Dermocosmetic practices traditionally used by the Agni of Bongouanou (Centre-East, Côte d'Ivoire)

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Research

Abstract

Background: The skin is continuously exposed to biological, physical, and chemical aggressions. Pathogenic agents, ultraviolet radiation, and synthetic substances found in various dermatological, or hygiene products impair its functions and promote skin conditions. The increasing resistance of microorganisms to antibiotics complicates their management, while repeated use of these substances causes adverse effects. This study aims to highlight traditional plants and dermo-cosmetic products among the Agni of Bongouanou.

Methods: A survey was conducted from February to April 2025 on cosmetopoeia using interview and field walk techniques. Citation frequency and the Smith index were used to assess the cultural importance of the resources.

Results: A total of 253 peoples were interviewed, among whom women were predominantly represented. A diversity of 24 plants species was recorded. The Fabaceae family was the most represented with four species. Leaves (50%) are the most recommended parts. Grinding (50%) is the most commonly used method of preparation. Six categories of traditional products were identified. Palm kernel oil (Fc = 98.28% and Sa = 0.787), black soap (Fc = 77.14% and Sa = 0.514%), shea butter (Fc = 94.85% and Sa = 0.548), and palm oil (Fc = 93.99% and Sa = 0.378) are the traditional products most cited by the knowledgeable informants.

Conclusions: The results obtained constitute a database for research in pharmacognosy, pharmacology, and toxicology to propose an improved traditional plant product against skin conditions and skin aging for the population.

Keywords: Agni, Bongouanou, Ivory Coast, Plants, Dermo-cosmetic practices

Background

A cosmetic product is a substance or preparation intended to be applied to the various parts of the human body to clean them, perfume them, alter their appearance, protect them, maintain them in good condition, or correct body odors (Ansel *et al*. 2016). Cosmetic products play an important role in personal care. Nowadays, to treat and maintain the body against aging and skin imperfections, etc., cosmetic products (cream, lotion, ointment, mask, milk, soap, etc.) are commonly recommended. These products contain synthetic molecules such as parabens, phthalates, UV filters, corticosteroids, aluminum salts, xenoestrogens, Octocrylene, Cyclopentasiloxane, Salicylic Acid, etc. Indeed, their use causes adverse effects in some users such as allergic reactions, skin irritations, tingling, hives, genital malformations in pregnant women, decreased fertility, early puberty, even cancers, etc. (Mezhoud & Boudissa, 2018, Ripamonti *et al*. 2018, Sedrati *et al*. 2021). In a study involving 159 subjects, 68% were women, hygiene cosmetic products were the most used (64%), 73% of the population did not know the composition of the cosmetics, and the most well-known ingredient was paraben. 65% of the population developed adverse effects, with allergies being the most common, and hair dye was the most implicated (Ziad & Mezerai 2020). In Côte d'Ivoire, a study conducted by Kourouma *et al*. (2016) showed the side effects of cosmetic products containing corticosteroids after use, including 52.5% occurrence of dark spots, 20% stretch marks, 17.5% dyschromia, and 10% folliculitis.

Furthermore, some skin imperfections are neglected tropical conditions due to the benign nature of their manifestation. Skin diseases represent a real public health problem worldwide and in tropical countries, where they account for 30% of consultations in rural areas (Clyti *et al*. 2006). To treat these conditions, antibiotics are commonly used. Despite their effectiveness, there are currently occurrences of resistance and multidrug resistance of pathogens to these products. Moreover, adverse effects following their use have been reported by several authors (Coulibaly 2012, Béné 2017). Indeed, with commonly used synthetic molecules, studies have shown that they always cause bothersome side effects in some patients, leading to discontinuation of treatment. In a study involving 60 patients, 47 of whom had dermatophytosis and 13 had cutaneous candidiasis and were treated with Ketoconazole and Flutrimazole, 3% of the patients prematurely stopped treatment due to side effects (Koffi *et al*. 2007, Kadjo *et al*. 2023).

Faced with the numerous harmful effects of chemical substances on the skin, which are found in synthetic products frequently used and present a risk to human health, cosmetopoeia appears as an alternative to explore to find traditionally used recipes for body care. Cosmetopoeia is therefore a collection of inventories and compilations of plants and their traditional uses (Ansel 2016). It refers to all natural resources for the development of cosmetic products. Furthermore, the use of cosmetopes aims to gain a better understanding of ancestral cultural heritage while preserving traditional practices and promoting natural ingredients for body care products (Jost *et al*. 2016).

