

Local plant names reveal that enslaved Africans recognized substantial parts of the New World flora

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How did the forced migration of nearly 11 million enslaved Africans to the Americas influence their knowledge of plants? Vernacular plant names give insight into the process of species recognition, acquisition of new knowledge, and replacement of African species with American ones. This study traces the origin of 2,350 Afro-Surinamese (Sranantongo and Maroon) plant names to those plant names used by local Amerindians, Europeans, and related groups in West and Central Africa. We compared vernacular names from herbarium collections, literature, and recent ethnobotanical fieldwork in Suriname, Ghana, Benin, and Gabon. A strong correspondence in sound, structure, and meaning among Afro-Surinamese vernaculars and their equivalents in other languages for botanically related taxa was considered as evidence for a shared origin. Although 65% of the Afro-Surinamese plant names contained European lexical items, enslaved Africans have recognized a substantial part of the neotropical flora. Twenty percent of the Sranantongo and 43% of the Maroon plant names strongly resemble names currently used in diverse African languages for related taxa, represent translations of African ones, or directly refer to an Old World origin. The acquisition of new ethnobotanical knowledge is captured in vernaculars derived from Amerindian languages and the invention of new names for neotropical plants from African lexical terms. Plant names that combine African, Amerindian, and European words reflect a creolization process that merged ethnobotanical skills from diverse geographical and cultural sources into new Afro-American knowledge systems. Our study confirms the role of Africans as significant agents of environmental knowledge in the New World.

Creoles | ethnobotany | folk taxonomy | Maroons | Suriname

More than 12 million Africans were shipped to the Americas in the period of the transatlantic slave trade, of whom almost 11 million disembarked in the New World (1). One of the most intriguing ethnobotanical questions is how the forced migration of these vast numbers of Africans influenced their knowledge and use of plants (2). How did they adapt to the American environments that were alien to them? Two general strategies are distinguished for migrant ethnobotany: (i) adhering to plants brought from the country of origin and (ii) acquiring new plant knowledge and the substitution of homeland species with new ones from the host environment (3).

Most of the Africans who arrived in the Americas were already skilled farmers and came from cultures considerably practiced in using local flora and fauna (4). The familiarization process of enslaved Africans with the New World flora is scarcely documented, which makes it difficult to assess the extent of African botanical knowledge transfers to the New World. Slaves arriving in the New World encountered familiar Columbian Exchange food crops: maize, peanuts, tobacco, and other Amerindian domesticates introduced to Africa in the 16th century (5–7). Within the plantation complexes, they also found dozens of African crops, fodder grasses, and weeds that crossed the

Middle Passage on slave ships (6, 8). Oral histories collected among descendants of escaped slaves claim their female ancestors played a role in the introduction of rice from Africa by sequestering leftover grains from slave ships, which they then established in their provision fields (9). Historic herbarium vouchers reveal that Old World crops like okra and sesame were already grown in the Caribbean by the 1680s, within a few decades of the first Africans' arrival (10–12). Through contact with Amerindians, slaves also became acquainted with new useful plants (13). The question of how Africans adapted their cultural knowledge systems to New World environments is especially of interest in Suriname, given the large number of runaway slaves, many Africa-born, who became Maroons and whose survival in fugitive communities depended on the plants of unfamiliar forests.

Between 1658 and 1825, an estimated 295,000 Africans were landed in Suriname (1). Enslaved Africans in this former Dutch colony came from many different regions of West and Central Africa. During the first 50 y of the plantation colony, most of Suriname's slaves were Ewe- and Fon-speaking people from the Slave Coast (extending from eastern Ghana to Benin) and Bantu-Kikongo speaking people from Loango (extending from southern Gabon to northern Angola) (1, 14–16) (Fig. 1). After 1700, the Dutch West India Company imported large groups of "Cormantines" [different Akan-speaking ethnic groups from the Gold Coast (now Ghana) and the Windward Coast, which today encompasses Ivory Coast, Liberia, and Sierra Leone] (1, 15, 16). Due to their different geographical origins, cultures, and languages,

Significance

Enslaved Africans had to familiarize themselves with the American flora, which was largely alien to them, to survive. The process of species recognition, knowledge acquisition, and replacement has hardly been documented. We compared 2,350 Afro-Surinamese vernacular plant names with those vernacular plant names used in western Africa for botanically related taxa. Sixty-five percent of the Afro-Surinamese plant names contained European lexical elements, but among Maroons, descendants of escaped slaves, more than 40% of the vernaculars showed strong resemblance in sound, structure, and meaning to African plant names for related taxa. The greatest correspondence was found among plant names from Gabon and Angola, the main areas where the Dutch purchased their slaves. Our paper shows that Africans recognized substantial parts of the American flora.

