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Saamaka uwii: Saramaccan medical plant knowledge, practices and beliefs for local health care in Suriname

Klooster, C.I.E.A. van 't

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Chapter 5

African elements in Saramaccan Maroon plant names in Suriname

Charlotte I.E.A. van 't Klooster¹, Vinije Haabo², Margot Van den Berg³,
Piet Stoffelen⁴, Tinde R. van Andel^{5,6}

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'Language is an archaeological vehicle, full of the remnants of dead and living pasts, lost and buried civilizations and technologies. The language we speak is a whole palimpsest of human effort and history' (Russell Hoban, 1985)

¹ Department of Public Health and Primary Care, Leiden University Medical Center, Leiden, the Netherlands

² Saramaka Project, Wageningen, the Netherlands

³ Humanities. Department of Languages, Literature and Communication. Utrecht University, Utrecht, the Netherlands

⁴ Meise Botanic Garden, Meise, Belgium

⁵ Department of Plant sciences, Wageningen University and Research, Wageningen, the Netherlands

⁶ Naturalis Biodiversity Center, Leiden, the Netherlands

ABSTRACT

The ancestors of the Saramaccan Maroons, who were brought as enslaved Africans to Suriname, used their ethnobotanical knowledge and native languages to name the flora in their new environment. Little is known about the influence of African languages on Saramaccan plant naming. We hypothesized that Saramaccan plant names were more influenced by Central African languages than found so far based on ethnobotanical research, because data on the Central African region was scarce. We compiled a new database on Saramaccan plant names and compared these names with an unpublished plant name database from the Democratic Republic of the Congo and the earlier published NATRAPLAND database on Afro-Surinamese plant names to find comparable plant names for botanically related species in Africa. We further analyzed form, meaning, function and categories of Saramaccan plant name components by means of dictionaries and grammars. In total, 39% of the Saramaccan plant names had an African origin, of which 44% were African retentions, 54% were innovations and 2% were misidentifications with botanical links to Africa via other plant species. Most retentions were of Central African origin (62%). The Bantu language that contributed most to Saramaccan plant names was Kikongo, followed by West African Kwa languages. Plant names reveal important information on the African origin of the Saramaccans, and deserve more scientific attention.

Keywords: Vernacular names, Local names, Creole languages, Transatlantic slave trade, DRC, Africa, Traditional knowledge, Ethnobotany.

INTRODUCTION

Plants play a vital role in traditional societies. Studying plant names, their structure and their meaning, is useful for documentation and plant classification purposes, but also for gaining a deeper understanding of the etymology of plant names (Berlin, 1973, 1992) and the source domains or categories they belong to, such as animals, people, morphology or habitat (Leyew, 2011; Turpin, 2013). Plant names can also provide information on where people historically came from, and with whom they had contact or exchanged knowledge (Van Andel et al., 2014; Alcantara Rodríguez, 2016). Gaining a better understanding of their origin and meaning can contribute to the survival of local systems of biological knowledge, particularly in societies that undergo rapid cultural changes (Martin, 2004). In this study, we focus on the origin, use and social meanings of plants and their names among the Saramaccan Maroons in Suriname.

Between 1658 and 1825, the Dutch were responsible for disembarking at least 295,000 Africans, who originally came from Senegambia, the Windward Coast (Sierra Leone, Liberia and Ivory Coast), the Gold Coast (Ghana), the Slave Coast (eastern Ghana to Benin), the Bight of Biafra (Nigeria and Cameroon), as well as Loango and Luanda (southern Gabon to northern Angola, now known as West Central Africa), to their plantation colony Suriname (Eltis and Richardson, 2010). Some enslaved Africans were captured several hundred miles inland, while others came from places much closer to the coast where the Dutch had their fortified strongholds (Eltis and Richardson, 2010). As people were taken from different coastal and interior areas, they belonged to numerous African ethnic and linguistic groups (Mintz and Price, 1992). At the plantations where they were set to work, new contact languages emerged as interethnic means of communication. They were relatively rudimentary and unstable in structure, and had a limited vocabulary in the beginning of the contact setting. These languages formed a mixture of African and European languages, showing retentions as well as innovations, out of which the Afro-Surinamese Creole languages were born over the course of time (Smith, 1987; Van den Berg, 2007). The enslaved people who escaped from the plantations settled themselves in the tropical rainforest and are nowadays known as Maroons (Fig. 1).

The six Maroon communities in Suriname (Saramaccan, Matawai, Ndyuka / Aucan, Aluku / Boni, Kwinti and Paramaccan) all have their own distinct cultures and languages (Price, 1973; Thoden Van Velzen and Van Wetering, 1988). With approximately 83,000 people, the Saramaccans are the largest Maroon community in Suriname and French Guiana (Price, 2013). Together with Sranantongo, spoken

by the descendants of enslaved Africans who remained in the coastal areas after the abolition of slavery in 1863, the Maroon languages are regarded as English-based Creole languages. Since Suriname was first colonized by the English in 1651, after which the Dutch took over in 1667, English had a major influence on the early development of the Surinam Creole languages (Smith, 1987). After Sephardic Jews arrived from northeast Brazil, Essequibo (Guyana) and Europe (Livorno, Amsterdam), these languages were also influenced by the Portuguese (Arends, 1999), particularly the Saramaccan and Matawai languages, as their forefathers escaped from plantations owned by Portuguese Jews (Price, 1983; Smith, 1987). During and after their self-liberation, the Saramaccans had also been in contact with Indigenous communities and incorporated words from mainly Carib and Arawak origin in their language (Price, 2010; Borges, 2015). As a result, Saramaccan plant names are often a combination of African, European and Indigenous words which reflect a creolization process that merged ethnobotanical skills from various geographical and cultural sources into a new Afro-Surinamese knowledge system (Mintz and Price, 1992; Van Andel et al., 2014).

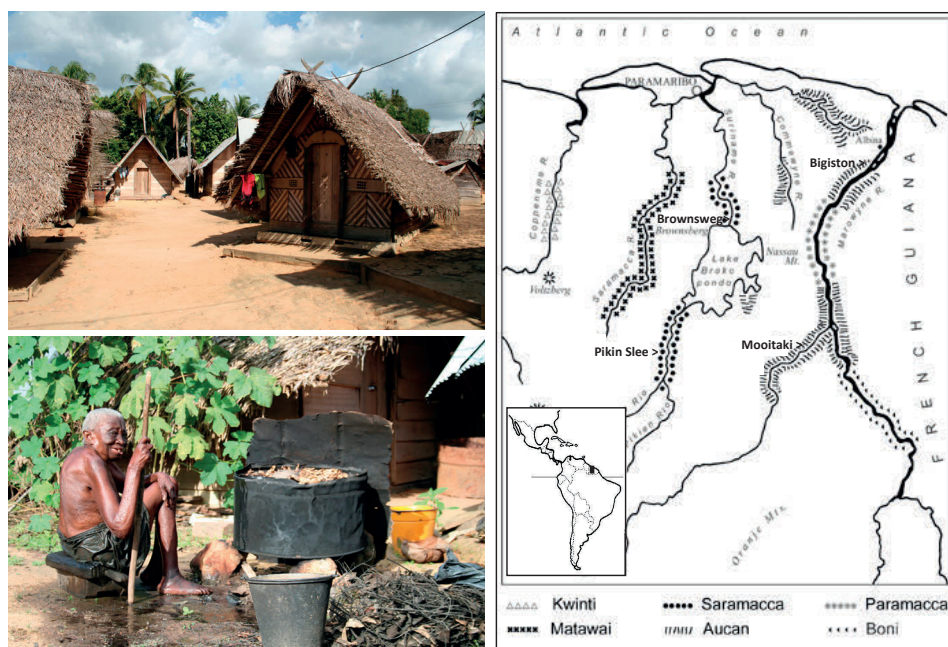


Figure 1 | Left: Saramaccan Maroon village Pikin See. Yeeye Haabo[†], Pikin Slee. Photographs made by C. Van 't Klooster (2009). Right: Map of Suriname and the Maroon communities living in the interior. Drawing by H.R. Rypkema, Naturalis Biodiversity Center.

