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

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Chapter 1

Introduction

Charlotte I.E.A. van 't Klooster

'The forest is our market place; it is where we get our medicines. It is where we hunt to have meat to eat. The forest is truly our entire life. When our ancestors fled into the forest they did not carry anything with them. They learned how to live, what plants to eat, how to deal with subsistence needs once they got to the forest. It is our whole life.'
(Wazen Eduards, Chairman of the Association of Saramaka Authorities. In: Haabo, 2000)

THE IMPORTANCE OF TRADITIONAL KNOWLEDGE

For thousands of years, Indigenous communities have depended on nature for all their primary needs such as shelter, food and medicines. They have accumulated a vast amount of biodiversity-related knowledge in their long history of managing their natural environment. This knowledge has constantly been refined and renewed, based on their experiences, and is often referred to as traditional knowledge or traditional systems of knowledge. While the rest of the world moved further away from nature due to urbanization and industrialization processes, these communities often maintained their sustainable way of living in nature, in which the human, natural and spiritual worlds strongly interact (Haverkort and Reijntjes, 2010).

Traditional systems of knowledge have generally been regarded as irrelevant, exotic and obscure although approximately 370 million Indigenous people live around the world relying on these systems of knowledge (United Nations, 2009; Subramanian and Pisupati, 2010). They have for long been dominated by modern or Western systems of knowledge in science and technology, which were considered to be value-neutral, empirically grounded and universally valid, in which humans were regarded as the possessors of nature (Haverkort and Reijntjes, 2010). The modern systems of knowledge were often utilized to rationalize the world and ban superstitious or subjective, intuitively oriented epistemologies, which were more holistic, based on a respectful use and reciprocal relationship with nature (Haverkort and Reijntjes, 2010). This has, together with other influences these Indigenous communities got exposed to simultaneously (e.g. Western religions), negatively impacted many Indigenous knowledge systems, traditional knowledge accumulation and transmission, learning and teaching practices, and belief systems around the world (Stephen, 1998; Cruz-Garcia, 2006; Reyes-García et al., 2010; Barreau et al., 2016). This not only led to a decline and disruption of Indigenous societies due to land dispossession, but it also resulted in a loss of traditional knowledge associated with it (Srithi et al., 2009; Saynes-Vasquez et al., 2013).

Traditional knowledge, especially traditional ecological knowledge (TEK), which encompasses local knowledge of the environment and the human interactions with it, still plays an essential role in many societies. It can be defined as: *‘a cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment’* (Berks et al., 2000). TEK, which is culturally structured in worldviews, belief systems, healthcare practices and formal and informal education systems, is often embedded in and transmitted through myths, stories, songs, spiritual practices, and everyday

activities (Wyndham, 2002). Ethnobotanical knowledge is a specification of TEK that focuses especially on the botanical knowledge held by local communities.

During the 1950s the academic interest in TEK changed when scholars started to capture local beliefs, taxonomies and plant classification systems held by Indigenous communities from an emic (insiders) point of view instead of an etic (outsiders) point of view. This development led to a new 'ethno-science approach' which was used as a guiding principle to investigate people's practices, traditional ecological knowledge and beliefs of plants (Slikkerveer, 1999). However, ethnobotanical knowledge, which may contribute to conservation of nature and the preservation of traditional knowledge, is still understudied in many places. This thesis will contribute to the existing body of knowledge, in the context of South American ethnobotany.

Ethnobotanical research has an interdisciplinary approach that is essential to capture various aspects of traditional knowledge, which often relates to the fields of ecology, botany, medical anthropology, linguistics, economy, history, but also sociology and public health (Martin, 1995). The present ethnobotanical study focuses on the documentation of plant knowledge, practices and beliefs of a Maroon community in Suriname, South America. It addresses various aspects related to traditional knowledge, such as the role of medicinal plants used in local health care, medicinal plant knowledge transfer and acquisition, environmental education, and plant names as tools for storing knowledge that have been investigated in relation to people's history, and their linguistic and geographical origin. This chapter explains how this research project started. It includes a general background to the study area and field site, together with an overview of research aims and objectives, and a general outline of the thesis.

SETTING THE SCENE

Since 1998 I have been regularly visiting Suriname, especially into the heart of the rainforest where various Indigenous and Maroon communities reside. Based on my experiences, my interest as a biologist and a medical anthropologist in traditional knowledge systems, and as a response to several requests of people to document their traditional knowledge, I formulated my self-funded research project on the importance of traditional ecological knowledge for the Saramaccan Maroons living in the deep interiors of Suriname. Prior to this, their traditional ecological knowledge had only been scarcely documented and published.