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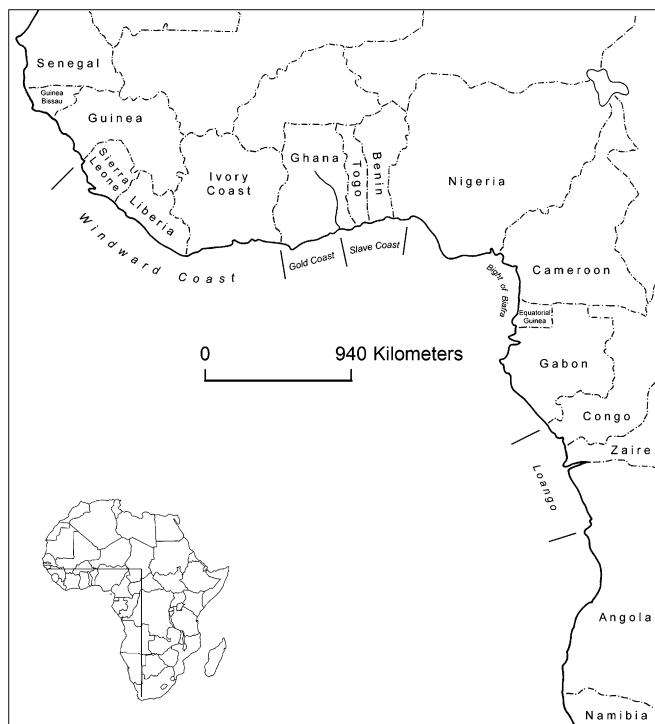


Fig. 1. Schematic map of the western African coast, indicating present country boundaries and historical and geographical place names (70). Reproduced with permission from Naturalis Biodiversity Center.

Surinamese slaves formed a heterogeneous group. To surmount the linguistic barriers among themselves and Europeans, they created a pidgin language to facilitate communication (17–19). This language, formerly called Negro English but currently known as Sranantongo, is an English-based Creole with Dutch, Portuguese, and multiple African linguistic influences. It is spoken today as the lingua franca by ~300,000 people in Suriname (18, 20). With the formation of Sranantongo, the original African languages were gradually forgotten, although they are claimed to have survived as ritual languages used by traditional healers to communicate with ancestor gods and forest or water spirits (21). Suriname's ritual Kromanti language contains many Twi words from Ghana, whereas Ewe words figure in Papa or Vodou spiritual communications and Kikongo dominates the Ampuku spirit language (22, 23). A recent linguistic study, however, shows that Kromanti is a relatively recent construction from a variety of sources, including Sranantongo, in the 18th century (24).

From the early days of Suriname's transformation into a plantation economy, enslaved Africans escaped the brutal work regimes by fleeing into the interior. The colony's dense rainforests, only sparsely inhabited by Amerindians, as well as extensive swamps and isolated upriver locations provided the means for runaways to avoid capture. The fugitives established free communities in the Amazonian forest. On occasion, they attacked remote plantations to secure weapons, food, and enslaved women while freeing slaves (25). By the 1760s, their ongoing assaults from the interior had threatened the colony to such an extent that the Dutch governors were forced to sign peace treaties with several Maroon groups (23, 26). The prevalence of Maroon communities in Suriname surpassed the prevalence of all of the European plantation colonies in the Americas. Today, six Maroon groups still form cohesive units: Saramaccan, Matawai, Aucan (or Ndjuka), Paramaccan, Boni (or Aluku), and Kwinti. Each is characterized by a distinct language and culture (24, 25). Suriname's

Maroon population currently numbers some 50,000; most still live in forest settlements along the major rivers of the country's interior (Fig. 2). After centuries of subsisting in these remote areas, Surinamese Maroons have acquired an extensive knowledge of their environment (27, 28). They are the major traders and consumers of herbal medicine (29) and enjoy international fame as traditional healers (21, 30).

Although the plantation complexes harbored some species familiar to the Africans, their survival was nonetheless challenged by a rainforest full of unknown plants. Tropical African and neotropical forests share less than 1% of their total number of species, including domesticated exotics and pantropical weeds (31). The 18th-century naturalist Daniel Rolander identified trial and error as an important element in the process by which African slaves in Suriname discovered useful plants (13, 32). "In particular, the nearly impassable terrain, the rough forests... force them to be very resourceful and seek nourishment from Nature. And if the wandering black does not know how to make a proper selection [of forest fruits], his ignorance may cost him his life" (32). Both plantation slaves and Maroons had intermittent contact with Amerindian peoples, which may have facilitated this process of adaptation and knowledge acquisition.

Human cultures have named and categorized plants and animals not only to distinguish cultural significant (useful) species from less important ones (33) but also to structure their surrounding natural world into recognizable, morphologically distinctive patterns (34). By studying vernacular plant names currently used by people of African descent, we can trace the adaptive strategies of these formative generations to their environment. Maroon plant classification and use provide valuable insights on the processes

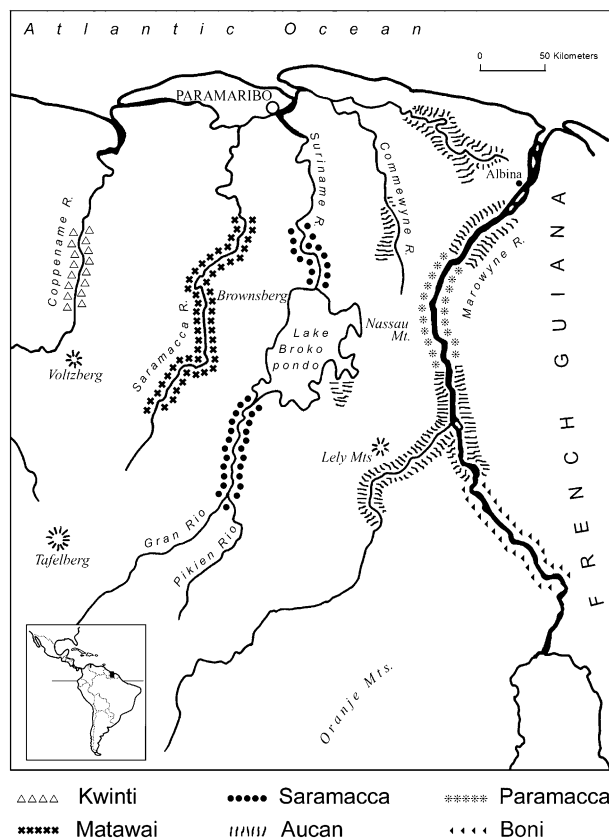


Fig. 2. Maroon groups in Suriname (70). Reproduced with permission from Naturalis Biodiversity Center.

by which transplanted Africans adapted themselves to a new floristic environment.