The African origins of the Surinamese Creole languages have been a topic of linguistic study since the end of the 19th century. Of all Surinamese Creole languages, Saramaccan has the highest percentage (5%) of African words in the basic vocabulary (Smith, 1987, 1999). But if one turns to culture-specific words that are used in domains such as religion, food and health care, the percentage of words that can be traced back to Africa is probably higher, as discussed by Huttar (1985) for Ndyuka, by Bilby (2000) for Aluku, and by Price (1975b) for Saramaccan. Huttar (1985) found 98 Ndyuka words of African origin including 16 plant species. Kwa and Bantu languages predominated, but various West Atlantic, Mande and Gur languages also acted as sources. Smith (2015ab) who elaborated further on the works of Huttar for Ndyuka, and Daelemans (1972) for Saramaccan, showed that the lexicons of the Afro-Surinamese languages were strongly influenced by Central African Kikongo (Bantu language group) and West African Gbe languages such as Fon and Ewe (Kwa language group), and Akan languages to a lesser extent. In total, 185 words of Kikongo and 138 words of Gbe origin were found in the Afro-Surinamese languages, which included 18 Saramaccan plant names based on Kikongo and six on Gbe (Smith, 2015cd). However, the Saramaccan plant names mentioned in the publications by linguists lacked botanical vouchers, which makes it difficult to link them to scientific plant names.

Van Andel et al. (2014), who traced the origin of Afro-Surinamese plant names linked to herbarium specimens, confirmed the significant role of Africans as agents in the spread of plant-related knowledge in Suriname and calculated that 43% of the 673 plant names with an African origin could be linked to languages from Gabon, Congo and Angola, which confirms that Central African languages had a major influence on Surinamese Creole languages. However, the linguistic and geographical origin of 167 Afro-Surinamese plant names (of which 84 are Saramaccan) compiled by Van Andel et al. (2014) still remained unsolved.

Recently, a database was made available with Central African vernacular plant names by the Meise Botanic Garden (MBG) in Belgium, with more than 55,000 vernacular plant name records in several dozen local languages, with corresponding botanical vouchers collected during the colonial period in the area nowadays known as the Democratic Republic of the Congo (DRC). Since literature on vernacular plant names of the DRC is scarce, this database offered a new opportunity to trace previously unknown botanical links between Saramaccan and Central African plant names.

Saramaccan plant species, their uses and their names reflect adaptive ethnobotanical knowledge systems that display both retention of traditional African knowledge and

innovation. Our general aim is to fill the knowledge gap on the geographic origin of Saramaccan plant names and the traditional knowledge stored within these names. We have three research questions: (1) What proportion of Saramaccan plant names have an African origin? (2) What is the contribution of Central African languages to Saramaccan plant names? (3) Which manifestations of African heritage (e.g. references to animals, illnesses, plant characteristics, places) are found in Saramaccan plant naming? As 14,647 enslaved Africans from Central Africa were brought to Suriname from 1665 till 1719 (Smith, 2015a), we hypothesize that several of the Saramaccan plant names with unknown origins are linked to botanical species in the DRC. Furthermore, we expect that the Saramaccans, with their oral culture, store all sorts of information in their vernacular plant names to help members of their society remember their traditional plant-related knowledge. The outcomes of this study will contribute to the preservation of Saramaccan heritage by revealing the cultural, historical and environmental knowledge hidden in their plant names and the African contribution to the formation of their language, and add to the discussions on the cultural agency of enslaved Africans in the New World.

METHODS

Data collection

Data on 678 Saramaccan plant names were extracted from the NATRAPLAND database published by Van Andel et al. (2014), based on Van 't Klooster et al. (2003). We also included Sranantongo plant names from NATRAPLAND used by Saramaccans, unpublished names of rice varieties documented by Sally Price from the 1960s onwards, some names of rice varieties from Baumgart et al. (1998), and Saramaccan plant names from ethnobotanical studies conducted among Saramaccans in Suriname (Van 't Klooster et al., 2016, 2018, 2019; Ruyschaert, 2018) and French Guiana (Sauvain et al., 1988). After merging records with identical plant names for botanically related species, this resulted in a final database with 978 Saramaccan plant names.

Data analysis

For each Saramaccan plant name record, we provided the corresponding scientific name and family, the great majority based on voucher specimens present in the herbarium of Naturalis Biodiversity Center (L). All vernacular names were checked for their latest spelling following the regulations of Saramaccan native, ethnolinguist and second author V. Haabo, who is working on a new Saramaccan–Dutch dictionary and collaborated on a new orthography for Saramaccan (Price and Price, 2015). A column with the original Saramaccan name as found in literature

or specimen labels was kept for reference purposes. Since Saramaccan classification provides valuable insights as to how they conceptualize their environment, the complete plant names were kept in our database, whether they consisted of simplex words, compounds, or phrases. To investigate the cultural meaning embedded in the plant names, we analysed the name components in terms of form and meaning and traced them back to their source languages, whether African, European or Indigenous. We also consulted the online dictionaries on Languages of Suriname of the Summer Institute of Linguistics (SIL, 2003), based on the work of linguists Naomi Glock and Catherine Roundtree in the 1970s.

Saramaccan plant names were compared with names in European and Indigenous languages in published literature, etymological libraries and databases (Fanshawe, 1949; Smith, 1987; Van 't Klooster et al., 2003; Smith and Cardoso, 2004; Courtz, 2008; Van der Sijs, 2010; Van Donselaar, 2013; Van Andel et al., 2014; Harper, 2020). For the African plant names, we used the JSTOR Global Plants database (2020), the compendium on useful plants of West Tropical Africa (Burkill, 1985-2010), encyclopedias on local and scientific plant names (e.g. Quattrocchi, 2002, 2012), the MBG database on plant species collected in the DRC, previous work on this database by Fundiko et al. (2015), and ethnobotanical literature for the DRC (e.g., Latham and Konda ku Mbuta, 2017) and Angola (Lautenschläger et al., 2018). We furthermore analysed dictionaries on relevant Central and West African languages, such as Kikongo (Bentley, 1895) and Fon (Segurola and Rassinoux, 2000), and linguistic and historical studies for these areas (Vansina, 1960, 1978; Mobley, 2015; Smith, 2015cd) to provide possible meaning and supporting evidence to the origin of the plant names. We marked those Saramaccan plant names that showed morphosyntactic, phonological, or semantic similarities with African vernacular plant names for botanically related taxa. Additional information was added regarding the country of origin and language of the African vernacular plant name and references (vouchers labels, literature). We solely added translations of plant name components found in (African) dictionaries when their form and meaning showed resemblance with a plant use or characteristic. All current scientific plant names were checked with the Plants of the World Online database (2020).

Surinamese plant species carrying a plant name of African origin provided evidence of the association with either botanically related African plant species or African plants with similar morphological features or uses. When it was unclear how the lexical item entered into the Saramaccan language, or when linguistic information provided extra information on the meaning of a plant name, we listed both the botanical and the morphological or semantic proof. We checked the existing botanical links between Saramaccan and African plant names again and added etymological meaning

to our database, a more likely geographic origin, or better botanical or linguistic proof. Percentages were calculated for the geographical and language origin of the Saramaccan plant names for which we found botanical proof in Africa.

We further analyzed general trends in Saramaccan plant naming (e.g., references to animals, plant morphology) for the African-based vernaculars to analyse how Saramaccan plant names were formed over time, following general theories on folk taxonomy (Berlin, 1973, 1992; Martin, 2004). We used the term ‘mixed origin’ or ‘hybrid compound’ for plant names with a combined African-European, African-Indigenous, European-Indigenous, Indigenous-Asian or African-European-Indigenous origin. To verify which languages and geographical regions in Africa had the largest influence on the formation of Saramaccan plant names, we used historical sources on the origin of the enslaved Africans in Suriname (Eltis and Richardson, 2010) and compared these with the region of origin of the African plant names and lexical items embedded in Saramaccan plant names, as done by Alcantara Rodríguez (2016) for Papiamentu plant species on Curaçao.

