



Research Article

Ethnobotanical Knowledge and Traditional Uses of *Griffonia simplicifolia* (DC.) Baill. (Fabaceae) in Togo: Focus on Seed Oil

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Abstract

Background and objective. *Griffonia simplicifolia* is a woody vine found in the secondary forests of West and Central Africa. Its seeds are an important source of 5-hydroxytryptophan (5-HTP), a precursor of serotonin, and contain an oil rich in linoleic acid. Traditional knowledge and uses of this oil remain poorly documented. This study aims to document the ethnobotanical knowledge relating to the species in Togo, with a particular focus on the seed oil. **Methods.** A snowball sampling survey was conducted using a KoBoToolbox questionnaire. Of the 262 respondents, 186 knowledgeable informants (71 per cent) were selected. Negative responses were also analysed to assess the geographical distribution of knowledge. **Results.** A marked regional contrast was observed: 66.4 per cent of positive responses in the Maritime region compared with 4.6 per cent in the Kara region, consistent with the coastal distribution of the species described in the literature. Leaves were the most frequently cited part (76.3 per cent), ahead of seeds (29.6 per cent), pods (17.7 per cent), flowers (11.8 per cent) and bark or stem (5.9 per cent). The leaves are mainly used as livestock feed. Only 17.7 per cent of informants described oil extraction, by pressing, solvent extraction or maceration, with yields ranging from 30 to 80 per cent. The main therapeutic uses relate to nervous disorders, wounds and skin conditions. **Conclusion.** This study provides the first overview of ethnobotanical knowledge of *Griffonia simplicifolia* in Togo and highlights the limited understanding of its seed oil, justifying further research into its utilisation.

Keywords

Griffonia simplicifolia, 5-hydroxytryptophan, Ethnobotany, Seed Oil, Traditional Knowledge

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1. Introduction

Vegetable fats play a vital role in the human diet and the global agricultural economy. Beyond their role as a concentrated source of energy (37 kJ g^{-1}), they provide a major source of essential fatty acids, notably linoleic acid (omega-6) and α -linolenic acid (omega-3), which the human body is unable to synthesise. These fatty acids are involved in numerous essential physiological processes, such as maintaining the fluidity of cell membranes, intracellular signal transduction, the regulation of inflammatory responses, and the biosynthesis of eicosanoids – molecules involved in a wide range of biological functions [1] (FAO/WHO, 2010).. Owing to their nutritional, functional and technological properties, vegetable oils now occupy a strategic position in the food, health, cosmetics and industrial sectors.

Over the past two decades, global vegetable oil production has more than doubled as a result of the combined effects of population growth, urbanisation, changing dietary habits and the diversification of industrial, energy and pharmaceutical uses [2]. (FAO, 2024). However, this growth relies primarily on a limited number of oilseed species. Indeed, oil palm, soya, rapeseed, sunflower and groundnuts alone account for over 90 per cent of global vegetable oil production. This high concentration of production comes at the expense of a considerable oilseed biodiversity, comprising numerous local species whose nutritional, economic and industrial potential remains insufficiently explored and utilised [3] Padulosi & Hoeschle-Zeledon, 2004).

This situation is of particular concern in sub-Saharan Africa, especially in West Africa, where dependence on imported vegetable oils poses a major challenge to food security, agro-industrial development and the trade balance of many countries. This paradox is all the more striking given that the region possesses an exceptional diversity of flora, including numerous plant species capable of contributing to the diversification of oilseed resources [4] (Akpavi, 2010). However, only a small proportion of these species have been the subject of in-depth studies into their phytochemical composition, nutritional properties or potential for industrial utilisation [5, 6] (Burkill, 1995; Akpavi et al., 2013)..

Experience gained with several species of economic interest, such as shea (*Vitellaria paradoxa*), neem (*Azadirachta indica*) and jatropha (*Jatropha curcas*), shows that any sustainable development strategy must necessarily be based on a thorough understanding of the knowledge and practices of local communities. Ethnobotanical surveys make it possible to identify the traditional uses of plants, assess their availability, understand how the resource is utilised, highlight the socio-cultural constraints associated with its use, and anticipate the conditions under which new products derived from these species will be accepted [7, 8] (Martin, 1995; Cotton, 1996). They thus provide a key link between traditional knowledge and scientific research, promoting the sustainable use of plant genetic resources whilst contributing to the preservation of local

knowledge.