In the current context of searching for dermo-cosmetic products traditionally used to treat and care for the skin, several ethnobotanical surveys have been conducted in various countries around the world such as Côte d'Ivoire, Togo, Congo, etc., to find preparations based on natural substances used by local populations (Nabede *et al*. 2018, Ndjele *et al*. 2022, Kouakou *et al*. 2023). As a result, traditional products play an important role in our societies. To carry out this study, the Agni people of the Centre-East were targeted since this group possesses extensive knowledge of medicinal plants and dermo-cosmetic practices (Litta 2021, Kadjo *et al*. 2023). The purpose of this study is to contribute to the promotion of Ivorian cosmetic traditions, particularly those of the Agni people in the Bongouanou Department. To this end, an ethnobotanical survey was conducted with holders of traditional knowledge, with the aim of identifying and documenting the products and plants used locally for dermo-cosmetic purposes, both for skincare and for the treatment of skin conditions.

Materials and Methods

Presentation of the study area

The work was carried out in the Bongouanou department, located in the Central-East of Côte d'Ivoire between latitude 38' 55" North and longitude 11' 57" West. Bongouanou department experiences two types of seasons: a dry season (November to March) and a rainy season (April to October). The vegetation is characterized by semi-deciduous forests in line with an average annual rainfall exceeding 1,600 mm (Kadjo 2023). Bongouanou has an estimated population of 78,281 inhabitants (RGPH 2021). The dominant people and customary landowners are a group from the Agni ethnic group, the Morofoués, who belong to the Akan group originating from present-day Ghana. The Bongouanou Department is divided into four sub-prefectures, namely the sub-prefectures of Bongouanou, Assié-Koumassi, N'guessankro, and Andé. In this study, ten localities were visited (Fig. 1).

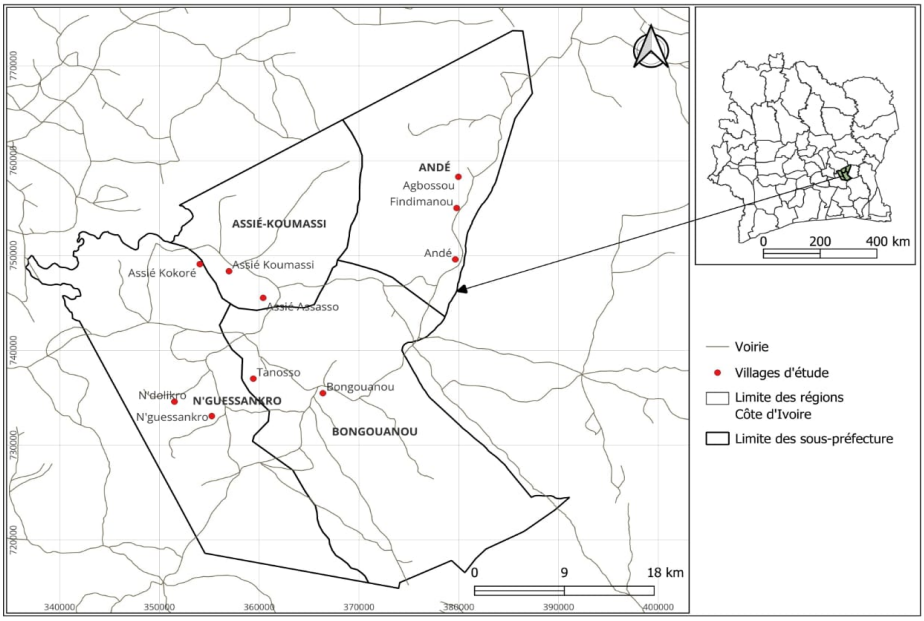

Figure 1. the different locations visited during the surveys

Data Collection on Traditional Dermo-Cosmetic Practices

To collect information about traditional dermo-cosmetic practices, a survey was conducted from February to April 2025 in three stages.

The first step was to submit a research permit application to the sub-prefecture of Bongouanou. This request was approved by the Sub-Prefect through a written note authorizing us to carry out the work. Next, an initial visit was made to the village chiefs of the various localities visited with the note provided by the Sub-Prefect to get acquainted, establish a basis of trust, and define a work plan. After obtaining their consent, an appointment was scheduled to conduct the actual survey.

The second step consisted of carrying out the survey itself with the support of a resource person, who acted as a guide-interpreter. An interview based on free lists was conducted with respondents met during a door-to-door approach in various homes. The interviews were conducted in Agni. These interviews focused on the socio-demographic profile of the respondents as well as on dermo-cosmetic plants and practices. This includes, among other things, information such as:

- Plant species recognized by local populations for dermo-cosmetic use
- The local name of the species used in the preparation of the products
- The local name of cosmetic products
- The organs used
- The method of preparation, etc.

The third step consisted of taking a hike in the surrounding vegetation with the guide-interpreter to collect the plants mentioned by the informants during the interviews. This method made it possible to gather plant specimens to create a herbarium for the identification of the samples at the Laboratory of Botany and Valorisation of Plant Diversity at Nangui ABROGOUA University. The hiking technique, also known as "walk-in-the-woods," is a well-established ethnobotanical survey method (Todou *et al*. 2023). It allows reliable correlations to be made between the local names of plants and their scientific names. The surveys were conducted in accordance with the fundamental rights of the respondents and following the recommendations of the code of ethics in ethnobiology (ISE 2006).