The African continent is believed to host one third of the languages spoken worldwide (Vossen and Dimmendaal, 2020). These languages are generally classified into four language phyla known as Niger-Congo, Afro-Asiatic, Nilo-Saharan, and Khoisan, which can be subdivided further into respective families and subgroups which were used to trace the African languages that influenced Saramaccan plant names. To avoid multiple references made by the same or different authors for the same African language, and to use the modern spelling of these languages, we used the Ethnologue database (Eberhard et al., 2020). We followed the language group classifications of the Glottolog database (Hammarström et al., 2020). We did not intent to conduct a thorough linguistic semantic study on plant names, nor do we pretend to be complete in our list of Saramaccan plant names, so our study has an explorative nature.

RESULTS

Origin of Saramaccan plant names

Our final database contains all 978 Saramaccan plant names known so far in literature, and their possible African, European, Asian or Indigenous elements. A complete list with data on each Saramaccan plant name (e.g. scientific name and family, relevance Suriname, it's botanical relative in Africa, local African name and relevance in Africa) is available as supplementary table to this article (Supplementary table S1). Out of the 978 vernacular plant names, 639 (65%) contained European elements, 382 (39%) had African elements, 190 (19%) had Indigenous elements

and 4 (< 1%) had elements of Asian origin. For the remaining 49 Saramaccan plant names (5%), the source of origin remained unknown. Further analysis revealed that 646 (66%) of the plant names contained elements of one single origin, while for 283 (29%) contained elements of ‘mixed’ origin, a combination of African, European, Asian and/or Indigenous elements, so the total percentage of recorded elements is higher than 100%. The 283 hybrid plant names consisted mostly of African and European languages (n=180, 64%), although 23 combinations of African and Indigenous languages were present (8%). In some rare cases, such as ‘bandya-wata aluwau’ (*Protium heptaphyllum* (Aubl.) Marchand), a fusion of African, European and Indigenous elements was found. Here, ‘bandya’ meaning riverside, is derived from ‘m-baansya’, a Kikongo term meaning side (Smith, 2015c), while ‘wata’ (water) is derived from English or Dutch (Smith, 1987). The lexical item ‘aluwau’ is borrowed from the Carib word ‘arouaou’ which is used for the same plant species (DeFilipps et al., 2004). The tree *P. heptaphyllum* grows on higher river banks, explaining the name ‘riverside aluwau’ (Van Roosmalen, 1985; Fern, 2020). In 78 (28%) of the cases, the hybrid compound names were based on European and Indigenous elements. One name was based on Asian and Indigenous elements. These hybrid compound names reflect the process of creolization and the innovative way of creating new plant names, while at the same time maintaining links with the motherland Africa.

The 382 Saramaccan plant names for which we found a possible African origin were divided into two main categories: names created by retention (based on botanically related species) and names created by innovation (referring otherwise to Africa) of which examples are presented in Table 1. While 168 vernacular plant names (44%) were based on African retentions, 206 Saramaccan plant names were based on innovation (54%), and eight (2%) were so called ‘misidentifications’, plant names given to species that resemble other species with a botanical link to Africa. For example, the ferns *Lindsaea* sp. and *Adiantum fuliginosum* Fée are known as ‘biibiiuwii’ by the Saramaccan. They were ‘misidentified’ for *Triplophyllum funestum* (Kunze) Holttum (also known as ‘biibiiuwii’) in Suriname, which can be linked to the name ‘bilelele’ (Tembo) in the DRC for *Triplophyllum pentagonum* (Bonap.) Holttum. For 81 retentions, we found additional linguistic proof for lexemes in African dictionaries and literature, further strengthening their African origin. The retentions suggest that the Saramaccan ancestors associated the plants in their new surroundings in Suriname with the flora of their African homeland and used partly or completely the same or similar African plant vernaculars to name them. The plant species for which we found botanical proof in Africa belonged to 49 different plant families, mostly Fabaceae followed by Poaceae, Moraceae, Piperaceae and Malvaceae.

Table 1 | Examples of Saramaccan plant names that strongly resemble African names for botanically related taxa (retentions).

| Sa plant name (original) | Species Suriname (Family) | Significance Suriname (Caribbean/South-America) | Significance Africa | African plant name (language), Country | African species (family) (retentions) | Reference with species |
|------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------------------------------------|------------------------|
| abenbele (abenbèle) | <i>Pouteria</i> spp. (Sapotaceae) | The red mbele. <i>Pouteria</i> have red fruits. | vè (Fon) = red (Smith, 2015d) | mbele (Mba), DRC | <i>Gambeya africana</i> (A.DC.) Pierre (Sapotaceae) | MBG database |
| boniboni uwii (boni boni udu) | <i>Maprounea guianensis</i> Aubl. (Euphorbiaceae) | Uwii (Sa)= weed (En) (Smith, 1987) | | mbunji (Kiyaka), DRC | <i>Maprounea africana</i> Müll.Arg. (Euphorbiaceae) | MBG database |
| kisangula (kisangula, kisangolola) | <i>Maprounea guianensis</i> Aubl. (Euphorbiaceae) | | ngola (Lingala) = red (Divuili, 2005). | kinsangula (Kikongo), DRC | <i>Maprounea africana</i> Müll.Arg. (Euphorbiaceae) | Arkinstall (1979) |
| komatisangu (komanti sangu) | <i>Senna occidentalis</i> (Fabaceae) | Koromantse = Ghanaian fort Coromantine. | Koromantse = village in Ghana where the Dutch slavefort Coromantine was located. The 'Koromantijners', as the enslaved Africans from Koromantse were referred to in colonial times, were known to be strong and profound in (black) magic and herbal healing (Van Andel and Ruysschaert, 2011) | insangi (Kikongo), DRC | <i>Senna occidentalis</i> (L.) Link (Fabaceae) | MBG database |
| lotauwii (lotawi) | <i>Erigeron bonariensis</i> L. (Asteraceae) | Lota (Sa) = skin infection pityriasis versicolor with flaky discoloured patches, vitiligo. Infection with spots on skin (Smith 2015c). Uwii (Sa) = weed (En) (Smith, 1987). | lota (Yoruba) = skin disease, squamous skin disease (Smith 2015c). <i>Solanecio cydoniifolius</i> is used against sores (Burkill, 1985–2010). | mulota (Lega-Mwenga), DRC | <i>Solanecio cydoniifolius</i> (O. Hoffm) C. Jeffrey (Asteraceae) | MBG database |
| malembe tolo (malëmbé tòkò) | <i>Piper</i> spp. (Piperaceae) | <i>Piper</i> spp. are used in herbal bathing to 'calm' down spirits (Van Andel and Ruysschaert, 2011). | toloko (Kikongo) = man (Bentley, 1895), malembelembe (Kikongo) = going on well, comfortably (Bentley, 1895). [lembe (Lingala)=soft, relax (Fundiko et al., 2015)] | lembe nkoko (Kikongo), DRC | <i>Piper umbellatum</i> L. (Piperaceae) | MBG database |
| manbaai (manbaai) | <i>Strychnos cf. medecola</i> Sagot ex Progel (Loganiaceae) | | | magboy (Zande), DRC | <i>Strychnos spinosa</i> Lam. (Loganiaceae) | MBG database |
| mayaya (majaja) | <i>Oryza sativa</i> L. (Poaceae) | Type of rice (white husks and grain). Mayaya (Sa)= type of grass. | | ma-dyaadya (Kikongo), DRC | Several species of Poaceae | Smith (2015c) |