In a comparative study on ritual plants used in Bahía (Brazil) and Yoruba ones documented in Nigeria and Benin (35), Afro-Brazilian plant names corresponded both to botanically related (*ca.* 60 species) and unrelated (16 species) taxa. Significantly, 20 Brazilian “Yoruba” names could not be linked to any West African species, suggesting that new African names had been applied to unfamiliar New World plants. Several African species were used for religious purposes on both sides of the ocean but had lost their Yoruba name in Bahía. Most matching vernacular plant names referred to domesticated exotics and pantropical weeds.

The process of recognition and substitution of useful plants was likely even more complicated in the dense and botanically diverse Surinamese rainforests than in the severely disturbed vegetation of the Brazilian Coast, characterized by cultivated exotics and pantropical weeds (36). Despite its rich history of marronage and a large body of traditional knowledge, comparative studies on vernacular plant names across the Atlantic do not exist for Suriname. Anthropologists have meticulously reconstructed the escape and settlement of Maroons by means of archival documents and oral histories (23, 26). Linguists have compiled dictionaries and grammars of Sranantongo and the Surinamese Maroon languages (20, 37–39), unraveled their evolution (18, 22, 40), and highlighted their African origins (17, 41–44). Several vernacular plant names figure in their publications, but mostly without scientific names.

Here, we make a comparison between Afro-Surinamese (Sranantongo and Maroon) and West and Central African vernacular plant names to trace to what extent enslaved Africans recognized familiar Old World taxa in the New World and obtained new ethnobotanical knowledge. Our research questions are as follows: (*i*) Which Afro-Surinamese plant names can be linked to African plant names for botanically related taxa, (*ii*) which Afro-Surinamese vernaculars refer otherwise to Africa or Africans, and (*iii*) are matching plant names limited to pantropical weeds and cultivated plants?

We hypothesize that Afro-Surinamese plant names containing African-derived words refer largely to Old World species and genera, whereas names derived from Amerindian or European languages mostly represent neotropical taxa without African representatives. As a result of the Maroons’ isolation in the forested interior, we expect to find more African plant names in Maroon languages than in Sranantongo. By investigating the linguistic ties to Old World plant knowledge that has survived in the New World, we can trace back how enslaved Africans familiarized themselves with the New World flora. Our data will contribute to the ongoing scientific discussion on the relation between linguistic and biological diversity (33, 34, 45), the formation of Creole languages (17, 18), and the cultural and botanical contributions of Africans to the Americas (2).

Results

European, Asian, Amerindian, and African Influences. Our Naturalis transatlantic plant name (Natrapiand) database (Dataset S1) contained some 2,350 Afro-Surinamese plant names, consisting of 935 Sranantongo and almost 1,400 Maroon names, divided into 770 Saramaccan, 291 Aucan, 284 Paramaccan, 18 Boni, 9 Matawai, and 19 plant names in ritual languages, such as Ampuku, Wátawenú, Kromanti, and Papa. A total of 277 names appeared in two or more Maroon languages, whereas *ca.* 40 names overlapped between Sranantongo and Maroon languages. A database with 2,058 names, consisting of 935 Sranantongo and 1,123 Maroon names (overlapping Maroon names were merged in one cell), was subjected to statistical analysis. Of these 2,058 names, 21 (1%) were of Asian origin and referred mostly to plants introduced by Javanese and East Indian contract laborers who came to work on

Suriname’s plantations after the abolishment of slavery (46). Some 65% (1,333 plant names) contained elements of European languages (English, Dutch, French, and Portuguese), often combined with items derived from African, Amerindian, or unknown languages. Some 340 plant names (17%) were partly or entirely based on Amerindian names, mostly from Arawak and Carib, whereas another 18 names were compound neologisms that contained the word “ingi” (the Sranantongo term for Amerindian). These names refer to plants used by or otherwise connected to local indigenous people, for example, in the case of “ingi sopo” (Amerindian soap) for *Furcraea foetida*, of which the leaves were used by Amerindians as a soap substitute (27). For 167 plant names (8%), no clear origin could be established. A total of 673 plant names (33%) were linked to a similar African vernacular name or contained lexical items of African origin (so the added percentages surpass 100%). The following sections distinguish several manifestations of African heritage in Suriname’s vernacular plant names.