For the entire study, 253 knowledgeable individuals were interviewed. All the respondents were Agni, and a code was assigned to each of them. Here, 'knowledgeable individuals' refers to anyone capable of providing information on the subject in question.

Processing and analysis of data collected during the interviews

Data processing was carried out using Excel 2013 software. Two (02) ethnobotanical parameters were used to assess the cultural importance of traditional products used in the treatment and care of the skin. These are the citation frequency and the Smith index. These parameters were determined using FLAME 1.1 (Pennec *et al*. 2012).

- The **citation frequency** (Cf) reflects the regularity of the information and is given by formula (1) developed by Schrauf and Sanchez (2008):

$$Fc = \frac{N_i \times 100}{N} \text{ (1)}$$

Fc: is the citation frequency of the species (expressed as a percentage), Ni: the number of person(s) who mentioned the item, and N: the total number of informants.

According to the FC value, species can be classified into three categories (Dossou *et al*., 2012):

- 50 % ≤ Fc ≤ 100 % : well-known plant
- 25% ≤ Fc ≤ 50 % : moderately known plant
- 0% ≤ Fc ≤ 25 % : little-known plant

- The **Smith index** shows the relative importance of a plant for the informants. It is determined using formula 2 (Smith & Borgatti 1998) :

$$S_a = \frac{\sum_{i=1}^{N} \frac{Li - Ra + 1}{Li}}{N} \text{ (2)}$$

Sa: Smith's index, Li: the length of a citation list, Ra: the rank of a citation in the list, and N: total number of respondents (number of lists). Smith's index ranges from 0 to 1. A value close to 1 indicates that the plant or product is important to the respondents.

Results

Profiles knowledge

The survey allowed for interviews with 253 people who had knowledge of skin conditions, the plants used to treat them, as well as dermo-cosmetic practices. There were 112 men (44.3%) and 141 women (55.7%). The informants' ages ranged from 20 to 90 years, with a predominance in the ≥ 46 age group. The age groups >31-45] and ≥ 46 represent the informants who have more knowledge about the dermo-cosmetic practices used in the treatment and care of the skin (Table 1).

Table 1.Sociodemographic characteristics of the respondents

Sex		**Age group**		
Man	Woman	>20-30]	>31-45]	≥ 46
112	141	40	92	121
44,3 %	55,7 %	15,81 %	36,36 %	42,82 %

Practices related to plants used in the preparation of dermo-cosmetic products among the Agni of Bongouanou

This study made it possible to catalog 24 plants used in the preparation of dermo-cosmetic products. They are distributed across 23 genera and 16 families. The families with the greatest species diversity are Fabaceae, with four species. All other families are represented by one or two species. Leaves are the most used organs at 50%, followed by fruits at 20.33%, seeds at 16.66%, bark at 8.33%, and other organs such as stems, rhizomes, and flower buds each represent only 4.16% in the preparation of traditional products. Kneading (50%) is the most recommended method of preparation (Table 2).

Practices Related to Traditional Dermo-Cosmetic Products of the Agni in the Bongouanou Department

The survey revealed five (05) categories of dermo-cosmetic products. These include dermo-cosmetic products traditionally used for body care, products used for spots and wrinkles, products used to maintain the scalp, and products used for skin conditions. These products enable the Agni people to meet their bodily needs. The figures below show some traditional products encountered during the surveys (Fig. Fig 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7).