Tabel 1 | Examples

| Sa plant name (original) | Species Suriname (Family) | Significance Suriname (Caribbean/South-America) | Significance Africa | African plant name (language), Country | African species (family) (retentions) | Reference with species |
|---------------------------------------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------|------------------------------------------------------|
| mazikazika (masikásika, masigasi ga mutene) | <i>Eleusine indica</i> (L.) Gaertn. (Poaceae) | | ki-zika-zika (Kikongo) = a grass (Daeleman, 1972) | masikasika/zikazika (Kikongo), DRC | <i>Eleusine indica</i> (L.) Gaertn. (Poaceae) | MBG database |
| | <i>Eugenia</i> sp. (Myrtaceae) | Most <i>Eugenia</i> spp. have flaky barks. The Surinamese species <i>Eugenia uniflora</i> has a peeling bark (Gilman, 2014). | motende (Lingala) = carving (Divuulu, 2005). | tendende (Luba-Kasa), DRC | <i>Eugenia malangensis</i> (O. Hoffm.) Nied (Myrtaceae) | MBG database |
| tunbalobi (tunbalobi) | <i>Cordia</i> spp. (Boraginaceae) | Lóbi (Sa) = love (En) (Smith, 1987). <i>Cordia bahamensis</i> (West Indies, granny bush) is used as a love potion (Quattrocchi, 2012). | bu-ntumba (Kikongo) = belle femme, beautiful woman, ntumba (Kikongo) = jeune demoiselle (Smith, 2015c). | kitumba (Talinga), DRC | 1. <i>Cordia africana</i> Lam. (Boraginaceae) | Quattrocchi (2012) |
| wandya (waja, wanjá, wandja) | <i>Sesamum indicum</i> L. (Pedaliaceae) | According to Maregrave and Piso sesame (<i>Sesamum indicum</i>) was referred to as 'ganga' by the Congo people and got introduced from Africa to Brazil by the Portuguese colonizers (Maregrave and Piso, 1648; Alcantara Rodríguez et al., 2019). Sesame might have been introduced to Suriname via the Portuguese Jews or during the African slave trade from Africa to Suriname. | | 1. wangila wu Matebo (Kikongo), 2. wangila (Kikongo), DRC | <i>Sesamum indicum</i> L. (Pedaliaceae) | 1. MBG database, 2. Latham and Konda ku Mbuta (2017) |
| wangi (wangi, wandji) | <i>Bagassa guianensis</i> Aubl. (Moraceae) | Lukwandyi, lukwangi, ukpangi (Sa, 1778) = twigs of fallen tree, branch without leaves; bushes (Smith, 2015c). | vwángi (Kikongo) = thicket, brushwood (Smith, 2015c) and erwangi (Kikongo) = jungle of brushwood. | mbangi (Zande), DRC | <i>Milicia exelta</i> (Welw.) C.C. Berg (Moraceae) | MBG database |

* Abbreviations: Sa= Saramaccan, En = English, MBG= Meise Botanic Garden

Geographical and linguistic origin of African-derived plant names

The Saramaccan plant names we linked to botanically related species in Africa (retentions) provide us with information on where the enslaved Africans came from. Out of 168 Saramaccan plant names with an (partial) African origin, 104 (62%) suggest a Central African origin (Gabon, Congo, the DRC and Angola), while 22 (13%) came from Benin, 19 (11%) from Ghana, 20 (12%) from Ivory Coast, Liberia and/or Sierra Leone, 10 (6%) from Nigeria, 5 (3%) from Senegal, 1 (1%) from Togo and 1 (1%) from Guinea. As some names were combinations of words from several African languages, the total percentage is larger than 100%.

Out of the 168 retentions, 154 (92%) were based on languages belonging to the Niger-Congo phylum. Only three (2%) were part of the Afro-Asiatic phylum and 1 (less than 1%) belonged to the Nilo-Saharan phylum, while for the remaining 11 names (6%) we were unable to trace the language origin due to a lack of information, such as an unclassified language in the MBG database. Within the Niger-Congo phylum (Fig. 2A), most of the Saramaccan plant name retentions belonged to the Atlantic language subfamily, which is the largest language group within that phylum, spoken by people in the coastal areas of Western Africa. The remaining languages belonged to Mande (e.g., Bambara, Mende and Mandinka). In some cases, two possible retentions were found (belonging to different language families).

A closer look at the Atlantic language group (Niger Congo phylum) shows that the Volta Congo sub-language group (Fig. 2B) scored the highest, of which the Benue-Congo languages (incl. Bantu) (Fig. 2C) were best represented, followed by Kwa languages (incl. the Gbe languages Fon and Ewe), and some languages belonging to the North Volta Congo such as Daagare, a Gur language spoken in Ghana. Within the Benue-Congo languages (Fig. 2D), the majority of the retentions were Bantoid which can be divided into Northern Bantoid and Southern Bantoid languages. Only one vernacular (1%) belonged to the Northern Bantoid group of languages, while the rest were Southern Bantoid languages (99%) to which the (Narrow) Bantu languages belong that are spoken in sub-Saharan Africa. We found that most retentions within the Narrow Bantu group belonged to the Central Western Bantu languages (Fig. 2E) and were mainly Kikongoic (Fig. 2F) to which Kikongo, spoken from north-western Angola to western DRC, southern Gabon and the western part of the Republic of the Congo, belongs.

From the 168 scored retentions, 81 (48%) were Bantu and 47 (28%) were Kikongoic. Kikongo (n=37, 22%) was the most prominent African language of all the Saramaccan retentions, although other languages were also recorded for this region such as Tembo, Lombo, Lingala, Luba-Katanga, Luba-Kasai and Zande.

The 60 botanical links with Saramaccan plant names found in the MBG database, represented 21 languages (e.g. Vili, Zande, Luba-Kasai) out of the more than 200 languages that are nowadays spoken in the DRC (Muturzikiña, 2011; Makomo, 2012).

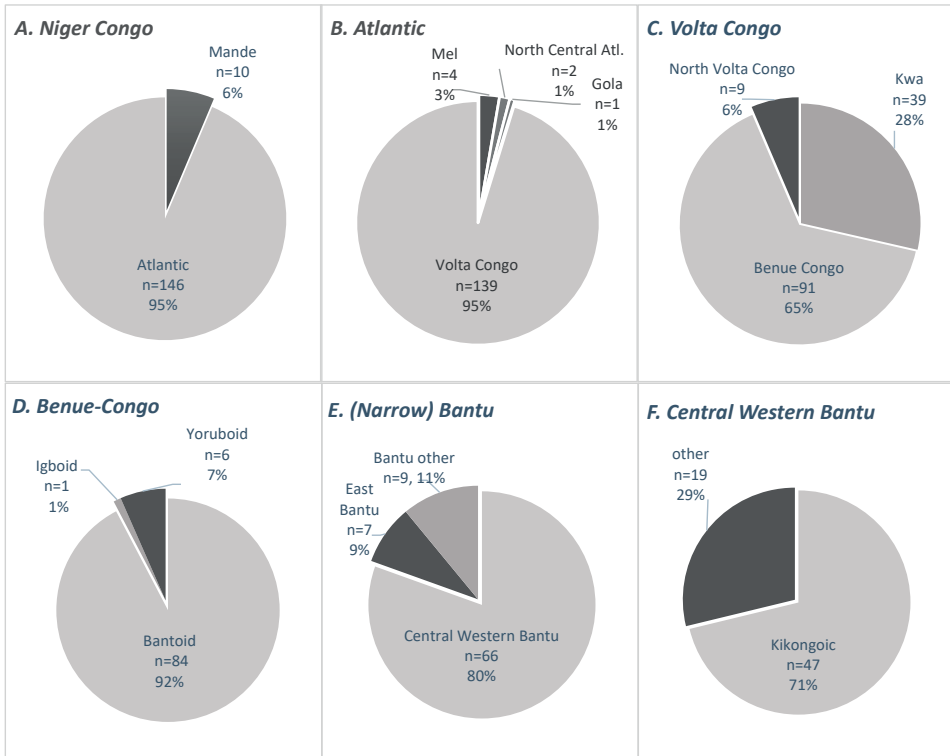


Figure 2 | A-F. Language families and subfamilies belonging to the Niger Congo phylum contributing to Saramaccan retentions in percentages (%).