From this perspective, *Griffonia simplicifolia* appears to be a particularly promising species. Although it is recognised worldwide for its therapeutic and economic value, particularly due to its exceptionally high 5-hydroxytryptophan (5-HTP) content, knowledge regarding its traditional uses, availability, methods of utilisation and potential for value addition remains fragmentary in several countries within its natural range, notably in Togo. A more thorough ethnobotanical characterisation is therefore an essential step in guiding strategies for the conservation, sustainable use and value addition of this plant resource.

Griffonia simplicifolia belongs to the Fabaceae family (Caesalpinioideae subfamily). It is a woody, climbing vine widely distributed along the coastal strip of West and Central Africa, from Senegal to Angola, with a particularly marked presence in Ghana, Côte d'Ivoire and Togo [5, 9] (Burkill, 1995; Cunningham et al., 2021). The species grows mainly in secondary forests, forest edges and humid Guinean savannahs, whilst it remains rare in the drier Sudanese zones. Morphologically, it is characterised by simple, alternate leaves, tomentose racemose inflorescences, obliquely ovoid pods that turn black when ripe, and greenish-brown orbicular seeds 1 to 1.5 cm in diameter [5] (Burkill, 1995).

The scientific and commercial interest in *Griffonia simplicifolia* lies primarily in its exceptionally high content of 5-hydroxytryptophan (5-HTP), a non-proteinogenic amino acid present in the seeds at levels ranging from 5 to 12 per cent of dry matter, making this species one of the richest known natural sources [10, 11] (Bell, 1976; Birdsall, 1998). As a direct precursor of serotonin (5-hydroxytryptamine), 5-HTP plays a role in regulating numerous physiological functions, including mood, sleep, appetite and pain perception. A deficiency of 5-HTP is associated with various conditions, such as depression, anxiety disorders, sleep disorders and fibromyalgia [12] (Rondanelli et al., 2012). These properties have led to the use of *Griffonia simplicifolia* seed extracts in the dietary supplement and nutraceutical industries, particularly in the European and North American markets [13] (Renata de Melo et al., 2021). This sustained demand has contributed to the development of a significant export sector in West Africa, with Ghana ranking among the leading producers and exporters of dried seeds, with annual volumes ranging from several hundred to a few thousand tonnes, representing a market value of several million US dollars [9] Cunningham et al., 2021).

Whilst interest in *Griffonia simplicifolia* has long focused on its high 5-hydroxytryptophan (5-HTP) content, recent research highlights another, as yet largely unexplored avenue for its utilisation: the lipid fraction of its seeds. According to Novidzro et al. (2019) [14], the seeds contain between 5 and 12 per cent oil, characterised by a high content of linoleic acid (C18: 2 n-6) as well as the presence of tocopherols (vitamin E)

and phytosterols. This lipid profile, comparable to that of several benchmark vegetable oils such as sunflower, safflower and evening primrose oils, gives this oil promising potential for food, nutraceutical, pharmaceutical and cosmetic applications. However, the research conducted to date has been largely limited to its phytochemical characterisation. Knowledge regarding local harvesting practices, artisanal extraction methods, traditional uses and the social acceptability of this oil remains largely insufficient, particularly in the countries within the species' natural range. In Togo, although *Griffonia simplicifolia* is listed in the national flora, to our knowledge no comprehensive ethnobotanical study has been conducted on it. The available information is limited to a few references in regional floras [5] (Burkill, 1995) and unpublished technical reports. This situation contrasts with that of neighbouring Ghana, where the species constitutes a major plant resource for export. This gap hinders its conservation and sustainable use in Togo. It is against this backdrop that the present study is set, the overall objective of which is to contribute to the sustainable use of *Griffonia simplicifolia* in Togo through an ethnobotanical approach. More specifically, it aims, on the one hand, to document local knowledge and traditional uses associated with all parts of the plant (leaves, flowers, pods, seeds, stems, bark and roots) across its various distribution areas in Togo and, on the other hand, to assess the current state of knowledge and practices relating to the oil extracted from its seeds. To this end, the study focuses in particular on any traditional extraction methods, the dietary, therapeutic or other uses attributed to the oil, as well as the perception and acceptability of *Griffonia simplicifolia* oil that could be produced and marketed locally.