Table 2. Plants Used in the Preparation of Dermocosmetic Products

Botanical family	Scientific names	Local names	Used organs	Usage Form	Preparation method
Euphorbiaceae	*Alchornea cordifolia* L.	Djéka	Leaves	Oil	Grinding + Palm kernel oil
Fabaceae	*Arachis hypogaea* L.	N'gattiêh	Kernel	Oil	Roasting
Meliaceae	*Azadirachta indica* A.Juss.	Djéné-baka	Leaves, fruit, bark	Oil	Grinding + Coconut oil
Meliaceae	*Carapa procera* DC.	Kodou	Fruit	Oil	Hot extraction
Malvaceae	*Ceiba pentandra* (L.)	Egnan	Stem	Ash	Calcination
Rutaceae	*Citrus limon* (L.) Burm.f.	Domigankan	Fruit	Lotion	Pressure extraction
Arecaceae	*Cocos nucifera* L.	Adjékpako	Kernel	Oil, Milk	Roasting
Zingiberaceae	*Curcuma longa* L.	Bôflôxa	Rhizome	Lotion	Grinding + Coconut oil
Arecaceae	*Elaeis guineensis* Jacq.	Ahé	Kernel	Oil	Roasting
Moraceae	*Milicia excelsa* (Welw.) C.C.Berg	Elou	Leaves	Ointment	Leaf + shea butter
Rubiaceae	*Mitracarpus scaber* Zucc.	Clannanbêh	Leaves	Oil	Grinding + Palm kernel oil
Cucurbitaceae	*Momordica charantia* L.	Kôkôblié	Leaves	Oil or Ointment	Leaf + coconut oil
Bignoniaceae	*Newbouldia laevis* (P.Beauv.) Seem.	To zouo	Leaves; bark	Oil	Grinding + Palm kernel oil
Lamiaceae	*Ocimum gratissimum* L.	Amangninan	Leaves	Oil	Grinding + Coconut oil
Euphorbiaceae	*Ricinodendron heudolletii*	Akpi	Kernel / bark	Oil	Roasting; Bark powder + coconut oil
Euphorbiaceae	*Ricinus communis* L.	Attédéh	Kernel	Oil	Roasting
Fabaceae	*Senna alata* (L.) Roxb.	N'gnaloua	Leaves	Oil	Grinding + Coconut oil
Fabaceae	*Senna occidentalis* (L.) Link	N'gouagoua banangnah	Leaves	Oil	Grinding + Palm kernel oil
Solanaceae	*Solanum lycopersicum* L.	Aninglinbôdôh	Leaves; fruit	Lotion	Kneading + water
Anacardiaceae	*Spondias mombin* L.	Trouman	Leaves	Oil	Grinding + Coconut oil
Myrtaceae	Syzygium aromaticum (L.)	Kplêkplê	Flower bud	Paste	Kneading + white clay
Fabaceae	*Tetrapleura tetraptera* (Schumach. & Thonn.)	Kplêkêssê	Fruit	Perfume, Oil	Fruit + coconut oil or shea butter
Malvaceae	*Theobroma cacao* L.	Kohko	Fruit	Ash	Calcination
Sapotaceae	*Vitellaria paradoxa* C.F.Gaertn.	N'gouan baka	Fruit	Butter, Ointment	Hot extraction

Figure 2: Ointment traditionally used to maintain the body against skin aging (Kadjo, 2025)

Figure 3: Ointment traditionally used against skin disorders (Kadjo, 2025)

Figure 4: Traditional soap (or **sanmoulan bliéh** in Agni) used for skin care (Kadjo, 2025)

Figure 5: Black soap (or **sanmoulan bliéh** in Agni) used in the treatment of skin diseases (Kadjo, 2025)

Figure 6: Palm kernel oil called **adjé n'go** in the local language (Agni) (Kadjo, 2025)

Figure 7: Shea butter (or **n'gouan** in Agni) used as an ingredient in traditional products (Kadjo, 2025)

Practices Related to the Cultural Importance of Dermocosmetic Products

Products Used in Body Care Among the Agni of the Bongouanou Department

Five traditional products were listed in this study. It appears that palm kernel oil, called **adjé_n'go** in Agni, black soap, called **sanmoulan blihé,** and shea butter, commonly called **n'gouan**, are the most frequently mentioned products by experts, with a citation frequency of (Fc = 98.28%), (Fc = 96.14%), and (Fc = 94.85%), respectively. The values obtained from the Smith

Index for palm kernel oil, black soap, and shea butter are 0.787, 0.571, and 0.548, respectively. This table shows that the Smith Index is relatively strong and correlated with the citation frequency of the products (Table 3).

Table 3:.Traditional products used in skin care by the Agni of the Bongouanou Department

Local names (Agni)	Common names	FC (%)	Rang moyen	Sa
Adjé_n'go	Palm kernel oil	98,28	1,952	0,787
Sanmoulan_blihé	Black soap	96,14	2,942	0,571
N'gouan	Shea butter	94,85	1,000	0,548
N'go	Palm oil	93,99	3,900	0,378
Adjékpako (louh_ou_n'go)	Coconut oil	91,42	4,864	0,190

Traditional products used to remove spots and wrinkles

In order to eliminate blemishes and wrinkles, the Agni of Bongouanou use six products, the most prominent of which are shea butter called **n'gouan** (83.33%), palm oil (76.67%), and lemon juice (76.67%) (Table 4).