African heritage in Saramaccan plant names

References to animals

Saramaccan plant names refer to animals to express an ecological relationship between the plant and animal, or when there is a morphological association (plant looks like a part of the animal) (Table S1). Morphological associations with 14 animal species were made. Porcupines appeared most regularly: in ‘makayasubi’ (*Chrysobalanus icaco* L.), ‘makaya’ seems to be derived from the Hausa word ‘makaya’ for porcupine (Robinson, 1914), while ‘subi’ (to climb) stems from the Portuguese word ‘subir’ (Smith and Cardoso, 2004), referring to the spiny animal that climbs the small tree to eat its fruits (Plants for a future, 2020). Although the

Hausa word ‘makaya’ has lost its meaning in Saramaccan as a separate word for a spiny creature, the name ‘maka mbeti’ (spiny animal), is still in use for the Brazilian porcupine (*Coendou prehensilis*) (SIL, 2003). ‘Maka’ was also used for other spiny or rough things like fishbones or the coarse ‘Osnabrugs linen’ fabric (Blom, 1786). Nowadays, the lexeme ‘maka’ is used in all Afro-Surinamese languages as a suffix for plants with thorns or spines. For example, spiny lianas of the genus *Smilax* are known as ‘agbagomaka’, in which ‘agbàkò’, means accident or misfortune in Yoruba (Church Missionary Society, 1913). Since *Smilax* thorns can be harmful, the Saramaccan name warns about the misfortune these lianas can bring. Other Saramaccan vernacular plant names for spiny lianas are ‘aka(l)amaka (tatai)’ for *Mimosa myriadenia* (Benth.) Benth. and *Senegalia tenuifolia* (L.) Britton & Rose, for which we found botanical links in Nigeria where spiny *Vachellia gerrardii* (Benth.) P.J.H. Hurter and *V. hockii* (De Wild.) Seigler & Ebinger are referred to as ‘bakarkayaa’, and the spiny *Parkinsonia aculeata* L. is known as ‘bagaauuwar makka’ in Hausa (Blench, 2007). We also found that the Saramaccan vernacular ‘akaya’, the Papiamentu ‘kaya kaya’ (in Curacao) and the Fon vernaculars ‘àkàyá’ and ‘àkàyá asu’ (Benin) are all used to name thorny *Cleome* species (De Souza, 2008; Alcantara Rodríguez, 2016). The Fon name stems from the Hausa word ‘makaya’ or ‘kaya’ meaning thorn (Robinson, 1914) as they have no meaning in Fon. The Matawai Maroon village ‘Makaya Pingo’, meaning spiny bush hog (*Tayassu pecari* (Link, 1795)) (ACT, 2015), further supports our finding that the African lexeme ‘mayaka’ found its way to Suriname.

Other African animals that feature in Saramaccan plant names are the antelope, ‘mboloko’ (Lingala) (Divuilu, 2005), used for *Piper guineense* in the DRC. Antelope is also used for *Piper* sp. in the Saramaccan vernacular ‘bookokindi’ (antelope’s knee), referring to the thick nodes on the stem. The Saramaccan name ‘pongo’ has no meaning in Saramaccan, but is given to *Cayaponia* lianas, of which the fruits are eaten by monkeys (Van Roosmalen, 1985). ‘Pongo’ is a Kikongoic word for monkey, spoken in the Mayombe hills and derived from ‘mpungu’ (Vili) or ‘yimpungu’ (Kikongo) (OED, 2020). The Twi word ‘nkra(n)’, referring to ants (Evangelische Missionsgesellschaft, 1909) appears in the Saramaccan plant name ‘kantasi’ (*Adiantum latifolium* Lam.) and ‘kantamasi’ (*Palicourea violacea* (Aubl.) A.Rich.). Both names relate to ‘akantasi’, a malevolent spirit that lives in termite nests (Van Andel and Ruyschaert, 2011). The lexeme ‘tasi’ comes from the English thatch (Smith, 1987), meaning to pile up leaves. In Saramaccan, the word ‘akantasi’ refers to a termite hill. The Ghanaian capital Accra is named after the ant-hills seen around the city (Akuamoa, 2011). Other African animals that figure in Saramaccan plant names were described earlier by Huttar (1985) and Van Andel et al. (2014) for Ndyuka plant names, like the monitor lizard (*Varanus* sp.) known as ‘mbaambi’

in Masangu, which lent its name to *Sabicea oblongifolia* (Miq.) Steyererm., called ‘bambitongo’ (lizard’s tongue), or ‘nzau’ (Ndyuka) which is derived from ‘nzawu’ (Kikongo) for elephant, a lexeme lent to various species in Suriname.

References to people and places

Vernacular plant names may also refer to African locations and ethnic groups. *Mansoa alliacea* (Lam.) A.H.Gentry is known as ‘agbonengetatai’, meaning ‘liana of the Agbo people’. The Saramaccan term ‘Agbo’ is also used for one of their clans and probably derived from ‘agbō’ (Fon), referring to Abomey, the capital of the former Kingdom of Dahomey (Benin), that was previously referred to as Agbóme (Smith, 2015d). A Saramaccan rice variety documented by Sally Price in 1967 as ‘akwiibi’, meaning small person, refers to the Kwinti Maroons. The Saramaccan used to call Kwinti ‘dee Akwiibinenge’ (the small people), as there were many people of short stature among the Kwinti. Akwiibi might stem from ‘Ekwubi’, a common family name in Yoruba used in Nigeria.

The Portuguese introduced bananas and plantains (*Musa* spp., native to Asia) from Africa to Brazil where they became known as ‘banana’ (term from Guinea) and ‘bacoba’ (from Angola) in the seventeenth century (Alcantara Rodríguez et al., 2019; Van Donselaar, 1989). The Bakuba may be the source for the vernacular name ‘bacoba’ (Portuguese) and ‘bakuba’ (Saramaccan) for sweet bananas that came into use in Northern Brazil and Suriname. Before 1525, the Portuguese came in contact with the Bushoong (an ethnic group that became the Bakuba after their migrations) in Mayombe (a transnational region in the (south)west coast of Gabon, west of Congo-Brazzaville, west of the DRC and Angola (Cabinda)), or on the banks of the River Congo (Vansina, 1960). Trade in New World crops (e.g., maize, cassava) took place with the Bakuba via the Kongo Kingdom, which resulted in the Bakuba shifting to maize instead of cultivating bananas around their houses (Vansina, 1978; Lowes et al., 2015). In the late 16th century, European merchants (mostly Dutch and Portuguese) founded the city of Boma on the Congo River estuary, 100 km from the Atlantic Ocean, which acted as a slave market and trading center. Nowadays, it is the second port of the DRC and forms an outlet for palm oil, bananas and timber from the forests of Mayombe to the north (Edelson, 2014; Encyclopaedia Britannica, 2021). In the late 18th century, the majority of the enslaved Africans sold on the Loango Coast came from Mayombe and the Loango Kingdom north of the River Congo (Mobley, 2015).

Reference to human body parts

Saramaccan folk taxonomy shows several examples of plant names of African origin referring to human body parts. The Saramaccan plant name ‘ndulundulu’

(*Tanaecium bilabiatum* (Sprague) L.G.Lohmann) stems from the Kikongo word 'ndulu' meaning liver (Fundiko et al., 2015). The pods of *T. bilabiatum* are shaped like a liver and the plant is highly toxic (Lima et al., 2016). In the DRC, this vernacular is used for *Picralima nitida* (Stapf) T.Durand & H.Durand (Fundiko et al., 2015), of which the seeds are toxic to the liver (Sunmonu et al., 2014). In West Africa *P. nitida* is used to treat jaundice and yellow fever, ailments that relate to liver problems (Erharuyi et al., 2014). The Saramaccan vernacular 'degibonbo' is used for the Dilleniaceae lianas *Tetracera asperula* Miq. and *Davilla kunthii* A.St.-Hil. The name stems partly from 'degi', meaning fat or to consolidate (from 'dik' in Dutch), and 'bombo' meaning vagina (Bruyn, 2002). In the DRC 'bombo' (Lombo) is used for the botanically related species *Tetracera rosiflora* Gilg. The Saramaccan use these rough-leaved lianas in genital steam baths to make the vagina swollen and tight, which gives a burning, scraping feeling during sexual intercourse (Van Andel et al., 2008). In many African cultures this practice of 'dry sex' exists, but no botanically related species could be found in Africa with the same use.

