Brosimum lactescens* (S.Moore) C.C.Berg	w	Ama, Ori	Cárdenas & Ramírez, 2004	COL283482
Moraceae	*Brosimum utile* (Kunth) Oken	w/c	Ori, Pac	Romero-Castañeda, 1991	COL76066
Moraceae	*Castilla ulei* Warb.	w	Ama	Cárdenas *et al.*, 2012	
Moraceae	*Clarisia racemosa* Ruiz & Pav.	w	Ama	Cárdenas & Ramírez, 2004	
Moraceae	*Ficus dulciaria* Dugand	w	And	Romero-Castañeda, 1991	COL55246
Moraceae	*Ficus gigantosyce* Dugand	w	And	Romero-Castañeda, 1991	
Moraceae	*Ficus insipida* Willd.	w	Pac	Patiño, 2002	
Moraceae	*Ficus pallida* Vahl	w		Romero-Castañeda, 1991	
Moraceae	*Ficus velutina* Humb. & Bonpl. ex Willd.	w/c		Romero-Castañeda, 1991	
Moraceae	*Helicostylis heterotricha* Ducke	w	Ama	Cárdenas *et al.*, 2012	
Moraceae	*Helicostylis scabra* (J.F.Macbr.) C.C.Berg	w	Ama	Cárdenas & López, 2000	COL290879
Moraceae	*Helicostylis tomentosa* (Poepp. & Endl.) J.F.Macbr.	w	Ama, And	Cárdenas & López, 2000	COL324383
Moraceae	*Maclura tinctoria* (L.) D.Don ex Steud.	w	Car, Pac	Romero-Castañeda, 1991	COL124539
Moraceae	*Maquira coriacea* (H.Karst.) C.C.Berg	w	Ama	Cárdenas & López, 2000	
Moraceae	*Maquira guianensis* Aubl.	w	Ama	Cárdenas *et al.*, 2012	

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Moraceae	*Naucleopsis glabra* Spruce ex Pittier	w	Ama	López *et al.*, 2006	COL148892
Moraceae	*Naucleopsis oblongifolia* (Kuhlm.) Carauta	w	Ama	Cárdenas *et al.*, 2012	
Moraceae	*Naucleopsis ulei* (Warb.) Ducke	w	Ama	Cárdenas & López, 2000	
Moraceae	*Perebea guianensis* Aubl.	w	Ama, And	López *et al.* 2006	COL465133
Moraceae	*Perebea mollis* (Poepp. & Endl.) Huber	w	Ama	Cárdenas & López, 2000	
Moraceae	*Perebea xanthochyma* H.Karst.	w	Ama	Cárdenas & López, 2000	
Moraceae	*Poulsenia armata* (Miq.) Standl.	w		Romero-Castañeda, 1991	
Moraceae	*Pseudolmedia laevigata* Trécul	w	Ama, And, Mag, Pac	Cárdenas & López, 2000	COL322065
Moraceae	*Pseudolmedia laevis* (Ruiz & Pav.) J.F.Macbr.	w	Ama, Ori	Cárdenas & López, 2000	COL62285
Moraceae	*Pseudolmedia rigida* (Klotzsch & H.Karst.) Cuatrec.	w		Romero-Castañeda, 1991	
Moraceae	*Sorocea pubivena* Hemsl.	w	Ama	Cárdenas *et al.*, 2012	
Moraceae	*Sorocea pubivena* subsp. hirtella (Mildbr.) C.C.Berg	w	Ama	Cárdenas & López, 2000	
Moraceae	*Trophis racemosa* (L.) Urb.	w	Ori	Patiño, 2002	
Moraceae	*Trymatococcus amazonicus* Poepp. & Endl.	w	Ama	Cárdenas & López, 2000	
Muntingiaceae	*Muntingia calabura* L.	w	And, Car, Pac	Romero-Castañeda, 1991	
Myristicaceae	*Compsoneura atopa* (A.C.Sm.) A.C.Sm.	w	Pac	Romero-Castañeda, 1991	COL327880
Myristicaceae	*Compsoneura capitellata* (A.DC.) Warb.	w	Ama	Cárdenas *et al.*, 2012	
Myristicaceae	**Compsoneura claroensis* Janovec & A.K.Neill	w		Idárraga *et al.*, 2011	
Myristicaceae	**Compsoneura cuatrecasasii* A.C.Sm.	w		Patiño, 2002	
Myristicaceae	*Iryanthera crassifolia* A.C.Sm.	w	Ama	Cárdenas *et al.*, 2012	
Myristicaceae	Iryanthera elliptica Ducke	w	Ama	Cárdenas *et al.*, 2012	
Myristicaceae	*Iryanthera hostmannii* (Benth.) Warb.	w	Ama	Cárdenas & Ramírez, 2004	