Old World Plants That Kept Their African Name. When enslaved Africans arrived in the New World, they recognized many of the African food crops, fodder grasses, and weeds that had arrived on slave ships as inadvertent introductions on earlier occasions as a result of the Columbian Exchange (8). Evidence for this recognition is provided by the fact that many Old World plants are known in Suriname by African names (Table S1). Several weedy species of African origin (e.g., *Heliotropium indicum*, *Eclipta prostrata*) were known among the Africans as well, because their names have remained unchanged. Because these herbs are commonly used as medicine in both Suriname and Africa today (27, 47, 48), they were probably directly adopted in the Surinamese pharmacopeia. Remarkably, New World crops like peanuts, tobacco, and soursop are also known in Suriname by their African names. These names suggest that the crops were well established in Africa in the era of the transatlantic slave trade and recognized by slaves in Suriname as “Old World” plants. These names provide additional evidence for the introduction of Amerindian crops in West Africa before 1650 by the Portuguese (5, 6). Along with the early diffusion of American crops to the Old World came several neotropical weeds (e.g., *Physalis angulata*, *Peperomia pellucida*), some of which are known in Suriname by their African names as well. The familiarity with New World crops and weeds reflects the extent to which the Columbian Exchange had already influenced Africans’ knowledge and use of plants before enslavement in the Americas.

New World Plants That Carry the Name of Their Old World Relatives. Some African plants flourished in Suriname in the 17th century, but most of the country’s native species do not occur in Africa. Still, the enslaved Africans recognized a substantial proportion of the local Surinamese families and genera. In Dataset S2, we list the 100 Afro-Surinamese names (extracted from Dataset S1) that we consider most convincingly similar in sound and structure to taxonomically related African taxa. These figures not only reveal the frequency with which enslaved Africans recognized familiar taxa but also show their detailed botanical knowledge. Some Surinamese plants (e.g., *Bidens cynapiifolia*, *Pouteria cuspidata*) carry more than one African name, which implies that the recognition process has taken place several times, independent from each other, by people from different African backgrounds. Species-rich families that occur on both continents but share relatively few genera (e.g., Fabaceae, Sapotaceae) caused confusion among Africans in Suriname. Whereas several species within one family are grouped under a single Afro-Surinamese name [e.g., “kimbotó” (Sranantongo) for seven species of Sapotaceae], this name is often linked to a smaller number of African species. Families that are poor in species in the Old World but species-rich in the New World puzzled the Africans as well. One of the few African members of the Chrysobalanaceae (*Maranthes polyandra*)

seems to have lent part of its name (“kokoo”) to no less than nine Surinamese species in this family. Corresponding plant names for botanically related taxa across the Atlantic were by no means linked to cultivated plants and pantropical weeds but also referred to numerous primary rainforest trees in the families Fabaceae, Moraceae, Sapotaceae, and Annonaceae (Dataset S1).

Plants Called “from Africa” or Named After the Ancestors. Several Afro-Surinamese plant names do not contain words from an African language but refer to the motherland in another way (Table S2). Three names start with “nengrekondre” (literally “negro country” or “Africa”), 17 contain the name of an African ethnic group, and four begin with the word “abo” or “awoo,” which may stem from the Portuguese “avó” (ancestor) or refer to A(g)bo slaves from the Abomey kingdom in Benin (46). Some of these species were indeed introduced from the Old World, such as the fodder grass *Panicum maximum* (“Guinea grass”), *Aframomum melegueta*, and *Vigna subterranea*. Others only look like African plants, such as *Cyperus prolixus*, a Surinamese sedge cultivated for its fragrant rhizomes, which resembles *Cyperus articulatus*, grown for the same reason in Nigeria. The garlic-scented liana *Mansoa alliacea* is strictly American. However, it could have reminded the slaves of the unrelated African taxa *Hua gabonensis*, *Afrostryax* spp., or *Schlorodephleus zenkeri*, each of which carries a similar scent and was used by their ancestors. Although terms like “Guinea” and “nengreondre” are of European origin, it is likely that Africans in Suriname used those terms to indicate plants they recognized from the Old World.

Plant names that refer to African ethnic groups or geographical regions may refer to their occurrence in the Old World, like “loango pesi” for the pigeon pea (*Cajanus cajan*), an Old World domesticate that was shipped to the Americas as a provision on slave ships (8). However, because several of the species listed in Table S2 are neotropical, their name possibly refers to their use by certain slave groups in Suriname. Four fern species are called “makoko tobacco.” Slaves known as “Demakoekoes” in Suriname were probably Batéké from the region of Brazzaville (Congo) or the Makoko region in Gabon, but we have not found any reference to the habit of smoking ferns in those regions. The name “kromanti” was given to slaves brought from a Dutch fort located near the Ghanaian fishing village of Kormantse, whereas “Papa Negroes” came from the Popo region on the border of Togo and Benin (46).

We also encountered plants that were named after more recent Afro-American ancestors, for example, “Boni-udu” (“Boni wood” for *Maprounea guianensis*, *Discophora guianensis*, and *Banara guianensis*), “Matawai nenge” (“Matawai Maroon” for *Tachigali* spp.), “Saramacca dettol” (“Saramaccan disinfectant” for *Hirtella paniculata*), and “Aluku pesi” (“Aluku peas” for *Vigna unguiculata*). The explanation for these names could be the occurrence or specific uses of these plants in certain Maroon territories. Plants that were useful to all Maroons were sometimes indicated as such, like “businengre kandra” (“bush negro candle”) for the inflammable resin of *Protium* spp. that is burnt in torches.

Substituting Old World Plants with Unrelated New World Plants. Given the floristic difference between West Africa and Suriname (31), substitution of useful Old World species with taxonomically unrelated New World ones has frequently taken place. We found similar vernacular names for botanically unrelated plants on both continents, but the lack of information on their meaning or uses made it difficult for us to decide whether this resemblance was pure coincidence or real substitution. An example is the Saramaccan name “kisangula” for *Maprounea guianensis* (Euphorbiaceae), which is quite similar to the Angolan “kisangua” (Kioko) for *Myrsine africana* (Myrsinaceae). The

species are not similar in appearance, and we have no evidence that their uses are similar or that one was replaced by the other.