The first data for the current PhD thesis was collected in 2009, during a field research in the interior of Suriname among the Saramaccan Maroons. This was part of the Master's program in Medical Anthropology and Sociology from the University of Amsterdam (UvA), the Netherlands. The fieldwork was funded by the *Stuntbeurs* (UvA), the *Alberta Mennega Stichting*, *Stichting de Zaaier* and the *Van Eeden Fonds*. The project was carried out in collaboration with the National Herbarium of the Netherlands (NHN-U) and the National Herbarium of Suriname (BBS, Anton the Kom University). After a gap of several years, my research continued in 2016 as an external PhD student for the Leiden University Medical Center, in close collaboration with Naturalis Biodiversity Center, both situated in Leiden, and has resulted in this thesis.

BACKGROUND

Suriname is situated in South America, between Guyana and French Guiana, north of Brazil. It covers an area of approximately 166,000 km² and houses a population of about 614,749 people (CIA, 2021). The original inhabitants of Suriname are Indigenous people, of which the Arawak and Carib are the largest groups. The European influence in Suriname started in the beginning of the 17th century, when the English, the Dutch and also the French made a number of efforts to colonize parts of the country. The first successful settlement was by the English in 1651, who started to develop a plantation colony till the Dutch province of Zeeland took over in 1667 (Arends, 2002). From 1658 to 1825, the Dutch were responsible for disembarking at least 295,000 enslaved Africans to the colony to work at the plantations under extremely cruel conditions (Eltis and Richardson, 2010), which lasted until 1863, when slavery was abolished. Suriname remained in Dutch hands until it became independent in 1975. However, the Dutch never formed a majority in the European population in Suriname, until well in to the 19th century. This was due to the early influx of the Sephardic Jews (between 1665 and 1667) and a group of French Huguenots who arrived after 1685 (Arends, 2002). Next to the English and Dutch, the Portuguese-speaking Jews also acquired plantations. Therefore, along with the English and Dutch, the Portuguese also had an impact on the Afro-Surinamese Creole languages that developed in Suriname.

Nowadays Suriname is a culturally diverse country where a variety of ethnic groups live together. The Hindustanis, descendants of British-Indian contract labourers who migrated to the country after the abolishment of slavery in 1863, form the largest population group (27%), followed by Maroons (22%), Creoles (16%), Javanese (14%), and people of mixed origin (13%). Smaller populations categorized as 'other'

(8%) include the Indigenous communities, Chinese and white immigrants (Dutch farmers and Lebanese) (ABS, 2013). Both Creoles and Maroons are descendants of enslaved Africans brought to Suriname by the European colonizers to work on their plantations. While most of the population lives in or near the capital Paramaribo in the coastal area, the Maroons and Indigenous groups live mainly in the interior, which is covered with tropical rainforest and savannas. Dutch is the official language in Suriname, but Sranantongo, the Surinamese Creole and *lingua franca* of the country, is spoken by the majority of the people, in addition to their own languages.

The Maroon community consists of different ethnic groups: the Saramaccans, Matawai, Ndyuka (Aucans), Aluku (Boni), Kwinti and Paramaccans. They all have their own distinct cultures and languages (Price, 1973; Thoden van Velzen and van Wetering, 1988). Their population comprises of approximately 127,000 people in Suriname; the Saramaccans form the largest community with around 58,000 persons (Price, 2013). Most of the Maroons still live in tribal societies along the Suriname River basin in the districts Brokopondo and Sipaliwini (see Chapter 2). However, as a result of the civil war between 1986 and 1992, and the subsequent economic crash, many of them moved to the capital Paramaribo, the Netherlands or French Guiana (Terborg et al., 2005). Today, most Surinamese children follow primary education (94%), which approximately 85% of them is able to complete. Secondary education has much more drop-outs: only 23% of the pupils complete this level of education (UNICEF, 2021). The Medical Mission is responsible for providing primary health care in the interior. This protestant faith-based organization manages the small health centers along the major rivers, for which they receive funding from the government, while the Regional Health Service (RGD) is operational in the coastal area and receives public funds. In addition, there are private primary care centers accessible to the population in the coastal area (PAHO, 2021).