Myristicaceae	*Iryanthera juruensis* Warb.	w	Ama	Cárdenas & López, 2000	COL310978
Myristicaceae	*Iryanthera laevis* Markgr.	w	Ama		COL271208

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Myristicaceae	*Iryanthera lancifolia* Ducke	w	Ama	Cárdenas & Ramírez, 2004	
Myristicaceae	*Iryanthera macrophylla* Warb.	w	Ama	Cárdenas *et al.*, 2012	
Myristicaceae	*Iryanthera paraensis* Huber	w	Ama	Cárdenas & Ramírez, 2004	
Myristicaceae	*Iryanthera polyneura* Ducke	w	Ama	Cárdenas *et al.*, 2012	
Myristicaceae	*Iryanthera tricornis* Ducke	w	Ama	Cárdenas & López, 2000	
Myristicaceae	*Osteophloeum platyspermum* (Spruce ex A.DC.) Warb.	w	Ama	Cárdenas *et al.*, 2012	
Myristicaceae	*Otoba acuminata* (Standl.) A.H.Gentry	w	Car	Romero-Castañeda, 1991	
Myristicaceae	*Otoba parvifolia* (Markgr.) A.H.Gentry	w	Ama	La Rotta, 1983	COL271232
Myristicaceae	*Virola duckei* A.C.Sm.	w	Ama	Cárdenas & Ramírez, 2004	
Myrtaceae	*Calycolpus moritzianus* (O.Berg) Burret	w	And	Ariza *et al.*, 2010	COL512229
Myrtaceae	*Calycorectes grandifolius* O.Berg	w	Car	Romero-Castañeda, 1991	
Myrtaceae	*Calyptranthes bipennis* O.Berg	w	Ama	Cárdenas & Ramírez, 2004	
Myrtaceae	*Calyptranthes speciosa* Sagot	w	Ama		COAH12699
Myrtaceae	*Campomanesia lineatifolia* Ruiz & Pav.	w/c	Ama, And, Ori, Pac	Romero-Castañeda, 1991	COL576327
Myrtaceae	*Eugenia acapulcensis* Steud.	w	Car	López *et al.*, 2016b	
Myrtaceae	*Eugenia biflora* (L.) DC.	w	And	Cárdenas & López, 2000	COL158727
Myrtaceae	*Eugenia florida* DC.	w	Ama	Romero-Castañeda, 1991	COL162369
Myrtaceae	*Eugenia patrisii* Vahl	w	Ama		COAH41582
Myrtaceae	*Eugenia punicifolia* (Kunth) DC.	w	Ama	Cárdenas *et al.*, 2012	
Myrtaceae	**Eugenia victoriana* Cuatrec.	w/c	Ama, And, Mag, Pac	Patiño, 2002	COL560993
Myrtaceae	**Myrcia popayanensis* Hieron.	w	And	Sarmiento, 1986	COL66980
Myrtaceae	*Myrcia salicifolia* DC.	w	Ama	Cárdenas & López, 2000	
Myrtaceae	*Myrcia splendens* (Sw.) DC.	w	Ori	Jiménez-Escobar & Estupiñán-González, 2011	COL110999
Myrtaceae	*Myrcianthes leucoxyla* (Ortega) McVaugh	w	And	Romero-Castañeda, 1991	COL582229

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Myrtaceae	*Myrcianthes orthostemon* (O.Berg) Grifo	w	And	López *et al.*, 2016a	
Myrtaceae	*Myrcianthes rhopaloides* (Kunth) McVaugh	w	And	Romero-Castañeda, 1991	COL116756
Myrtaceae	*Myrciaria dubia* (Kunth) McVaugh	w/c	Ama, Ori	Romero-Castañeda, 1991	COL103522
Myrtaceae	*Plinia duplipilosa* McVaugh	w	Ama		COAH20082
Myrtaceae	*Plinia pinnata* L.	w	Ama	Cárdenas *et al.*, 2012	
Myrtaceae	*Pseudanamomis umbellulifera* (Kunth) Kausel	w/c	Car	Romero-Castañeda, 1991	COL114076
Myrtaceae	*Psidium acutangulum* Mart. ex DC.	w/c	Cau	Romero-Castañeda, 1991	COL75585
Myrtaceae	*Psidium guineense* Sw.	w	And, Car, Ori	Romero-Castañeda, 1991	COL575987
Myrtaceae	*Psidium sartorianum* (O.Berg) Nied.	w	Car	Romero-Castañeda, 1991	
Nyctaginaceae	*Neea parviflora* Poepp. & Endl.	w	Ama	Cárdenas *et al.*, 2012	