2. Materials and Methods

2.1. Study Area

The ethnobotanical survey was conducted during November 2025 to February 2026 and using a digital questionnaire designed on the KoBoToolbox platform. The investigations were carried out mainly in the Maritime Region of Togo, covering the communes of Golfe, Ago-è-Nyive, Ave, Yoto and Bas-Mono, which correspond to the main areas of distribution of *Griffonia simplicifolia*. In order to assess the extent of local knowledge regarding this species beyond its presumed range, supplementary surveys were also carried out in the Kara region, representing the northern part of the country. Plant identity was confirmed by a specialist botanist (M.M.) using morphological keys from Burkill (1995) [5]. A reference voucher specimen (No. GS-TOGO-2024-001) has been deposited at the Herbarium of the Faculty of Sciences, University of Lomé Togo.

2.2. Population and Sampling

The target population consisted of people likely to be familiar with or to use *Griffonia simplicifolia* in the study areas. Participants were recruited using non-probability snowball sampling, with each respondent being asked to recommend two to three people familiar with the species. Prior knowledge of *Griffonia simplicifolia* was not a prerequisite for recruitment. Upon enrolment, a screening question ("Are you familiar with *Griffonia simplicifolia*?") was administered to classify respondents. Those who answered "Yes" (n = 186; 71.0%) were included in the ethnobotanical analyses, whilst those who answered "No" (n = 76; 29.0%) were retained solely to document the regional distribution of knowledge of the species. The inclusion criteria were being aged 18 or over, residing in the study area, and having knowledge of or using *Griffonia simplicifolia*. A total of 262 people were surveyed, but only those who answered 'Yes' to this question were included in the ethnobotanical analyses.

2.3. Data Collection

Data were collected using a structured questionnaire organised into modules covering eligibility, socio-demographic characteristics, botanical knowledge and vernacular names, habitat and seasonal availability, parts used, practices relating to procurement and oil extraction, uses, safety, knowledge transmission and economic aspects. The questionnaire was developed on the basis of standard ethnobotanical guidelines [7, 15] (Martin, 1995; Alexiades, 1996) and pre-tested with ten informants in Lomé region maritime, in October 2025. Minor adjustments were made following this pre-test to improve the clarity of questions and the relevance of response options. Interviews were conducted in French or Ewe and Mina, region maritime, or Kabyè region kara, depending on the participants' language preference. When participants were not conversant in French, verbal translation into Ewe or Mina in maritime and Kabyè was provided by the field investigator. This study was conducted in accordance with the ethical principles applicable to ethnobotanical surveys [16] (CBD, 2010). Free, prior and informed consent was obtained from each participant before the interview. In Togo, non-clinical ethnobotanical surveys of this type do not require formal institutional ethics committee approval under current national regulations.

2.4. Data Analysis

The data collected via KoBoToolbox were exported and then analysed using descriptive statistics (frequencies and proportions). A further analysis focused on the negative responses to the screening question regarding knowledge of *Griffonia simplicifolia*. These respondents, who were excluded from the ethnobotanical analyses, were nevertheless taken into account to explore the potential influence of region and place of residence on knowledge of the species.

3. Results

3.1. Knowledge of *Griffonia simplicifolia* by Region Studied

The results (Table 1) reveal marked regional variation in reported knowledge of *Griffonia simplicifolia*. Of the 262 respondents, 186 (71.0 per cent) were familiar with the plant,

with a predominance in the Maritime region (174/214; 66.4 per cent) compared with only 12/48 (4.6 per cent) in the Kara region. This disparity may be explained by the species' ecological distribution, which is mainly associated with Guinea's humid zones and the West African coastal strip (Figure 1), where direct contact with the plant facilitates the acquisition and transmission of local knowledge (Burkill, 1995; Cunningham et al., 2021).