In some cases, we found evidence for a “botanical error.” The Saramaccan name “safékita,” “safeka,” or “saafu kali” for the tree *Guarea gomma* (Meliaceae) strongly resembles the Kikongo name “safu nkala” for several species of the unrelated genus *Pachylobus* (Burseraceae). Recognizing the difference between Meliaceae and Burseraceae can be a challenge, even for well-trained botanists, especially when these trees lack flowers or fruits. Only in some cases was the replacement evident. Maroons call the vividly colored black and red *Ormosia* seeds “agi” and use them as marbles in a wooden board game (“agi boto” or “agi boat”) played during funerals. This popular West African game is known as “adji” among the Ewe and Fon from Ghana to Benin. Here, the seeds, which carry the same name as the game, are from *Caesalpinia bonduc*.

Translating African Names into Sranantongo. Unfortunately, the meaning of most African and Afro-Surinamese plant names has remained undocumented. In a few cases where translations were available, we have found striking evidence for the translation of African names into Sranantongo. Several species of Surinamese Annonaceae carry a name that refers to their spicy-scented bark, like “pêpêkusátu” (Saramaccan), “sátukupêpê” (Saramaccan), and “pepre nanga sautu” (Aucan), all meaning “salt with pepper.” The African Annonaceae *Cleistopis patens*, with a similar smelling bark, is named “wisa ne kyene” (Wassaw) and “ngo ne kyene” (Akyem) in Ghana, meaning “pepper with salt” and “oil with salt,” respectively. The common weeds in the genus *Commelina* are known in Suriname as “gado dede mi dede” (Sranantongo), which means “if God dies, then I will die,” referring to the stems that continue to grow after they have been pulled from the ground. In Ghana, species of the same genus are called “onyame bewu na mawu” (Twi), which signifies “if God is dead, then I will die too.” The hardiness of the genus is evident to many Africans, because Nago people in Benin call it “cakankou” (Tchá), which means “I cannot die.”

Inventing New African Names for Unknown Neotropical Plants. It is likely that when Africans in Suriname wanted to remember unknown plants, they invented new names for them in their mother tongues. *Psychotria ulviformis* (Rubiaceae) is a small, creeping herb that occurs in the understory of rainforests. Saramaccan Maroons call it “azau zapato,” which stems from two Gabonese names: “ndzawu” (Masangu) for elephant and “sapatu” (Loango), derived from the Portuguese word for shoe (49, 50). The round leaves of this herb are gray below, and resemble the sole of an elephant’s foot. *P. ulviformis* does not grow in Africa, and elephants are not indigenous to Suriname. The name for this herb can be seen as a neologism: it has been invented by African-born people in Suriname, the first generation who still remembered what elephants looked like. More African animals figure in Surinamese vernaculars, like the monitor lizard (*Varanus* sp.), called “mbaambi” in Masangu (49), which lent its name to *Sabicea oblongifolia*, called “bambitongo” (lizard’s tongue) by Aucan Maroons. The African python, “mbome” in Loango (50), gave its name to several Surinamese snakes (*Boa constrictor* and *Eunectes murinus*) and to the various plants associated with them (e.g., “aboma wiri” for *Calea caleoides*, *Sipanea pratensis*, *Spermacoce ocymifolia*). The Aucan term “kiikii” refers to a swizzle stick, a verticillate-branched twig used to stir food, and is derived from the verb “kii” in Chumburu (Ghana), which means “to turn” (41). The Aucans have also given the name “kiikii” to several unrelated, verticillate-branched Surinamese trees (*Rinorea pubiflora*, *Quararibea guianensis*, and *Cordia tetrandra*) that all are made into swizzle sticks.

In Africa, plants are often named after spirits, particularly wild relatives of crops that cannot be used as such. An example is

Desmodium adscendens, called “mupinda-pinda” in several Gabonese languages, translated as “peanut of the spirits.” The herb looks like the cultivated peanut (*Arachis hypogaea*) but lacks the edible underground seeds. In Surinamese, the species carries a similar name (“mapindapinda”; [Dataset S1](#)). We encountered many of such “spirit plants” in Suriname: 22 names referred to the malicious forest creature Ampuku, 11 to the warrior god Kromanti, and eight to ancestor spirits in general [“yoroka,” from the Carib Indian word “yoroka” (37)]; four names were linked to water spirits (Wátawenú and Watramama); and four names included the name of the termite nest deity Akantasi. The question is whether these spirits are African. The air god Kromanti is clearly linked to the Coromantine slaves from Ghana, whereas Watramama and Wátawenú can be seen as Surinamese forms of Mami wata, a mermaid-like creature popular in West Africa (51). The Ewe deity Agumaga that helped the Aucans to find their way in the forest (23) is reflected in the name “agumangamaka” (Aucan) for the ritual plant *Lantana camara*. Ampuku spirits are said to find their origin in the West Bantu area, although Aucan oral history claims these creatures were local forest entities (23). Because the exact origin of these deities is unknown (some may have an Amerindian background), it is difficult to link these spirit plant names directly to Africa.