Ochnaceae	*Lacunaria jenmanii* (Oliv.) Ducke	w	Ama	Cárdenas *et al.*, 2012	
Ochnaceae	**Ouratea kananariensis* Sastre	w	Ama	Cárdenas *et al.*, 2012	
Ochnaceae	*Quiina obovata* Tul.	w	Ama	Cárdenas *et al.*, 2012	
Olacaceae	*Aptandra tubicina* (Poepp.) Benth. ex Miers	w	Ama	Cárdenas *et al.*, 2012	
Olacaceae	*Dulacia macrophylla* (Benth.) Kuntze	w	Ama	Cárdenas *et al.*, 2012	
Olacaceae	*Minquartia guianensis* Aubl.	w	Ama	Cárdenas *et al.*, 2012	
Olacaceae	*Ximenia americana* L.	w	Car, Pac	Romero-Castañeda, 1991	COL32252
Onagraceae	*Fuchsia boliviana* Carrière	w	And	Sarmiento, 1986	COL540210
Opiliaceae	*Agonandra brasiliensis* Miers ex Benth.	w	Car	López *et al.*, 2016b	
Passifloraceae	*Dilkea acuminata* Mast.	w	Ama		COAH16600
Passifloraceae	*Dilkea retusa* Mast.	w	Ama	Ocampo *et al.*, 2007	
Passifloraceae	*Passiflora adenopoda* DC.	w	And	Ocampo *et al.*, 2007	COL46533
Passifloraceae	*Passiflora ambigua* Hemsl.	w	And, Pac	Idárraga *et al.*, 2011	COL410708
Passifloraceae	**Passiflora antioquiensis* H. Karst.	w/c	And	Patiño, 2002	COL26752
Passifloraceae	*Passiflora arborea* Spreng.	w	Car	Sarmiento, 1986	COL537313
Passifloraceae	*Passiflora auriculata* Kunth	w	Ori, Pac		COL49400
Passifloraceae	*Passiflora candollei* Triana & Planch.	w	Ama	Cárdenas *et al.*, 2012	
Passifloraceae	*Passiflora cincinnata* Mast.	w	And	Ocampo *et al.*, 2007	

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Passifloraceae	*Passiflora coccinea* Aubl.	w		Ocampo *et al.*, 2007	
Passifloraceae	*Passiflora cumbalensis* (H. Karst.) Harms	w/c	And	Patiño, 2002	COL29875
Passifloraceae	**Passiflora emarginata* Bonpl.	w	And	Ocampo *et al.*, 2007	COL227362
Passifloraceae	**Passiflora flexipes* Triana & Planch.	w	And	Ocampo *et al.*, 2007	
Passifloraceae	*Passiflora foetida* L.	w	And, Car, Ori, Pac	Romero-Castañeda, 1991	COL450547
Passifloraceae	Passiflora guazumifolia Jacq.	w	Car	Ocampo *et al.*, 2007	
Passifloraceae	*Passiflora holtii* Killip	w		Ocampo *et al.*, 2007	
Passifloraceae	*Passiflora involucrata* (Mast.) A.H. Gentry	w	Ama	La Rotta, 1989	COL556242
Passifloraceae	*Passiflora laurifolia* L.	w/c		Patiño, 2002	
Passifloraceae	*Passiflora leptomischa* Harms	w	And	Ocampo *et al.*, 2007	
Passifloraceae	**Passiflora magnifica* L.K.Escobar	w	And	Ocampo *et al.*, 2007	
Passifloraceae	*Passiflora maliformis* L.	w/c	And, Pac	Romero-Castañeda, 1991	COL43829
Passifloraceae	*Passiflora manicata* (Juss.) Pers.	w/c	And	Idárraga *et al.*, 2011	COL160270
Passifloraceae	*Passiflora mixta* L.f.	w/c	And	Idárraga *et al.*, 2011	COL301947
Passifloraceae	*Passiflora multiformis* Jacq.	w		Ocampo *et al.*, 2007	
Passifloraceae	*Passiflora nitida* Kunth	w/c	Ama, Ori	Romero-Castañeda, 1991	COL89795
Passifloraceae	*Passiflora palenquensis* Holm-Niels. & Lawesson	w/c	Pac	Idárraga *et al.*, 2011	COL492910
Passifloraceae	**Passiflora parritae* (Mast.) L.H. Bailey	w	And	Ocampo *et al.*, 2007	
Passifloraceae	*Passiflora pinnatistipula* Cav.	w/c	And	Patiño, 2002	