References to habitat

Plant names can also refer to the locality where the plant grows, like *Pontederia crassipes* Mart., a waterplant known as 'tookoogbagba' in Saramaccan, and as 'togble', 'togwede' or 'gbà' in Fon in Benin (Akoègninou et al., 2006). In Fon, 'togotogoò' means in a circle and 'gbà' means swamp (Segurolo and Rassinoux, 2000). The Saramaccan forefathers probably named the plant after its circular leaves and its swampy habitat. The Saramaccan vernacular 'azokopampa' is associated with *Sphagneticola trilobata* (L.) Pruski, a common species in open vegetation that spreads easily and is regarded as an invasive species in many countries (CABI, 2020). In Kikongo, the term 'azoko' means 'in many places', while 'pampa' (no meaning in Saramaccan), means 'to act carelessly, thoughtlessly' (Bentley, 1895).

Morphological and organoleptic characteristics

Plant names also refer to life forms, the shape of specific plant parts, thorns, taste, color, exudate, or poisonous compounds. The Saramaccan vernacular 'kobo' is given to *Caryocar microcarpum* Ducke, a fish poison plant, of which the leaves are crushed and thrown into the water to catch fish that come to the surface to breathe. The Saramaccan vernacular '(ma)kobo' (fish) could stem from '(ma)kuba' (Kikongo), meaning thornfish (Smith, 2015c), or from 'koboma' (Lingala) meaning to kill (Fundiko et al., 2015). In the DRC, the vernacular 'kobo' (Mangbetu) is used for *Spondianthus preussii* Engl., which is also known as fish poison (Neuwinger, 2004). For the Saramaccan plant name 'kisangula' (*Maprounea guianensis* Aubl.), we found that the same vernacular in Kikongo is used in the DRC for its botanical relative *M. africana* (Arkinstall, 1979). The lexeme 'ngola' in Lingala means red

(Divuilu, 2005), and both species have red fruits. The vernacular '(be) sangaavu' (*Costus* spp.): is a retention of 'nsangalavwa/nsangalavu' (Kikongo) for *Costus* in the DRC and Angola, where the prefix 'be' is used to indicate a red-flowered *Costus*.

References to illnesses

The Saramaccans use many medicinal plants in their health care practices (Van 't Klooster et al., 2016), and plant names often reflect their medical uses. In the plant name 'kulakatanga' (*Piper* spp.), 'kula' means healing or recovery in Saramaccan, which stems from 'kula' (Kikongo, DRC), meaning to cast or to drive off, while 'katanga' comes from 'n-kátángá' meaning cramp in both Kikongo and Saramaccan (Smith, 2015c). The linguistic evidence provided by Smith (2015c) for the African origin of 'kulakatanga' is supported by ethnobotanical data, as Saramaccans use many *Piper* species to sooth body pain and stomachaches (Van Andel and Ruysschaert, 2011). The species *Phyllanthus amarus* Schumach. & Thonn., or 'aheni' is used by Saramaccans to break down kidney stones (Van Andel and Ruysschaert, 2011), a practice also found in Africa for the same species (Eweka and Enogieru, 2011). In Benin, the species is known as 'ahin bishowo' in Yoruba (De Souza, 2008), of which the Saramaccan 'aheni' is derived. In Yoruba, 'pahin keke' means to gnash while 'keke' means to be small (Church Missionary Society, 1913). The Saramaccan name seems to stem from the Yoruba terms referring to the crushing of kidney stones.

A number of Saramaccan plant names refer to 'fiofio', which means curse and refers to a magical disease related to a bug. Herskovits and Herskovits (1934) report that 'fio-fio' is a brown bug or a spirit that brings sickness or death, and claim that 'fiofio' is a Bantu word for a medicinal herb used by the peoples of Loango (Central Africa), but unfortunately, they do not mention any scientific name. Our literature search revealed that the herb *Psorospermum febrifugum* Spach is known as 'mfiofio' in Kikongo, and is used against epilepsy, skin parasites, insect bites and sand fleas in different parts of Africa (Burkill, 1985-2010; Bum et al., 2005). In Suriname, the juice of 'bobifiofio' (*Struchium sparganophorum* (L.) Kuntze) is used against epilepsy, and to treat the magical children disease 'fiofio' which is caused by arguing family members (Van Andel and Ruysschaert, 2011). This corresponds to a remark by Herskovits and Herskovits (1934) that 'fio-fio' could be an old Dahomean term meaning anger. In Suriname, several *Palicourea* species are used in rituals to calm down the angry Apunku spirit (Bantu origin). They are also associated with the malicious Akantasi spirit that lives in termite hills. When a provision ground is made near a termite hill, this can upset the Akantasi, who will take revenge on the family of the farmer. Akantasi's anger is expressed by little foam bubbles on the termite nest, which are caused by spittle bugs that live on tree roots growing in the fertile soil of the nest. The word 'bobi' is derived from the English 'bubby', now

booby for a woman's breast (OED, 2020). The herb *Euphorbia hirta* L. known as 'fiofio-uwii' by Saramaccans is used in herbal baths to reduce the effect of 'fiofio', while *Nicotiana tabacum* L. or 'boifiofio', is sprinkled around the village to chase away angry spirits that cause illnesses (Van Andel and Ruysschaert, 2011). Tobacco leaves are widely used in Suriname to suffocate botfly larvae in the skin, and the Saramaccan word 'boi' refers to a boil or abscess.

References to supernatural beings

Spirits play an important role in Saramaccan daily life, and many plant species are associated with them. *Protium stevensonii* (Standl.) Daly, '(matu)mboomba' in Saramaccan, is a large tree that grows in lowland rainforests (Fern, 2020). While 'matu' means forest, derived from the Portuguese 'mato' (Smith and Cardoso, 2004), 'bo(e)mba' refers to a goodhearted Maroon water god who dwells in rapids (Benjamins and Snelleman, 1917). The name of this god seems to be derived from 'mbombo' or 'bumba', the creator god of the Bakuba people in the DRC. In their creation myth, 'mbombo' was a white giant who ruled over the earth in the beginning of time (Knappert, 1979). Another source for the Surinamese water god 'boemba' could be 'mbumba', a central mythic figure in Yombe cosmology (Mobley, 2015).

Species such as *Hyptis recurvata* Poit. and *Dianthera pectoralis* (Jacq.) J.F.Gmel. are known as 'tone uwii', meaning rivergod weed (Van Andel and Ruysschaert, 2011). The Saramaccan use 'tone' for people with mentally retarded people and albinos (Herskovits and Herskovits, 1936; Price and Price, 1991). The term is based on Tonneïn Toema, a god who punishes those who pollute the water (Benjamins and Snelleman, 1917), described by Knappert (1979) as an African god in Bakuba mythology. The preparation of a magic herbal mixture ('tone obia') to invoke the rapid gods to cause heavy rainfall and make rivers unnavigable, helped the Saramaccan in the past to get rid of their enemies (Price and Price, 1991).