Table 4. Dermocosmetic products used against spots and wrinkles

Local names (Agni)	Common names	FC (%)	Average rank	Sa
N'gouan	Shea butter	83,33	2,940	0,473
N'go	Palm oil	76,67	1,000	0,767
Domigankan_zouo	Lemon juice	76,67	1,826	0,616
Bôflô_xa_ou_exa_kôklô_zouo	Turmeric juice	65,00	4,513	0,166
Adjékpako_(louh_ou_n'go)	Coconut oil	58,33	3,943	0,233
Kodou_(louh_ou_n'go)	Carapa oil	26,67	2,813	0,179

Dermo-cosmetic products used to treat and maintain the scalp

In this study, six products were mentioned for treating and caring for the scalp (Table 5). It appears that palm kernel oil (**adjé_n'go**), coconut oil (**adjébaka louh_ou_n'go**), and red oil (**n'go**) are the most used by knowledgeable individuals. The citation frequencies of these products range from 40% to 92.86%, and the Smith index values range from 0.098 to 0.929, indicating that these products are relatively important to the knowledgeable individuals for the treatment and care of the scalp.

Table 5. Dermo-cosmetic products used to care for the scalp

Local names (Agni)	Common names	FC (%)	Average rank	Sa
Adjé_n'go	Palm kernel oil	92,86	1,000	0,929
Adjébaka_(louh_ou_n'go)	Coconut oil	72,86	2,784	0,442
N'go	Palm oil	68,57	1,979	0,528
N'gattiêh-mâ_louh	Peanut oil	60,00	4,381	0,198
Attédé_mâ_louh	Castor oil	55,71	3,795	0,253
Djéné_zouo	Onion juice	40,00	5,107	0,098

Traditional products used in the treatment of dermatoses

Table 6 presents the most prominent products used for the treatment of skin conditions. These are mainly the mixture (81.43%) called **douffalêh** in Agni, black soap (77.14%), palm kernel oil, and ash (51.43%).

Table 6. Products used against skin diseases among the Agni of Bongouanou

Local names (Agni)	Common names	FC (%)	Average rank	Sa
Douffalêh	Mixture	81,43	1,211	0,770
Sanmoulan_bilhé	Black soap	77,14	2,167	0,514
Adjé_n'go	Palm kernel oil	74,29	2,923	0,361
N'zouan	Ash	51,43	3,917	0,160
Sakiêh	Traditional ointment	25,71	1,167	0,247
N'djinh	Salt	15,71	3,636	0,079

Discussion

The investigation into traditional dermo-cosmetic practices among the Agni of Bongouanou provided a broad and well-defined understanding of cosmetopoeia. This study aimed to highlight the knowledge and expertise of the Agni of Bongouanou regarding products traditionally used to treat skin conditions and care for the skin.

The survey involved identifying and collecting information on plants and traditional products used to treat and care for the body by the Agni of Bongouanou. The results of this study revealed that knowledge holders are both men and women, aged 20 to 90 years. However, the respondents were predominantly female. This predominance of women could be explained by the fact that knowledge related to traditional cosmetics (preparing shea butter, black soap, etc.) is often passed down between women, from mother to daughter, within family or community settings. They thus become the main holders and guardians of these practices. Women are also traditionally responsible for body care, family hygiene, and the transmission of skincare, haircare, and beauty practices. These results are consistent with the work of Mehdioui & Kahouadji (2007), who showed that women are more likely to hold traditional knowledge. Moreover, knowledge of the uses of medicinal plants and their properties is generally acquired through long experience accumulated and passed down from one generation to the next. The experience gained with age constitutes the main source of information at the local level.

This study revealed 24 plant species used in the preparation of traditional products, belonging to 23 genera and 16 families. The most represented family is Fabaceae. Studies on various Fabaceae species have shown the presence of phytochemicals such as polyphenols, flavonoids, tannins, saponins, etc., which possess antioxidant activity (Kaliche & Djemoui, 2014, Lebri *et al*. 2015). Antioxidants play a very important role in the skin. Indeed, these substances trap and neutralize free radicals responsible for skin aging. And they allow the renewal of skin cells (Ghedadba *et al*. 2015). Furthermore, the grouping of three subfamilies (Caesalpinioideae, Mimosoideae, and Faboideae or Papilionoideae) through phylogenetic classification to form the Fabaceae family could explain the predominance of the Fabaceae family in this study conducted in the Bongouanou department (APG IV 2016).

Leaves (50%) are the organs most commonly used in the preparation of traditional products. Leaves are highly metabolically active organs because they are the site of photosynthesis and many biochemical reactions. They therefore contain secondary metabolites (alkaloids, flavonoids, tannins, saponins, etc.) and essential oils with recognized medicinal and cosmetic properties. Some users also attribute symbolic values of purification or renewal to leaves. In addition, harvesting them is less dangerous for the survival of the plants compared to roots and bark, which threaten the life of the plant (Nabede *et al*. 2018).