Passifloraceae	*Passiflora platyloba* Killip	w	And	Idárraga *et al.*, 2011	
Passifloraceae	*Passiflora popenovii* Killip	w/c	And	Romero-Castañeda, 1991	
Passifloraceae	*Passiflora riparia* Mart. ex Mast.	w		Ocampo *et al.*, 2007	
Passifloraceae	**Passiflora schlimiana* Regel	w	SNSM	Romero-Castañeda, 1991	COL118505
Passifloraceae	*Passiflora seemannii* Griseb.	w	Ama, Pac	Idárraga *et al.*, 2011	COL45595
Passifloraceae	*Passiflora serratodigitata* L.	w/c	Ama, Pac	Romero-Castañeda, 1991	COL66864
Passifloraceae	*Passiflora serrulata* Jacq.	w	Ori	Patiño, 2002	
Passifloraceae	**Passiflora sphaerocarpa* Triana & Planch.	w	And	Ocampo *et al.*, 2007	
Passifloraceae	*Passiflora suberosa* L.	w	Car	Ocampo *et al.*, 2007	COL290331

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Passifloraceae	*Passiflora tarminiana* Coppens & V.E. Barney	w/c	And	Idárraga *et al.*, 2011	COL510596
Passifloraceae	**Passiflora tenerifensis* L.K.Escobar	w	Pac	Ocampo *et al.*, 2007	
Passifloraceae	*Passiflora tica* Gómez-Laur. & L.D. Gómez	w		Jiménez-Escobar & Estupiñán-González, 2011	
Passifloraceae	**Passiflora tiliifolia* L.	w/c	And	Idárraga *et al.*, 2011	
Passifloraceae	**Passiflora tolimana* Harms	w	And	Idárraga *et al.*, 2011	
Passifloraceae	*Passiflora variolata* Poepp. & Endl.	w	Ama		COAH16601
Passifloraceae	*Passiflora vitifolia* Kunth	w	Ama, And, Pac, SNSM	Romero-Castañeda, 1991	COL582696
Phyllanthaceae	*Hieronyma alchorneoides* Allemão	w	Ori	Acero, 2005	
Phyllanthaceae	*Hieronyma duquei* Cuatrec.	w	And	Acero, 2005	COL33725
Phyllanthaceae	*Hieronyma macrocarpa* Müll.Arg.	w/c	And	Romero-Castañeda, 1991	COL46338
Phyllanthaceae	*Hieronyma oblonga* (Tul.) Müll. Arg.	w	Ama	Cárdenas *et al.*, 2012	
Polygonaceae	*Coccoloba acuminata* Kunth	w	Car	Jiménez-Escobar & Estupiñán-González, 2011	COL523582
Polygonaceae	*Coccoloba ascendens* Duss ex Lindau	w	Ama	Cárdenas *et al.*, 2012	
Polygonaceae	*Coccoloba densifrons* Mart. ex Meisn.	w	Ama	López *et al.*, 2006	COL518987
Polygonaceae	*Coccoloba excelsa* Benth.	w	Pac	Álvarez *et al.*, 2016	
Polygonaceae	*Coccoloba obovata* Kunth	w	Car, Pac	Romero-Castañeda, 1991	COL32200
Polygonaceae	*Coccoloba uvifera* (L.) L.	w/c	Car, Mag, Pac	Romero-Castañeda, 1991	COL134746
Polygonaceae	*Diclidanthera penduliflora* Mart.	w	Ama	Cárdenas *et al.*, 2012	
Polygonaceae	*Moutabea guianensis* Aubl.	w	Ama	Cárdenas *et al.*, 2012	
Polygonaceae	*Ruprechtia ramiflora* (Jacq.) C.A.Mey.	w	Car	Cruz *et al.*, 2009	
Primulaceae	**Ardisia manglillo* Cuatrec.	w	Pac	Romero-Castañeda, 1991	
Primulaceae	**Ardisia sapida* Cuatrec.	w	And	Romero-Castañeda, 1991	
Primulaceae	**Clavija latifolia* (Willd. ex Roem. & Schult.) K.Koch	w	Car	Jiménez-Escobar & Estupiñán-González, 2011	COL524025
Primulaceae	*Clavija membranacea* Mez	w	Ama	Cárdenas *et al.*, 2012	

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Primulaceae	*Cybianthus amplus* (Mez) G.Agostini	w	Ama	Cárdenas *et al.*, 2012	