Officially, most Maroons are baptized, but many still hold on to their Afro-Surinamese religion that was created by enslaved Africans on the plantations during the early decades of settlement. This early Afro-Surinamese religion already contained the central features of the Creole and Maroon religions that exist today. Two clear variants can be observed: the religions of the various Maroon societies who fled from the plantations into the forest, and the religion of the coastal Creoles who were set free after the abolition of slavery in 1863 (Price, 1987). In both religions the belief in spirits play an important and essential role. These spirits inhabit complex supernatural societies and are able to interfere with people's lives. Ignoring them may result in disease and misfortune (Stephen, 1998). The

Creole religious practices differ from those of the various Maroon groups, as they developed separately over many centuries. According to Stephen (*ibid.*) the Maroons still practice the most original form of ‘Winti’ because they escaped before their practices could be influenced by other religions brought to Suriname. Although Stephen (2002) and Wooding (1972) use the term ‘Winti’ when referring to the religions of both the Creoles and the Maroons, the word ‘winti’ was not used by the Saramaccans as a term to address their religious practices, nor by Price (1987) and therefore not used as such in this thesis.

The Surinamese economy is dominated by the mining industry, in which gold and oil account for approximately 85% of the export and 27% of government revenues. Due to the crashing exports in the aluminium sector in 2015, the financial situation of Suriname came under severe pressure, causing a significant depreciation of its currency (CIA, 2021). The COVID-19 crisis that started in 2019 gave the already unstable and fragile Surinamese economy a final blow. And the end of 2020, the Central Bank of Suriname further devalued the Surinamese dollar from 7.46 to 14.15 SRD for 1 USD (COFACE, 2021). In 2009, at the start of this research, the rate was still 2.70 SRD for 1 USD (OANDA, 2009). The extractive industry is seen as the driving force behind the recovery of the Surinamese economy, based on an increased gold production scheduled for the period 2021-2025 (COFACE, 2021). To recover from the economic malaise, there is a strong need for the fast and therefore unsustainable exploitation of Suriname’s natural resources: increased gold mining, oil drilling and timber extraction will have a tremendous negative impact on Suriname’s biodiversity. Gold mining is the most significant driver of ecosystem degradation in Suriname (WWF Guianas, 2020). Because of these ongoing unsustainable activities, the Indigenous and Maroon communities are threatened in their livelihood, as the forest they depend on for their food, shelter and medicines, is rapidly disappearing and their drinking water is polluted by the mercury used in gold mining (WWF Guianas, 2020). The ongoing destructive activities will have a negative effect on the transmission of their traditional knowledge, as more youngsters will move to the coastal area to find education or employment, or end up in the gold mining industry themselves. Either way, they become detached from their traditional way of living.

Several studies have been conducted by researchers and nature conservation organizations to capture the biocultural heritage of the Indigenous and Maroons communities (e.g., Hoffman, 2009; Van Andel et al., 2009, Van Andel and Ruysschaert, 2011; Ramdas, 2015; Ruysschaert, 2018). Especially anthropologists Richard and Sally Price conducted extensive research on the Saramaccan Maroons of Suriname and French Guiana which started in the 1960s. Their work had

been critical towards the knowledge of the Saramaccan culture. At the start of this research in 2009, no ethnobotanical research had been conducted among the Saramaccan Maroons living in the Upper Suriname River area. Only few studies did exist in which Saramaccan traditional knowledge was related to conservation, public health, environmental education and biocultural heritage. Studies like the current study may not only add to a deeper understanding of Saramaccan culture and their origin, but also provide insights for intervention programs to be developed based on peoples' needs.

STUDY SITE

Fieldwork presented in this PhD thesis took place from March to June 2009 in Pikin Slee, a Saramaccan village along the Upper Suriname River area (Sipaliwini district) in the interior of Suriname (Fig. 1). The village is surrounded by tropical rainforest, of which parts have been deforested and turned into cultivated agricultural fields by means of slash and burn techniques. The inhabitants of Pikin Slee still depend directly on their natural surroundings. The Saramaccans identify themselves with the area they live in, as it is the place where their ancestors fought for freedom. They gained territorial rights by signing a peace treaty in 1762 with the Dutch colonial authorities. Their ancestors are part of the spiritual world in the forest they are living in, and are often consulted by divination to solve social problems. Like many other Indigenous cultures, the land has a sacred value to them, and sacred places are scattered through their territory (Price, 1975a).