West African gods also appear in Saramaccan plant names like 'vodu-uwii' and 'papa-uwii', both used for *Dianthera pectoralis*. While the Saramaccan word 'vodu', also known in Haiti as 'voodoo' (Smith, 2001), stems from vodún (Fon) or vodú (Ewe), the name of a snake god in Benin and Ghana (Smith, 2015d), 'papa' means god in Fon (Benin). In Suriname, both 'vodu' and 'papa' refer to the *Boa constrictor* snake that is used by this god as its vehicle. However, 'papa' can also refer to the 'Papá people' who came from the Popo region on the border of Togo and Benin (Van Andel et al., 2014). The species *Dianthera cayennensis* (Nees) Griseb., known by the Saramaccans as 'apunku dangdang', is botanically related to *Justicia ladanoides* Lam., known as 'dangdang' (Chamba) in Nigeria (Burkill, 1985-2010). The name

‘apunku dangdang’ relates to the Saramaccan forest spirit A(m)punku, whose name is based on the god ‘nzambi ampungu’ among the Kikongo (Bentley, 1895), in which ‘m-púungu’ (Kikongo) means powerful (Smith, 2015d).

References to sound

Onomatopoeias have been recognized as a major lexical class in West-African languages (Dingemanse, 2018). They refer to the process of creating a word that phonetically resembles the sound that it describes. We found 14 possible onomatopoeia among the 978 Saramaccan plant names. Several *Crotalaria* species and the palm *Astrocaryum vulgare* Mart. are known in Saramaccan as ‘tyotyoty’, which means ‘to pound’, referring to the sound made when clothes are beaten on rocks when washed by hand. In the Ivory Coast, the vernacular ‘tio’ (Mandinga) is used for peanuts (Burkill, 1985-2010), while in the DRC ‘itotjo’ (unclassified language) is used for *Dioclea reflexa* Hook.f. The seeds of both Fabaceae species are used in the manufacturing of soap or shampoo in Africa (Jide, 2010; Geetha et al., 2013; Yaradua and Shah, 2018). In Brazil, *Astrocaryum* seeds are used as an ingredient in shampoos, soaps and conditioners (Pinto, 1963; Fern, 2020). So far, we have no ethnobotanical evidence that *Crotalaria* spp. or *Astrocaryum sciophilum* (Miq.) Pulle (‘muumu’ in Saramaccan, derived from ‘murumuru’ (Carib)) are used for this purpose by the Saramaccans, although their vernacular names refer to such a use. Another example is the Saramaccan vernacular ‘waaalutu’ given to *Coccoloba uvifera* (L.) L., based on the English ‘root’ and the onomatopoeia ‘waaa’ for ‘to separate or disperse’. *C. uvifera* has large spreading roots that fortify riverbanks as they hold back the soil.

Other features in Saramaccan plant naming

Some plant species carry a number of different African-based Saramaccan names. The large tree *Balizia pedicellaris* (DC.) Barneby & J.W. Grimes is not only known as ‘be azau’ (red elephant), a Saramaccan innovation, but also as ‘powkondyo’. In Saramaccan, ‘konyo’ means massive. Some Saramaccan plant names are fusions of two lexemes meaning the same, but derived from different linguistic origins. For example, in ‘apaku pesi’ (*Canavalia brasiliensis* Mart. ex Benth), the lexeme ‘apaku’ stems from ‘akpaku’ (Fon) and ‘pesi’ from pea (English) both meaning ‘bean’ (Segurola and Rassinoux, 2000; Smith, 1987).

Saramaccan plant names often start with a word-initial ‘a’, like in ‘abenbele’ (translated as ‘the red nbele’), a name given to a *Pouteria* species that stems from ‘mbala’ (Mba) which is given to *Gambeya africana* (A.DC.) Pierre in the DRC. The word ‘akandauwii’, is derived from ‘kanda’ meaning candle, and refers to a candle weed (Smith, 1987), while ‘amiomio’, the Saramaccan term for *Ricinus communis*

L., is based on ‘myonmyon’, the Gun name (Benin) for the same species (De Souza, 2008). In the Gbe languages, ‘a-’ is a noun class prefix, indicating a word class (Aboh and Smith, 2015), but in Saramaccan word-initial a- has lost this function and it is not considered a prefix. Another feature of Saramaccan is the dropping of the Kikongo ‘n-’ prefix in plant names. For example, ‘nkengezi’, meaning razor-edged grass (Bentley, 1895), became ‘kengeesi’ for the sharp-leaved *Scleria secans* (L.) Urb. in Saramaccan. Kikongo words like ‘nsafu’ meaning foulness (malodorousness, stinkyness) became ‘safu’ in ‘safukali’ (*Guarea* spp.), and ‘nkisi’, meaning holy or sacred, became ‘kisi’ in ‘kisima’ (*Humiria balsamifera* var. *floribunda* (Mart.) Cuatrec.) in Saramaccan.

DISCUSSION

African retentions

Our data show that 39% of the Saramaccan plant names have a (partial) African origin and that they reflect a complex of retentions and innovations. Our findings support the suggestions of Price (1975b) that the African contribution in Saramaccan could be up to 50%. Food, health care and religion are highly culture-specific domains, so in contact settings this is where retention due to transfer is more likely to occur. Out of the 678 Saramaccan plant names recorded in the database from Van Andel et al. (2014), 84 remained unknown, for which we tried to find botanical related species in Central Africa. For 64 of these, we have found African elements in 28 names, while 29 had European elements, 13 had Indigenous elements, and two were Asian. Still, for 48 Saramaccan plant names we could not trace a source language.

The Saramaccan plant names for which we found botanical links in Africa were mostly (62%) from Central African origin, which is a much higher percentage than the 43% calculated by Van Andel et al. (2014) for all Afro-Surinamese languages together. The higher links to Central Africa can be explained by the newly added MBG database of Congolese plant names, which led to 60 previously unknown retentions of Saramaccan plant names. We also found 9 additional retentions in literature sources for this area (e.g., Lautenschläger et al., 2018). Our findings correspond with our expectation that (West) Central Africa, has substantially influenced the Saramaccan language. While most of the African-based Saramaccan plant names belonged to the Niger-Congo phylum, we also found some retentions of Hausa plant names (Afro-Asiatic phylum) due to the Hausa trade in enslaved Africans and kola nuts (particularly *Cola nitida* (Vent.) Schott & Endl.) via their ancient caravan routes from the Sahel to the West African coast (Isichei, 1997).

The strong influence of Bantu languages (mainly Kikongo) in the formation of Saramaccan plant names corresponds with the findings of Smith (2015a). Kikongo (Bantu) was the most prominent African language influencing Saramaccan retentions. This large contribution of Kikongo can be explained by the fact that this language was spoken in areas where the Dutch colonizers purchased their African enslaved from e.g. Malembo, Cabinda (Voyagers database, 2021).

Most languages for the Saramaccan retentions belonged to the Bantu group, followed by Kwa, which can be explained by the fact that from 1675 to 1719, most enslaved Africans in Suriname were Eastern Gbe and ‘Kikongo-speaking’ people from the Slave Coast and Loango Kingdom. After 1720, when the Gold Coast (Ghana) became the main supplier of African captives, more Akan-speaking people were taken to Suriname (Eltis and Richardson, 2010; Smith, 2015a). The Saramaccan community, however, was formed between 1690 and 1710 (Price, 1983), long before the arrival of the Akan-speaking people. As a result, the number of Akan-retentions in Saramaccan plant names was much lower, as were the number of Akan lexical items found by linguists (Smith, 2015a). As mentioned by Huttar (1985), many languages outside Kwa and Bantu should be taken into consideration as possible sources for the Maroon languages in Suriname. Indeed, for some plant names we found a botanical relative in less expected language groups such Mande (e.g. Bambara, Mandinka or Mende) or Gur (Daagare or Ntcham), spoken in Ghana and Benin.

Within the Benue Congo language group, to which the Bantoid languages belong, Igbooid and Yoruboid languages, such as Yoruba, were also present. An analysis of the online Voyages Database showed that before 1675, enslaved Africans in Suriname were not only captured from Central Africa but also from Nigeria, and spoke a great variety of languages including Ijo, Igbo, and Igbooid languages (Smith, 2015b). Although it remains unclear, how these languages might have influenced the Afro-Surinamese languages, we found one possible retention based on an Igbo plant name. Fortes-Lima (2017) showed in their genetic analysis of Maroon individuals from Suriname and French Guiana (which included 19 Saramaccan individuals), that most of their DNA was shared with people from Benin and Nigeria. The Maroon admixture profiles closely matched that of present-day Fon, Bariba, Yoruba, and Esan peoples. This could explain the Fon and Yoruba influence we found in Saramaccan plant names. However, their sample size (n=107 for all Maroons) was small, and cannot be representative for all Maroons in Suriname and French Guiana.