Primulaceae	*Geissanthus longistamineus* (A.C.Sm.) Pipoly	w	Pac	Romero-Castañeda, 1991	
Primulaceae	*Stylogyne longifolia* (Mart. ex Miq.) Mez	w	Ama	Cárdenas *et al.*, 2012	
Putranjivaceae	*Drypetes variabilis* Uittien	w	Ama	Cárdenas *et al.*, 2012	
Rhamnaceae	*Ziziphus cinnamomum* Triana & Planch.	w		Romero-Castañeda, 1991	
Rhamnaceae	*Ziziphus saeri* Pittier	w	Car	Romero-Castañeda, 1991	
Rosaceae	*Hesperomeles ferruginea* (Pers.) Benth.	w	And	Romero-Castañeda, 1991	
Rosaceae	**Hesperomeles goudotiana* (Decne.) Killip	w	And	Córdoba *et al.*, 2010	COL480035
Rosaceae	*Hesperomeles obtusifolia* (Pers.) Lindl.	w	And	Idárraga *et al.*, 2011	COL543301
Rosaceae	*Margyricarpus pinnatus* (Lam.) Kuntze	w	And	Sarmiento, 1986	COL5240
Rosaceae	*Rubus adenotrichus* Schltdl.	w/c	And	López *et al.*, 2016a	COL13106
Rosaceae	*Rubus bogotensis* Kunth	w	And	Romero-Castañeda, 1991	COL72502
Rosaceae	*Rubus boliviensis* Focke	w	And	Idárraga *et al.*, 2011	
Rosaceae	*Rubus floribundus* Kunth	w	And	Idárraga *et al.*, 2011	COL385126
Rosaceae	*Rubus nubigenus* Kunth	w		Romero-Castañeda, 1991	
Rosaceae	*Rubus rosifolius* var. *coronarius* (Sims) Focke	w	And, Car, Ori	Patiño, 2002	COL478555
Rosaceae	*Rubus urticifolius* Poir.	w	And	Romero-Castañeda, 1991	
Rubiaceae	*Alibertia claviflora* K.Schum.	w	Car	Jiménez-Escobar & Estupiñán-González, 2011	
Rubiaceae	*Alibertia edulis* (Rich.) A.Rich. ex DC.	w	And, Car, Ori	Romero-Castañeda, 1991	COL304620
Rubiaceae	*Alibertia sorbilis* Huber ex Ducke	w	Ama	Cárdenas *et al.*, 2012	
Rubiaceae	**Borojoa duckei* Steyerm.	w/c	Ama, Pac	Cárdenas & López, 2000	
Rubiaceae	*Botryarrhena pendula* Ducke	w	Ama	Cárdenas *et al.*, 2012	
Rubiaceae	*Cordiera macrophylla* (K.Schum.) Kuntze	w	Ama	Cárdenas & López, 2000	
Rubiaceae	*Coussarea bernardii* Steyerm.	w	Ama	Cárdenas *et al.*, 2012	
Rubiaceae	*Coussarea brevicaulis* K.Krause	w	Ama	Cárdenas *et al.*, 2012	
Rubiaceae	*Coussarea flava* Poepp.	w	Ama	Cárdenas *et al.*, 2012	

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Rubiaceae	*Duroia hirsuta* (Poepp.) K.Schum.	w	Ama	Cárdenas *et al.*, 2012	
Rubiaceae	*Duroia maguirei* Steyerm.	w	Ama	Cárdenas *et al.*, 2012	
Rubiaceae	*Duroia micrantha* (Ladbr.) Zarucchi & J.H.Kirkbr.	w	Ama	Cárdenas *et al.*, 2012	
Rubiaceae	*Faramea occidentalis* (L.) A.Rich.	w/c	Ama, Pac	Álvarez *et al.*, 2016	COL423424
Rubiaceae	*Faramea torquata* Müll.Arg.	w	Car	Jiménez-Escobar & Estupiñán-González, 2011	
Rubiaceae	*Genipa americana* L.	w/c	Ama, Car, Ori, Pac	Romero-Castañeda, 1991	COL111317
Rubiaceae	*Kutchubaea micrantha* Steyerm.	w	Ama	Cárdenas *et al.*, 2012	
Rubiaceae	*Manettia calycosa* Griseb.	w	Ama	La Rotta, 1983	
Rubiaceae	*Pagamea plicata* Spruce ex Benth.	w	Ama	Cárdenas *et al.*, 2012	
Rubiaceae	*Pentagonia brachyotis* (Standl.) Standl.	w	Pac	Romero-Castañeda, 1991	
Rubiaceae	*Pentagonia macrophylla* Benth.	w	Pac	Romero-Castañeda, 1991	COL70535
Rubiaceae	*Pentagonia pinnatifida* Seem.	w	Car	Jiménez-Escobar & Estupiñán-González, 2011	