For their primary health care, Saramaccans largely depend on traditional medicines, but they also have access to modern medicines and treatments provided by the health centers operated by the Medical mission. The Saramaccans' economic status is poor, although labour outside their area (Paramaribo, Cayenne) enables some to improve their economic situation. Pikin Slee has one primary school; for higher education pupils need to move to urban areas like Paramaribo and stay in boarding schools. This is a large financial burden for the parents. At the start of the project in 2009, the districts in the interior showed the highest rates of primary school children that were not able to move to the secondary level (MECDS, 2010).

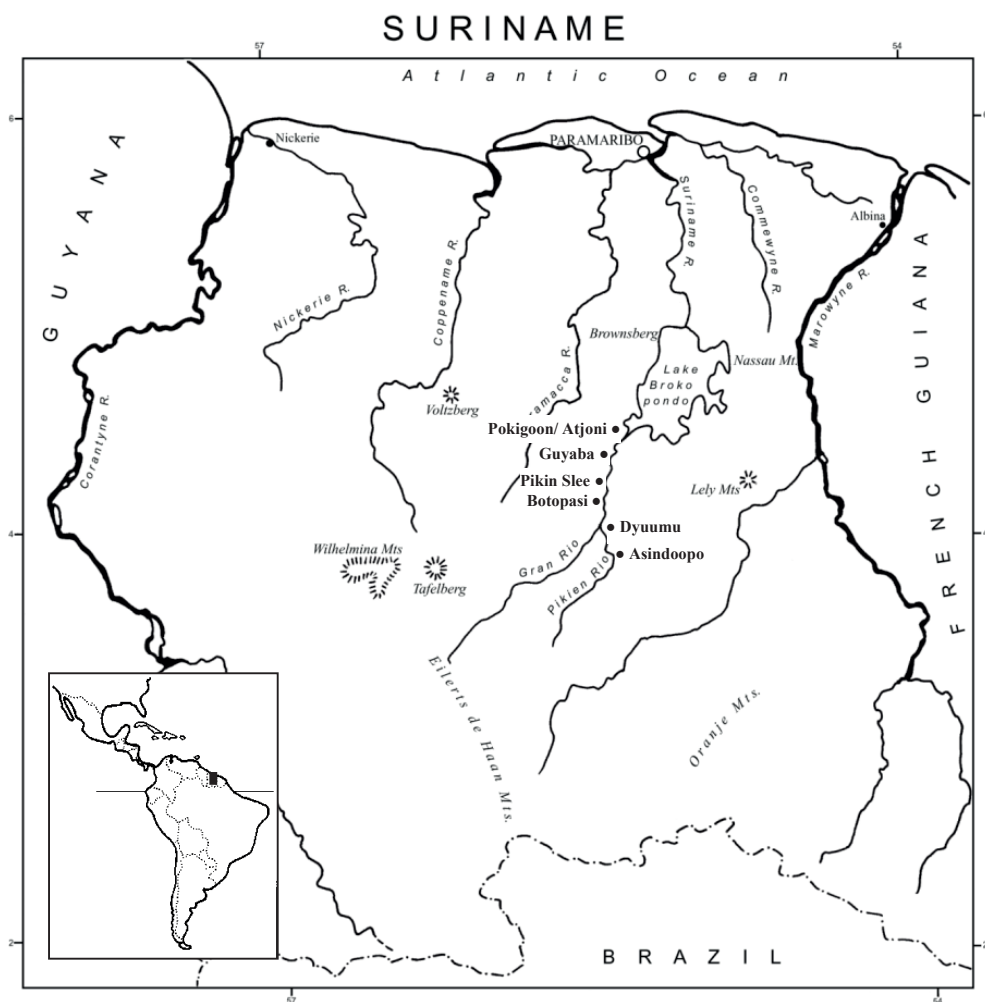


Figure 1 | Map of Suriname and research area with field site Pikin Slee. Drawing by H.R. Rypkema, Naturalis Biodiversity Center.

To ensure access to secondary education for all children by 2015, a boarding school was built in the Saramaccan village Atjoni, situated along the beginning of the road to Paramaribo to increase the chances of further education in the area (MECDS, 2014). However, providing education in the interior of Suriname remains a challenge for the Surinamese government, which has a centralized education system, coordinated, coached and regulated by the Ministry of Education and Community Development (MECDS, 2014). Nowadays the completion level for children in rural areas (especially in the interior, such as Pikin Slee) is still below the national average for all levels of education (UNICEF, 2021).