Naming a New Plant After a Person. *Quassia amara* is a shrub with bitter wood that was described by Linnaeus in honor of the famous African-born traditional healer Kwasi, who allegedly discovered its febrifugal properties (52, 53). Botanists are not the only people who name plants after persons: Several other Akan day names figure in Afro-Surinamese vernaculars ([Table S3](#)). Many Afro-Surinamers in the 17th and 18th centuries had Akan day names (26, 54), so it is difficult to link these plant species to the specific person who discovered them. Akuba was the main ancestor of the Aucans living in the village Mainsi on the Tapanahoni River (23), but we do not know whether the plants called “Akuba’s cultivated field” were named after her, because these trees commonly grow on abandoned farms. Some plants listed in [Table S3](#) seem to be linked to specific persons, like Musafu, the female ancestor of a major Aucan clan, and Malolo, a plantation owner whose slaves escaped and later became Aucans (23).

Combining Several Languages in One Plant Name. Several hundreds of Afro-Surinamese plant names in our database are compound names, often representing combinations of lexical items from different languages. An example is the liana *Tournefortia ulei* (Boraginaceae), known as “alamankina” (Sranantongo) and used to mitigate the ill effects of breaking a food taboo. The name of this plant comes partly from the Dutch “alleman” (everybody) and partly from the Loango word “tshina” for food taboo (42, 55). The name “djendjenkumaka” (Saramaccan) for *Ceiba pentandra* is likely to be built up from the Baule word “egniè” or “egnien,” used in Sierra Leone for the same tree, and the Arawak Indian word “kumaka” for this species. We also found the fusion of different African languages in a single plant name, such as “katukalikwè” (Saramaccan) for *Ficus nymphaeifolia*, which seems to be a combination of “katu,” a name in several Gabonese languages for *Ficus thonningii*, and “alingue” (Abure), a term used in Ivory Coast for *Ficus exasperata*. The Paramaccan Maroon name “gunbuba weko” (literally *Inga* with green bark) for *Inga leiocalycina* is built up from cognates from three continents: “gun,” derived from the Dutch word “groen”; “buba,” the Baule (Ivory Coast) term for “bark”; and the general Carib Indian name “waikje” for the strictly neotropical genus *Inga*.

More African Links in Maroon Plant Names. Although many Afro-Surinamese plant names with an African origin refer to Old World species, genera, and families, we also encountered quite a few neotropical plants without African representatives that still

carry names derived from African words. Some very diverse plant families in the Guianas, like Lecythidaceae and Lauraceae, hardly have any African representatives. Still, many of their vernacular names (or elements within compound names) sound “African” but could not be traced to any Old World genus or family. Because the significance of these names is still unknown, it is difficult to link them to unrelated African taxa and consider them substitutes for those plants. Because of the many neotropical genera and families with African names, we must reject our hypothesis that Afro-Surinamese plant names that contain African-derived words refer largely to Old World species and genera. We also expected more African plant names among Maroon vernaculars than among Sranantongo ones, as a result of the isolated situation of the Maroons in the forested interior. Of the 1,123 unique Maroon names, some 485 (43%) could be linked to an African plant name or lexical item, whereas 20% of the Sranantongo names had African roots. Because the proportion of African-derived words in Maroon vernaculars was significantly higher ($\chi^2 = 123,503$, $df = 1$, $P < 0.01$) than in Sranantongo names, we accept our hypothesis. The proportion of European lexical items in the Sranantongo names (76%) was also significantly higher than in the Maroon names (55%; $\chi^2 = 102,777$, $df = 1$, $P < 0.01$). The influence of Amerindian languages was more prominent among Sranantongo plant names (21%) than among Maroon vernaculars (13%; $\chi^2 = 20,207$, $df = 1$, $P < 0.01$).

Discussion

Our comparison of Afro-Surinamese vernaculars with West and Central African plant names has not only revealed evidence for the recognition of familiar plants by Africans in the New World but also exposed how people classified a new flora by inventing new names from various linguistic sources. Although the two continents may share only a few hundred plant species, they share almost 70% of their families (31). Our results show that enslaved Africans have detected many African plant families in Suriname, even inconspicuous ones like Olacaceae. The fact that some species (e.g., *Parkia pendula*, *E. prostrata*) have four or more names derived from European, Amerindian, and several African languages proves that the recognition, and subsequent naming of plants, has occurred on several occasions by people adhering to different knowledge systems.

The Surinamese plant names that could be linked to (related) African species also shed light on the geographical origin of the slaves. Of the 673 plant names with an (partial) African origin listed in [Dataset S1](#), 43% suggest an origin from Gabon, Congo, and Angola; 24% from Benin; 24% from Ghana; 14% from Ivory Coast, Liberia, and Sierra Leone; and 9% from Nigeria and Cameroon. These percentages confirm linguistic findings that Central African languages have made the greatest mark on Surinamese Creole languages, followed by those languages from the Slave Coast and Gold Coast, whereas the influence of the Windward Coast and Nigerian Yoruba has been much smaller (17, 19, 24). Only one of the 19 ritual names (an Apuku name for tobacco; [Table S1](#)) could be linked to an African plant name for the same species. This lack of correspondence supports the recent theory that Afro-Surinamese spirit languages are not relicts of specific African languages but constructions that draw from diverse African languages, modern and archaic Surinamese Creole, and linguistic creativity and innovations (24).