Rubiaceae	*Posoqueria latifolia* (Rudge) Schult.	w/c	Pac	Romero-Castañeda, 1991	COL354946
Rubiaceae	*Posoqueria longiflora* Aubl.	w	Ama	Cárdenas *et al.*, 2012	
Rubiaceae	*Randia aculeata* L.	w	Car	Romero-Castañeda, 1991	COL313428
Rubiaceae	*Randia dioica* H.Karst.	w	Car	Cruz *et al.*, 2009	COL530707
Rubiaceae	*Retiniphyllum schomburgkii* (Benth.) Müll.Arg.	w	Ama	Cárdenas *et al.*, 2012	
Rubiaceae	*Sabicea amazonensis* Wernham	w	Ama	Cárdenas *et al.*, 2012	
Rubiaceae	*Sabicea villosa* Schult.	w	Ama	Cárdenas *et al.*, 2012	
Salicaceae	*Casearia arguta* Kunth	w	Pac	Álvarez *et al.*, 2016	
Salicaceae	*Casearia decandra* Jacq.	w	Ama	Cárdenas *et al.*, 2012	
Sapindaceae	*Cupania hirsuta* Radlk.	w	Car	Jiménez-Escobar & Estupiñán-González, 2011	
Sapindaceae	*Dilodendron costaricense* (Radlk.) A.H.Gentry & Steyerm.	w	And, Car	López *et al.*, 2016b	COL301025
Sapindaceae	*Matayba inelegans* Radlk.	w	Ama	Cárdenas *et al.*, 2012	
Sapindaceae	*Matayba purgans* (Poepp.) Radlk.	w	Car	Jiménez-Escobar & Estupiñán-González, 2011	
Sapindaceae	*Melicoccus oliviformis* Kunth	w/c	Car	Romero-Castañeda, 1991	

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Sapindaceae	*Paullinia cupana* Kunth	w	Ama	Cárdenas *et al.*, 2012	
Sapindaceae	**Paullinia macrophylla* Kunth	w	Car	Romero-Castañeda, 1991	COL115306
Sapindaceae	*Paullinia yoco* R.E.Schult. & Killip	w	Ama	Cárdenas *et al.*, 2012	
Sapindaceae	*Talisia hexaphylla* Vahl	w	Pac		COL285953
Sapotaceae	*Chrysophyllum amazonicum* T.D.Penn.	w	Ama	Cárdenas *et al.*, 2012	
Sapotaceae	*Chrysophyllum argenteum* Jacq.	w	Ama, Car	Jiménez-Escobar *et al.*, 2011	COL539618
Sapotaceae	*Chrysophyllum bombycinum* T.D.Penn.	w	Ama	Cárdenas *et al.*, 2012	
Sapotaceae	*Chrysophyllum manaosense* (Aubrév.) T.D.Penn.	w	Ama		COAH72152
Sapotaceae	*Chrysophyllum pomiferum* (Eyma) T.D.Penn.	w	Ama	Cárdenas *et al.*, 2012	
Sapotaceae	*Chrysophyllum prieurii* A.DC.	w	Ori		COAH78626
Sapotaceae	*Chrysophyllum sanguinolentum* (Pierre) Baehni	w	Ama	Cárdenas & López, 2000	COL179902
Sapotaceae	*Chrysophyllum superbum* T.D.Penn.	w	Ama	Cárdenas & López, 2000	
Sapotaceae	*Ecclinusa guianensis* Eyma	w	Ama	Cárdenas *et al.*, 2012	
Sapotaceae	*Ecclinusa lanceolata* (Mart. & Eichler ex Miq.) Pierre	w	Ama	Cárdenas *et al.*, 2012	
Sapotaceae	*Manilkara bidentata* (A.DC.) A.Chev.	w	Ama	Patiño, 2002	
Sapotaceae	*Micropholis egensis* (A.DC.) Pierre	w	Ama	Cárdenas *et al.*, 2012	
Sapotaceae	*Micropholis guyanensis* (A.DC.) Pierre	w	Ama	Cárdenas & López, 2000	
Sapotaceae	*Micropholis melinoniana* Pierre	w	Ama	Cárdenas *et al.*, 2012	
Sapotaceae	**Pouteria arguacoensium* (H.Karst.) Baehni	w/c	Car, SNSM	Romero-Castañeda, 1991	COL551467
Sapotaceae	*Pouteria baehniana* Monach.	w	Ama		COAH64852
Sapotaceae	*Pouteria bangii* (Rusby) T.D.Penn.	w	Ama		COAH34942
Sapotaceae	*Pouteria bilocularis* (H.J.P.Winkl.) Baehni	w	Ama		COAH25123
Sapotaceae	*Pouteria campanulata* Baehni	w	Ama	Cárdenas & López, 2000	