Ethnobotanical data has been collected in Pikin Slee by means of 27 semi-structured interviews, 20 informal discussions with adult respondents, participant observations and botanical voucher collections. A homework assignment at the village school with 73 children (4th and 5th class of their primary education) was conducted to study and stimulate the transfer of traditional knowledge among children and their family members. Other data used for comparative analyses in this thesis were retrieved from previous ethnobotanical studies conducted in Suriname, an ethnobotanical database with Afro-Surinamese plant names, and a Central African plant name database. These data sources will be explained further in Chapter 3 and 5.

AIM AND OBJECTIVES

For this research, I worked along with members of the Saramaccan community in Pikin Slee. Apart from their close relationship with nature and their African roots, I had chosen Suriname as country for this study based on my earlier experiences with the Saramaccan and the long-standing collaboration between the National Herbarium of the Netherlands and the National Herbarium of Suriname. The National Herbarium of the Netherlands is now part of Naturalis Biodiversity Center (L) and forms one of the largest herbaria worldwide, specialized in the Neotropics. The staff has many years of experience with botanical fieldwork in the Guianas.

The main objectives of the present research can be summarized as follows:

1. To contribute to the conservation of traditional knowledge.
2. To explore the diversity of plant species used in traditional herbal medicine.
3. To assess the use and importance of medicinal plants for local health care vis a vis locally available modern healthcare facilities in Pikin Slee.
4. To analyse differences and similarities in plant species used among and within Maroon communities.
5. To stimulate the intergenerational dialogue on medicinal plant uses among schoolchildren and their family members.
6. To examine the African biocultural heritage and ethnobotanical knowledge stored in Saramaccan plant names.

The overall project aim was to gather scientific information on the traditional knowledge, practices and beliefs of the Saramaccans, used for local health care purposes and education as well as nature conservation, and the preservation of the Saramaccan biocultural heritage. The present study will contribute to the existing

body of knowledge on plants used for local health and well-being. It provides new insights to the Suriname government and NGOs on the importance of the tropical rainforest for the Saramaccan people, and the role of the Saramaccans as custodians of their traditional knowledge based on this forest. The study highlights the importance of environmental and bilingual education, which should be developed further aligned with the Saramaccan people's worldview, interests and needs.

ETHICAL CONSIDERATIONS

Long before the start of the research in 2009, a council meeting was held in 2003 by the village head of Pikin Slee, for which all villagers were invited to discuss and approve my request to conduct ethnobotanical research there. Approval was given orally by the village council (as is the Saramaccan custom) directly after the meeting, based on mutual respect and contact that started in 1998. After receiving their consent, I visited Pikin Slee every other year, but started my research only in 2009, for which I collected the essential governmental permissions. I obtained a plant research and collection permit from the Suriname Forest Service (SBB) in 2009, which included a written Prior Informed Consent (PIC) from the same village headcaptain of Pikin Slee, who was also the leader of the Foundation of Saramaccan Authorities. Before the interviews took place, the purpose and nature of the research was explained to the participants, after which their oral consent was given as per the Saramaccan custom. In this study I further followed the Code of Ethics of the International Society of Ethnobiology (2008). For the classroom assignment in 2009, oral permission was obtained from the school's headmaster and the teachers of the 4th and 5th standard. Other than the classroom assignment, no children were interviewed separately in or outside the classroom about their own plant-related knowledge.

THESIS OUTLINE

For this thesis, the common thread across the chapters is the exploration of the role and importance of traditional knowledge for the Saramaccans in Pikin Slee. The aims and hypotheses described below aim to unravel various aspects related to their traditional knowledge.

Traditional medicines, here defined as '*the sum of knowledge, skills and practices used in the prevention, diagnosis and treatment of diseases*' provide a primary source of health care to many people world-wide, especially for those living in developing

countries (WHO, 2000). It is nowadays either the mainstay of health care delivery across the world, or serves to complement it (WHO, 2013). Prior to this study, little was known about the importance of medicinal plants used in traditional health care by the Saramaccans living in Pikin Slee, and how it co-existed along with the biomedical health care provided in the village.

In **Chapter 2**, I addressed this knowledge gap by providing information on the diversity of medicinal plants known by the Saramaccans in Pikin Slee, the purposes for which they were used, and the reasons behind such use. I differentiated between plants used for health promotion, disease prevention and cure. Health concerns for which people would go to the biomedical health clinic were assessed, and how these two systems of health care related to each other. Furthermore, I examined whether knowledge of medicinal plants varied within the community. I expected health concerns that could be successfully treated by the official health facilities to be less salient in herbal medicine practices. To test whether knowledge of medicinal plant species was kept within families, I performed a Detrended Correspondence Analysis (DCA).