The methods of preparing traditional products are varied, but the most commonly used is grinding. Grinding allows for the active ingredients or fats contained in plants (seeds, nuts, leaves, etc.) to be released as easily as possible. This process enables the rapid obtainment of extracts (such as butters, oils, or pastes) that can be used directly on the skin while retaining their natural properties. Thus, grinding is considered the ideal method for preparing plants for dermo-cosmetic use for local application (on the skin), whether for treating skin conditions or for body care. Hot extraction would facilitate the extraction of phytocompounds of various types, especially oils. Traditional knowledge and practices are linked to the customs of peoples. They are therefore specific to each people. Moreover, skin diseases (dermatoses) and cosmetic practices generally affect all superficial parts of the body. Among the Abbey and the Krobou of Agboville, N'guessan (2008) also revealed that kneading was the most commonly used method for preparing traditional medicines.

Some plants used in the preparation of traditional products have antimicrobial and antioxidant properties, notably *Senna alata* L., *Momordica charantia* L., *Spondias mombin* L., *Ocimum gratissimum* L. and *Mitracarpus scaber* (Marie Elvire *et al*. 2020, Diatta *et al*. 2022, Ogan *et al*. 2022, Yaméogo *et al*. 2023). This could justify their traditional use in the treatment and care of the skin.

The citation frequency values and Smith index ranging between 0.5 and 1 show that these traditional products are well known and are relatively important for information. These include, among others, palm kernel oil, palm oil, shea butter, black soaps. These products and ingredients are used daily by the Agni population. Likewise, kaolin is a white clay whose beneficial properties for the skin are well known. For example, it has been shown to regulate sebum, unclog pores, improve skin hydration and texture, thus justifying its cosmetic use (Zhang *et al*. 2023). Furthermore, palm kernel oil, called **adjé n'go** in Agni, is used against skin disorders, particularly rashes, ringworm of the scalp, and helps fight dandruff. It is also used in the preparation of traditional cosmetic and food products. This oil is used by women in hair care, promoting hair growth. The traditional ointment used for skin care is made from a mixture of shea butter and egg yolk. This mixture is used against dry skin, spots, wrinkles, and pimples. Traditional black soap (or **sanmoulan bliéh** in Agni) used for skincare is made by mixing

boiling palm oil with potash, and the soap for skin conditions is made with the same mixture, adding palm kernel oil along with extracts of *Azadirachta indica* A.Juss. and *Ocimum gratissimum* L. All these practices highlight the richness and diversity of traditional products used for cosmetic purposes, showcasing ancestral knowledge that remains widely useful and practiced.

Conclusion

This study on traditional dermo-cosmetic practices among the Agni of Bongouanou in Côte d'Ivoire aimed to list the plants and traditional products used in body care. It revealed numerous natural products used to treat diseases and maintain the human body.

A total of 24 plants and 16 products with dermo-cosmetic uses were recorded as a result of the survey. The most commonly used plant parts are the leaves and fruits. Crushing and hot extraction are the most recommended preparation methods. The respondents have a good knowledge of the uses and practices related to dermo-cosmetics. Traditional products of cultural significance have included palm kernel oil, shea butter, and black soap.
This work, in addition to preserving knowledge, could serve as a basis for research in pharmacognosy, pharmacology, and toxicology.

Declarations

List of abbreviations: Fc – Citation frequency of the species; Sa – Smith's index
Ethics approval and consent to participate: All participants interviewed for the collection of ethnobotanical data in the Department of Bongouanou were fully informed of the use of this data and their oral consent was obtained for its publication for human welfare purposes.
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Literature cited

Ansel JL, Butaud JR, Phila R. 2016. Principaux taxons ligneux de la cosmétopée tropicale : une analyse bibliographique. Journal comptes-Rendus-Chimie 19(9):1-14. doi: 10.1016/j.crci.2016.03.017

Ansel JL. 2016. Le concept de cosmétopée à travers les usages traditionnels et les propriétés phytochimiques des ligneux de la Polynésie française. Thèse de doctorat en Chimie organique, minérale et industrielle, Université de Polynésie Française.

APG IV. 2016. Classification for the orders and families for flowering plants. Botanical Journal of the Linnean society 161:1-20. doi: 10.1111/boj.12385

Béné K. 2017. Plantes médicinales du Gontougo (District du Zanzan, Côte d'Ivoire) : inventaire, évaluation des activités pharmacologiques de deux plantes et formulation d'une pommade dermatologique à partir de l'extrait hydroalcoolique de *Bersama abyssinica* Fresen. (Melianthaceae). Thèse Unique de Doctorat, Université Félix HOUPHOUËT-BOIGNY.