A number of languages that are spoken in the interior of the DRC also contributed to the Saramaccan plant names, such as Zande, Tembo and Luba-Katanga, and

Luba-Kasai. This confirms the conclusion of Eltis and Richardsson (2010) that enslaved Africans were captured hundred of miles inland by traders and took months to reach the coastal areas where they were sold to the Europeans (Mobley, 2015). The Europeans obtained their captives mainly via traders controlling the interior slave market and only documented the place where they bought their enslaved individuals (Mobley, 2015).

African innovations

For 206 Saramaccan plant names with a possible African origin we did not find any botanically related species in Africa, but found similar African words in dictionaries, historical and linguistic literature. This shows that enslaved Africans used words of their own lexicon to give new names to Surinamese plants they were not familiar with, based on their color, shape, growth form, habitat or uses. We found that 74 of these innovations were influenced by Bantu languages (of which 62 were influenced by Kikongo), and 84 were influenced by Kwa languages (of which 59 Fon), while the rest related to other smaller language groups. These numbers can be biased as variations of one word can occur in different languages belonging the same language group: the Saramaccan word 'vodu' (snake god) can stem from 'vodún' (Fon) or 'vodú' (Ewe), both meaning god (Smith 2015d).

European influences

Although we focused on the African legacy, we acknowledge the dominance of European languages in Saramaccan plant names, two thirds had European elements. Our results are slightly different to those of Van Andel et al. (2014), who found that only 53% of the Saramaccan plant names could be linked to a European lexical item. The higher European influence in our data analysis (65%) was partly based on our inclusion of prefixes (black, white, big, small), as they contain important information for Saramaccan plant classification and identification. Removing prefixes from our analysis led to a decrease in European influence. We also added new Saramaccan plant name records for rice varieties, of which 41 (59%) had European terms in their names. We also found some new European influences in plant names recorded earlier by Van Andel et al. (2014). Still, the high proportion of European lexical elements in both studies show that plant naming by enslaved Africans and their descendants in Suriname was strongly influenced by the languages spoken by the English, Dutch and Portuguese plantation owners. For Papiamentu plant names in Curaçao, Alcantara Rodríguez (2016) also found a strong European influence: most lexical items were of Spanish and Portuguese (56%) or Dutch (25%) origin, followed by Taino (20%) (Indigenous community) while only 12% had African elements, much less than in the Maroon context. This can be explained by the fact that the Surinamese Maroons lived much more isolated in the rainforest than the

people of African descent in Curaçao. Owing to the fact that they were isolated for centuries, the Maroons in Suriname and French Guiana have the highest proportion of African genetic ancestry (98%) of any African-American population found so far (Fortes-Lima et al., 2017), which clearly had an effect on their plant naming process.

Indigenous influences

During and after the Saramaccan escaped from the plantations, they were in contact with various Indigenous communities from whom they learned plant knowledge, cultural practices, and words that can still be seen in Saramaccan plant names. Less than one fifth of the Saramaccan plant names are of Indigenous, often Carib and Arawak, origin. Some Saramaccan plant names stem from other Indigenous languages outside Suriname: the ‘kadyu’ (*Anacardium occidentale* L.), comes from the Tupi cajú (Brazil), where it is used for the same species (Alcantara Rodríguez et al., 2019). This Tupi name (and probably the domesticated cashew as well) came to Suriname via the Sephardic Jews that were thrown out of Dutch Brazil (Van Donselaar, 2013). The Saramaccan plant name ‘(a)wassai’ for *Varronia schomburgkii* (A.DC.) Borhidi is derived from ‘yawatai’, a Wayapi name given to the botanically related *Cordia nodosa* Lam. in French Guyana (DeFilipps et al., 2004). The Saramaccan name ‘kwaytaka nang(r)a’ (frog nail) given to *Dolichandra unguis-cati* (L.) L.G. Lohmann, seems to be an innovation based on ‘kwataka’, a Wayapi word used for the frog *Boana calcarata* (Troschel 1848) (Grenand, 1989). The nail (nagra) or hand of the frog, resembles the trifid tendrils of the liana, that in turn, look like small hooked claws. The influence of Indigenous languages that we found in Saramaccan plant names (19%) was stronger than suggested earlier by Price (2008), who argued that less than 10% of Saramaccan came from Indigenous languages.

Ethnobotanical source domains

The Saramaccan plant names contain all sorts of cultural information, and are often fusions of words belonging to various domains. This practice is present among traditional cultures around the world (e.g. Turpin, 2013, Fundiko et al., 2015). Since the Saramaccan have an oral culture, plant names help them to classify their natural surroundings, safeguard their cultural knowledge, and remember certain aspects related to the plant’s morphology, habitat or use. Huttar (1985), found that different African languages were used for various semantic domains in the Ndyuka language. While the Kwa etymon was prominent in the food domain, Bantu predominated in the domains of flora and fauna and both contributed evenly to the domain related to body parts. The contribution of Kwa and Bantu words could be further investigated for the Saramaccan semantic domains of food and body parts,

but its dominance in the natural world was evident in our study as well.

Limitations of this study and future research

The answer to the question of how and which African languages influenced Saramaccan plant names is a complex one. Some words have survived, while others have not, or have not been documented yet, or were overlooked by us and previous scholars. Those words that did survive have often been transformed, making an analysis on their origin interesting but challenging. Sounds do not always correspond with spelling conventions across languages, and spelling rules change over time. Many of the plant names in African languages remain still undocumented, and dictionaries or word lists prepared by missionaries scarcely include terms related to the religious, spiritual, and sexual domain. The lack of dictionaries and ethnobotanical research in Central Africa may have created a bias in the language sources and plant names we found so far. We detected relations with Saramaccan plant names and the Congolese Lingala language. Lingala was used as a trade language and was not originally spoken by enslaved Africans in that region (Meeuwis, 2019). Many vernacular names in African languages have yet to be linked to reliable botanical specimen data, and more research on Saramaccan plant names is needed to complete our database. Apart from Irvine (1961) for Ghana and Fundiko et al. (2015) for the DRC, etymological studies on African plant names are very scarce. Most ethnobotanical studies and dictionaries do not provide translations for vernacular plant names. Furthermore, a word can enter a language via language contact in a direct manner or indirectly, passed on from one language to another via borrowing. The Saramaccan often borrowed words from Sranantongo into their lexicon (Good, 2009). We are therefore unable to provide a definite answer to the question of the African source of Saramaccan plant names.

Our study showed that ethnobotanical research can add valuable information to the existing linguistic and historical studies on the origin of the enslaved Africans in the New World. Linguists and historians often document plant names in a way that is not useful to botanists, who need scientific names to contextualize them, while botanists document plant names with errors as dictionaries are often missing to check them. Vouchering of plant names when doing ethnobotanical research is crucial to be able to unambiguously link local names to scientific names. Therefore, multi-disciplinary research in Africa and the Americas is needed, collaborations with universities, and the involvement of native speakers as researchers is highly recommended. Finding evidence for the African legacy of Afro-American plant names is far from finished, but so far, it has shown the adaptive capacity of humans in a new, challenging environment.

Online supplementary files

Table S1 | Saramaccan Maroon plant names and their (possible) origins (978 records). Plant names constructed from more than one lexical item can have various origins (references to table are presented at the end of the table together with the used language abbreviations and collectors). This supplementary file can be found in the online version at <https://doi.org/10.1139/cjb-2021-0066>. To be published in the special issue to *Botany* in March 2022 (doi: 10.1139/cjb-2021-0066).