In **Chapter 3**, I explored the use of medicinal plants in herbal bathing. I examined plant use in six types of herbal baths documented for Saramaccan and Ndyuka (Aucan) Maroons, to see whether similarity in species was related to bath type, ethnic group or geographical location. I hypothesized that because of their dissimilar cultural background, Saramaccans and Ndyukas used different species for the same type of bath. To analyse this, I compiled a database from published and unpublished sources on herbal bath ingredients and constructed a presence/absence matrix per bath type and study site. To assess similarity in plant use among and within Saramaccan and Ndyuka communities, I performed three Detrended Correspondence Analyses on species level and the Jaccard Similarity Index to quantify similarities in bath ingredients.

Traditional knowledge is essential for children in any society, but particularly for those living in more remote areas, where people depend directly on their natural surroundings for their daily needs and survival. Now that most children attend primary education, they have less time to go with family members into the forest to learn about plants. This disrupts the intergenerational transmission of plant related knowledge (Saynes-Vasquez et al., 2013; Barreau et al., 2016).

In **Chapter 4**, I investigated, by means of a homework assignment, what knowledge on medicinal plants pupil's family members found important to share with them. I provided biology classes on the importance of plants and formulated a homework

assignment for primary school students (4th and 5th grade), for which they needed to bring one medicinal plant to school and collect some ethnobotanical information from a family member. I analysed whether this information was shared randomly, or whether there existed trends in gender-related knowledge shared. I expected the pupils to bring to school mostly plants growing in and nearby the village. I hypothesized that the knowledge shared with the children for the assignment would concentrate on illnesses familiar and useful to children and acceptable to share with the researcher and the school. I furthermore conducted a content analysis to investigate the type of knowledge generated by the pupils, and examined the assignment cards on use of (different) languages.

As the Maroons have escaped from plantations owned by Europeans, their languages have been influenced by English, Dutch and Portuguese. Before, during and after their escapes, they have been in contact with Indigenous peoples as well. As a result, Saramaccans have not only incorporated Indigenous cultural practices, but also useful words from Carib, Arawak, or other Indigenous origin into their language (Price, 2010; Borges, 2015). These contacts with Europeans and Indigenous peoples are reflected in their plant names. During slavery, but in particular after their escape, the Saramaccans had to become familiar with the Neotropical rainforest in order to survive. To do so, they heavily built on their African knowledge. So far, African influences in Saramaccan plant naming had not been studied, except for Van Andel et al. (2014), who analysed Afro-Surinamese plant names and their origin, including Saramaccan plant names. After their study was published, a large database became available with previously unpublished African plant names from the area of the former Belgian Congo (Fundiko et al., 2015) collected by botanists of the Meise Botanic Garden in Brussels. This created a new opportunity to study the influence of Central African languages on the creation of Saramaccan plant names.

In **Chapter 5**, I examined the origin of Saramaccan plant names and the traditional oral knowledge stored in their plant names, with the aim to contribute to the conservation of their biocultural heritage. I first examined the influences of European and Indigenous languages in Saramaccan plant names, after which I focused on the African influences. I hypothesized that the enslaved ancestors of the Saramaccan Maroons used their ethnobotanical knowledge and native languages to name the flora in their new environment. I expected that Saramaccan plant names were more influenced by Central African languages than reported so far in ethnobotanical research, because data on the Central African region was scarce. For this analysis, I compiled a new database on all known Saramaccan plant names and compared these names with the Meise plant name database for the Democratic Republic of

the Congo (55,000 records) and the earlier published NATRAPLAND database on Afro-Surinamese plant names (Van Andel et al., 2014) to find comparable plant names for botanically related species in Africa. With my linguistically trained co-authors, I further analysed form, meaning, function and categories of Saramaccan plant name components by means of dictionaries and grammars to fill the existing knowledge gap. I expected the Saramaccans to store all sorts of information in their vernacular plant names to help members of their oral society memorize their traditional plant-related knowledge.

Finally, in **Chapter 6**, I answered the research questions as formulated in Chapter 2 to 5. In the general discussion I addressed some methodological issues and implications of the research, and closed the chapter with an overview of the most important conclusions and recommendations for future research.