Diatta BD, Niass O, Gueye M, Houël E, Boëtsch G. 2022. Diversité et activité antimicrobienne des plantes impliquées dans le traitement des affections dermatologiques chez les Peuls et les Wolofs du Ferlo Nord (Sénégal). European Scientific Journal 18(8):73-97. doi: 10.19044/esj.2022.v18n8p73

Clyti E, Khéosang P, Huerre M, Sayasone S, Martinez AB, Strobel M. 2006. Cutaneous paragonimiasis with flare up after treatment: A clinical case from Laos. International Journal of Dermatology 45(9):1365-4632. doi: 10.1111/j.1365-4632.2006.02778.x

Coulibaly K. 2012. Études botanique, pharmacologique et explorations phytochimiques des extraits de *Terminalia ivorensis* et *Terminalia superba*, deux espèces ligneuses commerciales, médicinales antimicrobiennes de la forêt de Mopri, Tiassalé (Sud de la Côte d'Ivoire). Thèse de Doctorat de botanique, Université Félix HOUPHOUËT-BOIGNY.

Dossou ME, Houessou G, Lougbénon OT, Tenté AHB, Codjia JTC. 2012. Etude ethnobotanique des ressources forestières ligneuses de la forêt marécageuse d'Agonvè et terroirs connexes au Bénin. ACADEMIA Journal 30:41-48. https://popups.uliege.be/2295-8010/

Ghedadba N, Hambaba L, Ayachi A, Aberkane MC, Bousselsela H, Oueld-Mokhtar SM. 2015. Polyphénols totaux, activités antioxydante et antimicrobienne des extraits des feuilles de Marrubium deserti de Noé. Phytothérapie 13(2):118-129. doi: 10.1007/s10298-015-0944-4

ISE. 2006. International Society of Ethnobiology Code of Ethics (with 2008 additions). http://ethnobiology.net/code-of-ethics/ Read on 25/04/2025.

Jost X, Ansel J L, Gael, Phila R, Jean-Francois B. 2016. Ethnobotanical survery of cosmetics plants used in Marquesas Islands (French Polynesia), Journal of Ethnobiology and Ethnomedecine 1:35-40. doi**:** 10.1186/s13002-016-0128-5

Kadjo AF, Bene K, Kougbo MD, Seka JEM, Dogba M, Kouassi KG, Malan DF. 2023. Perceptions et traitement des dermatoses à l'aide de plantes médicinales chez les Agni de Bongouanou (Centre-Est de la Côte d'Ivoire). Revue RAMReS 22(2):61-72.

Kadjo AF. 2023. Plantes et pratiques dermo-cosmétiques traditionnelles utilisées contre les dermatoses chez les Agni de Bongouanou (Région du Moronou, Centre-Est de la Côte d'Ivoire). Mémoire de Master Botanique et Phytothérapie. Faculté des sciences de la Nature, Université Nangui ABROGOUA.

Kaliche FZ, Djemoui F. 2014. Expression phytochimique des plantes (cas Fabaceae) face aux stress écologiques. Licence Sciences de la Nature et de la Vie, Université Kasdi Merbah.

Koffi A, Dally I, Aka B, Coulibaly S, GuédéGuina F. 2007. Développement galénique d'une pommade à base d'huile de Mitracarpus scaber pour le traitement de cinq types de mycoses superficielles. Journal des Sciences Pharmaceutiques et Biologiques 8 (2) :18-24.

Kouakou ABA, Malan DF, Kougbo MD. 2023. Étude des pratiques cosmétiques traditionnelles chez les Agni-Sanwi d'Aboisso et d'Adiaké (Région du Sud-Comoé, de la Côte d'Ivoire). Revue RAMReS 22(2):73-85.

Kourouma S, Gbery HP., Kaloga M, Ecra EJ, Sangaré A, Kouassi IY, Kassi K, Kouassi AK, Yoboué PY. 2016. Dépigmentation cutanée cosmétique des femmes noires : résultats d'une enquête CAP à Abidjan (Côte d'Ivoire). PanAfrican Medical Journal 24 :2-6. doi: 10.11604/pamj.2016.24.159.8315

Lebri M, Bahi C, Fofie NBY, Gnahoue G, Lagou SM, Achibat H, Yapi A, Zirihi GN, Coulibaly A, Hafid A, Khouili M. 2015. Analyse phytochimique et évaluation de la toxicité aiguë par voie orale chez des rats de l'extrait total aqueux des feuilles de *Abrus precatorius* Linn (Fabaceae). International Journal of Biological and Chemical Sciences 9(3):1470-1476. doi: 10.4314/ijbcs.v9i3.29

Litta AL, Diop Al, Kouakou YB, Malan DF. 2021. Étude ethnobotanique des Plantes utilisées dans l'artisanat chez les Agni du Centre-Est et Nord-Est de la Côte d'Ivoire. European Scientific Journal 17 (3) :113-149. doi: 10.19044/esj.2021.v17n3p133

Malan DF. 2008. Utilisations traditionnelles des plantes et perspective de cogestion des aires protégées de Côte d'Ivoire : cas du parc national des Îles Éhotilé (littoral Est de la Côte d'Ivoire). Thèse de Doctorat de gestion et valorisation des ressources naturelles. Université d'Abobo-Adjamé.