Our finding that Maroon plant names have more than twice as many links to the Old World than Sranantongo ones does not necessarily mean that Maroon culture is more African. The majority of the fugitive slaves who later became known as Saramaccans were African-born and fled from the plantations before 1715 (26, 56). There is no doubt that European influence was more prominent in the plantation society; however, until the 19th century, the coastal areas were also exposed to a steady influx of new Africans (16, 19, 24). It is likely that to survive in

the floristically diverse rainforest, Maroons had to dig deeper into their African ethnobotanical knowledge to classify their natural surroundings than those Africans who stayed in the human-altered landscape of the coastal plantations. Because Maroons did not have to spend their days under forced labor conditions like their enslaved counterparts on the plantations but could practice full-time hunting, gathering, and subsistence agriculture, their exposure to their natural surroundings was more frequent and intense, which could explain the higher proportion of African lexical items in their vernacular plant names. The many primary forest trees with African names in Suriname prove that this recognition process was by no means limited to the pantropical weeds and cultivated exotics that occur on both sides of the Atlantic.

Of the 167 plant names that we could not link to any language, 77% were Maroon and 23% were Sranantongo. We assume that a proportion of those names are African-derived as well, but the corresponding African plant names were lacking from the literature we consulted or simply escaped our eye because of different ways of spelling and lexical changes in the past 300 y. Some of these Afro-Surinamese names without clear links may also be derived from African or Amerindian plant names that have gone extinct or remained undocumented. The combination of several African languages within a single plant name can be seen as an example of inter-African syncretism, a process of great importance in the forging of the Creole language and culture in Suriname (19). Our study of Afro-Surinamese plant names contributes to the ongoing scientific debate on the contributions of Africans to the Americas by showing that many more elements of the various languages spoken by enslaved Africans have survived than previously thought, and that these elements are not limited to special ritual settings as suggested earlier (19, 57). The frequent occurrence of plant names that consist of combinations of African, Amerindian, and European words reflects the creolization process, in which ethnobotanical skills from diverse geographical and cultural sources have been merged into new Afro-Surinamese knowledge systems (19).

Despite our striking similarities in vernacular names across the Atlantic, we assume that a considerable amount of African knowledge has been lost in Suriname. Several common species on both continents (e.g., *Lycopodiella cernua*, *Laportea aestuans*, *Chrysobalanus icaco*, *Parinari excelsa*) have lost their African name in Suriname. *Paullinia pinnata*, a common liana in South America and West Africa, still had an African name in 1771. It was documented as an herbal treatment for leprosy (58) under the local name “tondin,” which is derived from the Ghanaian Twi name “toantin” for the same species. This name is not in use anymore in Suriname today. A similar erosion of traditional knowledge was also observed in Brazil: Of the ca. 25 Yoruba names for the ritual species *Abrus precatorius*, only one had remained in Brazil (35).

Exchange of Plant Knowledge with Amerindians. The fact that just 17% of the Afro-Surinamese plant names were partly or entirely based on Amerindian names does not necessarily mean that there was a limited exchange in ethnobotanical knowledge between the two groups. One of the few eyewitnesses of 18th-century ethnobotanical knowledge exchange, Daniel Rolander, described on January 10, 1756, how Surinamese slaves learned plant uses from local Indians: “The black slaves are the only ones that avidly follow the examples of the Indians in this land, and have done so in this instance well. They have greatly benefited from eating the capsules and mature seeds of *Amomum*. When the white residents saw that the consumption of this plant was beneficial to the Blacks and Indians, they finally thought it would be worthwhile to try it as well” (32). The *Amomum* capsules Rolander mentioned refer to the black berries of *Renealmia alpinia*, of which the bright orange arils are nowadays cooked with

rice as a condiment in the typical Surinamese dish “masusa aleisi” (Sranantongo). Although the Indians were using this plant first, their names for *R. alpinia*, “kuruati” in Arawak or “konosa” in Carib (59), did not survive in the Afro-Surinamese language. The plant is now known as “masusa,” a name derived from the word “ma-susa” (Kikongo) used in Angola for a species of the botanically related genus *Aframomum* (60). The small proportion of Amerindian lexical items in Afro-Surinamese plant names could further be explained by the fact that Amerindian languages tend to be recipients, rather than sources, of linguistic material in their contacts with other languages (24).

The fact that Amerindian influence was higher among Sranantongo plant names than among Maroon vernaculars could be explained by the fact that in the 18th and 19th centuries in Suriname, Amerindians were free to move along the coastal plantations and interact with their inhabitants (13, 32, 61). Their relation with the Maroons, however, varied from “reluctant neighbors” who were willing to engage in occasional trade (25) to distrust and hostility (23). The proportion of the Amerindian-derived lexicon in general Saramaccan language was estimated to be less than 10% (21).

Future Research. Although the ethnobotany of some African ethnic groups, such as the Yoruba (62), has been studied extensively, for many other West and Central African languages, comprehensive dictionaries are lacking and vernacular plant names and their meanings have gone undocumented. More studies on traditional plant classification among African ethnic groups are needed to compare knowledge transfer better within the continent and across the Atlantic. Such research should combine linguistic and ethnobotanical disciplines, because documented vernacular names have little scientific value if not linked to properly identified botanical specimens. Validating vernacular names with botanical specimens is particularly relevant for West Africa and the Congo Basin, areas of particular high biological and linguistic diversity (45). The present comparison of Surinamese and African plant names should be seen as a pilot study, done from an ethnobotanical perspective. Further linguistic and ethnobotanical studies on our vernacular name database could refine patterns of transatlantic knowledge transfer, analyze how plant names have evolved over the centuries (63, 64), and determine whether particular morphological features or culturally important uses are associated with retention of vernaculars over space and time (33, 34).