Sapotaceae	*Pouteria cladantha* Sandwith	w		Idárraga *et al.*, 2011	
Sapotaceae	*Pouteria cuspidata* (A.DC.) Baehni	w	Ama, Mag	Cárdenas & López, 2000	COL123271
Sapotaceae	*Pouteria durlandii* (Standl.) Baehni	w	Car	López *et al.*, 2016b	

Family	Species	Mangement	Use regions	Representative reference	Voucher
Sapotaceae	*Pouteria glauca* T.D.Penn.	w	Ama	Cárdenas *et al.*, 2012	
Sapotaceae	*Pouteria glomerata* (Miq.) Radlk.	w	Ama	Idárraga *et al.*, 2011	
Sapotaceae	*Pouteria guianensis* Aubl.	w	Ama		COAH64795
Sapotaceae	*Pouteria hispida* Eyma	w/c	Ama	Cárdenas & López, 2000	COL438085
Sapotaceae	*Pouteria laevigata* (Mart.) Radlk.	w	Ama		COAH73853
Sapotaceae	*Pouteria lucuma* (Ruiz & Pav.) Kuntze	w/c	And	Romero-Castañeda, 1991	COL63528
Sapotaceae	*Pouteria macrophylla* (Lam.) Eyma	w	Ama, And	Patiño, 2002	
Sapotaceae	*Pouteria multiflora* (A.DC.) Eyma	w	Pac	Álvarez *et al.*, 2016	
Sapotaceae	*Pouteria oblanceolata* Pires	w	Ama	Cárdenas *et al.*, 2012	
Sapotaceae	*Pouteria retinervis* T.D.Penn.	w	Ama	Cárdenas & López, 2000	
Sapotaceae	*Pouteria stipitata* Cronquist	w	Car	Cruz *et al.*, 2009	
Sapotaceae	*Pouteria torta* (Mart.) Radlk.	w	Ama, Car	Jiménez-Escobar & Estupiñán-González, 2011	
Sapotaceae	*Pouteria trilocularis* Cronquist	w	Ama	Cárdenas *et al.*, 2012	
Sapotaceae	*Pouteria ucuqui* Pires & R.E.Schult.	w	Ama	Romero-Castañeda, 1991	COL34270
Sapotaceae	*Pradosia cochlearia* (Lecomte) T.D.Penn.	w	Ama	Cárdenas *et al.*, 2012	
Sapotaceae	*Pradosia colombiana* (Standl.) T.D.Penn. ex T.J.Ayers & Boufford	w	Car	López *et al.*, 2016b	
Sapotaceae	*Pradosia subverticillata* Ducke	w	Ama	Cárdenas *et al.*, 2012	
Sapotaceae	*Sarcaulus brasiliensis* (A.DC.) Eyma	w	Ama	Cárdenas & López, 2000	
Sapotaceae	*Sideroxylon obtusifolium* (Roem. & Schult.) T.D.Penn.	w	Car	Romero-Castañeda, 1991	
Simaroubaceae	*Simaba polyphylla* (Cavalcante) W.W.Thomas	w	Ama	Cárdenas *et al.*, 2012	
Smilacaceae	*Smilax siphilitica* Humb. & Bonpl. ex Willd.	w	Ama	Cárdenas *et al.*, 2012	
Smilacaceae	*Smilax spinosa* Mill.	w	Ama	Cárdenas *et al.*, 2012	
Solanaceae	*Acnistus arborescens* (L.) Schltdl.	w	Car	Sarmiento, 1986	
Solanaceae	*Cyphomandra naranjilla* Pittier	w/c		Romero-Castañeda, 1991	
Solanaceae	*Physalis angulata* L.	w	Ama, Pac	Álvarez *et al.*, 2016	COL456960
Solanaceae	*Physalis pubescens* L.	w	Ama		COL135409
Solanaceae	*Solanum caripense* Dunal	w	And	Romero-Castañeda, 1991	COL571270
Solanaceae	*Solanum circinatum* Bohs	w	Ama	Cárdenas & López, 2000	

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Solanaceae	*Solanum hirtum* Vahl	w	And	Ariza *et al.*, 2010	
Solanaceae	*Solanum lanceifolium* Jacq.	w/c		Romero-Castañeda, 1991	
Solanaceae	*Solanum pectinatum* Dunal	w/c	And	Romero-Castañeda, 1991	COL108397
Solanaceae	*Solanum pseudolulo* Heiser	w	And	Idárraga *et al.*, 2011	COL53080
Solanaceae	*Solanum sibundoyense* (Bohs) Bohs	w/c	And	Patiño, 2002	
Solanaceae	*Solanum sisymbriifolium* Lam.	w/c	And	Romero-Castañeda, 1991	COL66187