Marie-Elvire NA, Vanessa SL, Hortense GK., Emmanuel NN, Rose NM, Christelle-Francine MN, Charles F. 2020. Activité Antibactérienne In Vitro d'*Azadirachta Indica* (Neem) Utilisé pour le Traitement de l'Alvéolite. Health Sciences and Disease 2(2):2-6. doi : 10.31021/ijbs.20203119

Mehdioui R, Kahouadji A. 2007 Etude ethnobotanique auprès de la population riveraine de la forêt d'Amsittène : Cas de la Commune d'Imi n'Tlit (Province d'Essaouira). Section Sciences de la Vie, Bulletin de l'Institut Scientifique 29 :11-20.

Mezhoud H, Boudissa S. 2018. Création d'un laboratoire de toxicologie pour l'évaluation de la sécurité des produits cosmétiques. Mémoire de Master. Université des Frères Mentouri Constantine.

N'guessan K. 2008. Plantes médicinales et pratiques médicales traditionnelles chez les peuples Abbey d'Agboville (Côte d'Ivoire). Thèse de Doctorat d'État et Science naturelle, UFR. Biosciences, Laboratoire de Botanique, Université de Cocody-Abidjan.

Nabede K, Atakpama W, Pereki H, Batawila K, Koffi A. 2018. Plantes à usage dermato-cosmétique de la région de la Kkara au Ttogo. Revue Agrobiologia 8(2):1009-1020. www.agrobiologia.net

Ndjel J, Lisingo J, Ndjele L, Nshimba H, Lituka G, Kahindo JM. 2022. Potentiel cosmétique et usages traditionnels des plantes dans les soins et la beauté du corps à Kisangani, République Démocratique du Congo. *Afrique Science* 20(2): 49-63. doi: http://www.afriquescience.net

Ogan PE, Ewedje EE, Aboudou K, Assongba FY, Egueh SV, Djego J, Soumanou MM. 2022. Production et Évaluation de la Qualité Physicochimique et Microbiologique du Vinaigre Issu de la Pulpe de Prunier Mombin (*Spondias mombin* L.) Produit au Bénin. European Scientific Journal 11:171-188. doi: 10.19044/esj.2022.v18n40p425

Pennec F, Wencélius J, Garine E, Raimond C, Bohbot H. 2012. FLAME 1.1 Free-List Analysis under Microsoft Excel.

RGPH (Recensement General de la population et Habitat). 2021. Répertoire des localités région du Moronou, institut national de la statistique, Abidjan, Côte d'Ivoire.

Ripamonti E, Allifranchini E, Todeschi S, Bocchietto E. 2018. Endocrine Disruption by Mixtures in Topical Consumer Products. *Cosmetics* 5(4):2-22. doi: 10.3390/cosmetics5040061

Schrauf RW, Sanchez J. 2008. Using freelisting to identify, assess, and characterize age differences in shared cultural domains. Psychological Sciences and Social Sciences 63:385-393. doi: 10.1093/geronb/63.6.s385

Sedrati CBS, Touabi A. 2021. Risque toxicologique des produits cosmétiques : Enquête auprès des consommateurs. Mémoire présenté en vue de l'obtention du Diplôme de Master. Département de Biologie animale, Algérie.

Smith JJ, Borgatti SP. 1998. Salience counts and so does accuracy: Correcting and updatinga measure for free-list-item salience. Journal of Linguistic Anthropology 7(2):208-209. https://www.jstor.org/stable/43103186

Todou G, Komo YM, Tchobsala, Adamou I. 2023. Quantitative ethnobotany and vulnerability of woody plant species in Nyé'été forest, South Region of Cameroon. Ethnobotany Research and Applications 26:1-14. doi: 10.32859/era.26.28.1-14

Yaméogo BGJ, Ouédraogo S, Sombié BC, Zambelongo M, Wango F, Zimé-Diawara H, Semdé R. 2023. C7- Formulation de crèmes dermatologiques à base de beurre de karité et d'extraits hydro- éthanoliques de *Mitracarpus scaber* Zucc. (Rubiaceae) et de *Senna alata* (L.) roxb. (Fabaceae) pour le traitement des infections cutanées. Journal Africain De Technologie Pharmaceutique Et Biopharmacie 2(3):92. doi: 10.57220/jatpb.v2i3.92

Zhang X, Zhang Z, Tao H, He X, Hsu K, Wang W, Fang X, Steel A. 2023. Comprehensive assessment of the efficacy and safety of a clay mask in oily and acne skin. Skin Research and Technology 29(11):13513. doi: 10.1002/adma.201104714

Ziad A, Mezerai FZ. 2020. Enquête sur le risque sanitaire d'exposition aux produits cosmétiques et le lissage brésilien. Mémoire de fin d'études pour l'obtention du diplôme de docteur en pharmacie, Algérie.