Afro-Surinamese plant names in the available publications are generally limited to the genus or species level. Very few vernacular names have been documented for Old World crop cultivars (below the species level). There is evidence that Maroons grow a variety of Old World crop landraces (e.g., sesame, African rice, okra, bananas, gourds, yams), with each having a specific local name (65, 66). Comparing the names of these Old World landraces might yield many more ethnobotanical links with Africa, whereas local names for typical Amerindian crop cultivars (e.g., cassava, tobacco) may reveal more details on the exchange of agricultural information with indigenous groups. Studying the diversification of plant names for domesticated or other culturally salient plants would clarify whether Afro-Surinamese folk taxonomy is a result of the usefulness of species or a result of their morphological distinctiveness, or whether both aspects play a role.

The process of recognition, renaming, and replacement of useful plants has taken place in every country where displaced Africans were put to work. The outcome of this process depended on the country’s societal circumstances, its flora, the provenance of the African slaves, and the European and Amerindian cultures with which they interfered and exchanged knowledge (67, 68). The typical manifestations of African heritage in Surinamese plant names described in our paper appear to be

present in other former plantation societies as well. In Guyana and Trinidad, plant names like “Congo cane” (*Costus* spp.), “Congo pump” (*Cecropia* spp.), and “Congo lala” (*E. prostrata*) suggest that enslaved Africans recognized these taxa from Africa (59, 69). Further documentation, comparison, and translation of vernacular plant names on both sides of the Atlantic will reveal many more examples of plant recognition by Africans in the New World. Given the global decline in languages, cultures, and ethnobotanical knowledge worldwide (45), more attention to the origin of local plant names can be a useful instrument in cultural awareness programs to promote biocultural heritage.

Materials and Methods

In 2003, a list of some 8,000 Surinamese plant names was published, based on labels of over 10,000 voucher specimens from Suriname, collected mainly in the 19th and 20th centuries and present in the National Herbarium of the Netherlands, complemented with botanical field notes from the 1960s (70). From the digital files of this list, we extracted all Sranantongo and Maroon names and constructed the Natrapland database, supplemented by additional Afro-Surinamese names collected during recent ethnobotanical fieldwork (27, 28, 65), an anthropological study (21), and botanical expeditions to Maroon territories (71). The Afro-Surinamese plant names in the Natrapland database were then compared with local names in Amerindian and European languages from the same region (37, 70, 72) and African names for botanically related taxa (on family, genus, and species levels) documented from the principal geographical sources of Surinamese slaves, by using Burkill’s compendium on useful plants of West Tropical Africa (73); literature from the Prelude Medicinal Plants Database (74); a revision on sesame use (75); and literature from Benin (76, 77), Ghana (78), Nigeria (62), Cameroon (79), Gabon (80, 81), Congo (82, 83), and Angola (60, 84). Our comparison also included African plant names documented during recent fieldwork by the authors in Ghana (47), Benin, and Gabon (85–88). We excluded African languages that were not widely represented in the transatlantic slave trade, such as Sahelian and Pygmy languages. The entire Natrapland database is published as [Dataset S1](#).

Our comparison was based on phonological, morphosyntactic, and semantic similarities between Afro-Surinamese plant names and plant names for botanically related taxa (or lexical items) in relevant Amerindian, European, or African languages. The identification of putative cognate words for plants among different languages to provide evidence for their common ancestry has been used extensively in studies of folk taxonomy (33, 34, 63, 64).

Our methods were similar, although they differed in the fact that we did not compare plant names within the same language family but, rather, compared plant names in Surinamese Creole that evolved from the merging of several related (English and Dutch) and unrelated (Amerindian, Portuguese, and African) languages.

A strong correspondence in sound, structure, and semantics (referring to a botanically related taxon) between Afro-Surinamese vernaculars and their equivalents in other languages was considered as evidence for a shared origin, and thus for the recognition of plant species, genera, or families by Africans in the New World. For example, the African weed *Heliotropium indicum* is known among Saramaccan Maroons as “koko dën” and in Ghana as “kokodene” (Ga language). “Babadua,” an Aucan Maroon term for several Surinamese species of *Ischnosiphon* (Marantaceae) can be linked to the Ashanti name “babadua” for several Ghanaian Marantaceae species that do not occur in the New World. Corresponding names across the Atlantic for plants from different families were not considered as similar but regarded as coincidence.

For plant names retrieved from herbarium samples (the bulk of our data) and the scholarly literature, we used the same spelling as the original sources. Names recorded during fieldwork by the authors in Suriname were documented following the spelling conventions established by online dictionaries for the Aucan and Saramaccan languages (37) and the official Sranantongo dictionary (20). However, no spelling standardizations exist for the great majority of Afro-Surinamese and African plant names. Plant names in our database were documented by botanists for nonlinguistic purposes, and therefore should not be considered as standardized phonemized orthographies. Still, such names are highly appropriate for investigating similarities in plant names among different languages (64). Scientific and author names were validated by the Plant List (www.theplantlist.org). To examine whether the proportion of African, Amerindian, or European lexical items differed between Sranantongo and Maroon names, we used a χ^2 test. Differences were considered significant when *P* values were smaller than 0.05. Statistical analyses were conducted using IBM SPSS Statistics, version 19.0.

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