Solanaceae	*Solanum stramoniifolium* Jacq.	w	Ama	Romero-Castañeda, 1991	COL214182
Solanaceae	*Solanum vestissimum* Dunal	w	And	López *et al.*, 2016a	COL89552
Strelitziaceae	*Phenakospermum guyannense* (A.Rich.) Endl. ex Miq.	w/c	Ama	Cárdenas & Ramírez, 2004	
Symplocaceae	*Symplocos serrulata* Bonpl.	w	And	Romero-Castañeda, 1991	COL306330
Tetrameristaceae	*Pelliciera rhizophorae* Planch. & Triana	w	Pac	Caballero, 1995	
Tropaeolaceae	*Tropaeolum majus* L.	w/c	And	Romero-Castañeda, 1991	
Urticaceae	*Cecropia ficifolia* Warb. ex Snethl.	w	Ama	Cárdenas *et al.*, 2012	
Urticaceae	*Cecropia sciadophylla* Mart.	w	Ama	Cárdenas & Ramírez, 2004	
Urticaceae	*Coussapoa villosa* Poepp. & Endl.	w	Ama	Cárdenas *et al.*, 2012	
Urticaceae	*Pourouma acuminata* Mart. ex Miq.	w	Ama	Cárdenas & López, 2000	
Urticaceae	*Pourouma bicolor* Mart.	w	Ama, And, Pac, SNSM	Cárdenas & Ramírez, 2004	COL552049
Urticaceae	*Pourouma cecropiifolia* Mart.	w	Ama, Ori	Patiño, 2002	COL56192
Urticaceae	*Pourouma cucura* Standl. & Cuatrec.	w	Ama	Patiño, 2002	COL565516
Urticaceae	*Pourouma cuspidata* Mildbr.	w	Ama	Cárdenas *et al.*, 2012	
Urticaceae	*Pourouma ferruginea* Standl.	w	Ama	Cárdenas *et al.*, 2012	
Urticaceae	*Pourouma guianensis* Aubl.	w	Ama		COL99437
Urticaceae	*Pourouma melinonii* Benoist	w	Ama	López *et al.*, 2006	
Urticaceae	*Pourouma mollis* Trécul	w	Ama	Cárdenas *et al.*, 2012	
Urticaceae	*Pourouma myrmecophila* Ducke	w	Ama	Cárdenas *et al.*, 2012	
Urticaceae	*Pourouma ovata* Trécul	w	Ama	Cárdenas *et al.*, 2012	
Urticaceae	*Pourouma tomentosa* Mart. ex Miq.	w	Ama	Cárdenas & López, 2000	
Verbenaceae	*Lantana camara* L.	w/c	And	Rodríguez-Mora *et al.*, 2019	

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Verbenaceae	*Lantana trifolia* L.	w	And, Car	Acero, 2005	COL97456
Violaceae	*Gloeospermum sphaerocarpum* Triana & Planch.	w	And	Romero-Castañeda, 1991	COL325541
Violaceae	*Leonia glycycarpa* Ruiz & Pav.	w	Ama	Cárdenas *et al.*, 2012	
Violaceae	*Leonia triandra* Cuatrec.	w	And, Pac	Romero-Castañeda, 1991	COL126937
Vitaceae	*Vitis tiliifolia* Humb. & Bonpl. ex Schult.	w	And, Pac	Romero-Castañeda, 1991	COL523790
Vochysiaceae	*Erisma bicolor* Ducke	w	Ama	Cárdenas *et al.*, 2012	
Vochysiaceae	*Erisma japura* Spruce ex Warm.	w	Ama	Patiño, 2002	COL511060
Vochysiaceae	*Erisma uncinatum* Warm.	w	Ama	Cárdenas & López, 2000	
Vochysiaceae	*Qualea acuminata* Spruce ex Warm.	w	Ama	Cárdenas & López, 2000	
Zingiberaceae	*Renealmia alpinia* (Rottb.) Maas	w	Ama	Cárdenas *et al.*, 2012	
Zingiberaceae	*Renealmia thyrsoidea* (Ruiz & Pav.) Poepp. & Endl.	w	Ama	Cárdenas *et al.*, 2012	

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Citación del artículo: López-Diago, D. & García, N. (2021). Wild edible fruits of Colombia: diversity and use prospects. *Biota Colombiana*, 22(2), 16-55.

https://doi.org/10.21068/c2021.v22n02a02

Recibido: 17 de diciembre 2020
Aprobado: 19 de abril 2021