Table 1. Knowledge of *Griffonia simplicifolia* in the different regions.

Region	Aware of (n)	Not familiar with (n)	Total (n)	% familiar within region	% of reported awareness
Maritime	174	40	214	81.3%;	66.4%
Kara	12	36	48	25.0%	4.6%

3.2. Sociodemographic Profile of Confirmed Users (n = 186)

Among the 186 respondents familiar with *Griffonia simplicifolia* (Table 2), men were in the majority (76.3 per cent compared with 23.7 per cent women). The 31–50 age group

was the largest (61.3 per cent), followed by those aged 18–30 (23.1 per cent) and those over 50 (15.6 per cent). The level of education is relatively high, with 46.77 per cent of respondents having a higher education qualification and 35.48 per cent a secondary school qualification, indicating that knowledge of the species is held by both traditional knowledge holders and those with formal education.

Table 2. Profile of knowledgeable informants on *Griffonia simplicifolia*.

Variable	Category	Number (n)	% (base specified)
Gender	Men	142	76.3%
	Women	44	23.7%
Age group	18–30 years	43	23.1%
	31–50 years	114	61.3%
	Over 50	29	15.6%
Level of education	Higher education	87	46.77%
	Secondary	66	35.48%
	Primary	11	5.91%
	None	22	11.83%

3.3. Botanical Knowledge and Vernacular Names

Ewe is the main language associated with the vernacular names for *Griffonia simplicifolia*, cited by 76.5 per cent of re-

spondents, followed by Mina (11.8 per cent). The most frequently reported names are Gbogbotroloe (66.6 per cent), Gbeyibo (16.7 per cent) and Gbodouti (16.7 per cent), all of which originate from languages of the Maritime region. The botanical descriptions provided by respondents are generally incomplete and most often relate to a single part of the plant (leaf, pod or seed). However, some respondents described the

species more comprehensively, mentioning its main diagnostic characteristics, notably its sarmentose vine-like growth habit, its simple alternate leaves, its tomentose racemose inflorescences, its obliquely ovoid pods turning black on ripening, and its greenish-brown orbicular seeds.

3.4. Organs Known and Used by Respondents

The leaf is the part of *Griffonia simplicifolia* best known to respondents (Table 3), cited by 142 of the 186 confirmed experts, or 76.3 per cent. It is followed by the seed or kernel (29.6 per cent), then by the pod (17.7 per cent). The flowers

(11.8 per cent) and the bark or stem (5.9 per cent) were mentioned much less frequently, whilst no respondent mentioned the roots (0 per cent)

This ranking reflects an uneven level of knowledge regarding the plant's various parts. The high frequency with which the leaves are mentioned suggests that they are the main feature used to identify the species in the field. Conversely, the seeds, although recognised internationally as the main part utilised, are mentioned relatively infrequently, whilst the underground parts are completely absent from the knowledge reported.

Table 3. Organs of *Griffonia simplicifolia* known to respondents.

Organ	n citing the organ (out of 186 confirmed experts)	%	Rank
Leaf	142	76.3%	1
Seed or kernel	55	29.6%	2
Pod	33	17.7%	3
Flower	22	11.8%	4
Bark or stem	11	5.9%	5
Root	0	0.0%	—

3.5. Traditional Uses of *Griffonia Simplicifolia*

The traditional uses of *Griffonia simplicifolia* reported by respondents are largely dominated by zootechnical applications.

Indeed, 166 (89.2%) of the 186 knowledgeable informants mentioned the use of the leaves and, to a lesser extent, the stems or bark as fodder (multiple-response data) primarily for goats, sheep and other ruminants. This proportion exceeds the 76.3% who identified the leaf as a known organ in Table 3 because some informants described the zootechnical function without separately nominating the leaf in the organ-knowledge question.

This high frequency of mention indicates that the species is primarily perceived as a fodder resource in the study areas.

By contrast, medicinal uses appear to be much less common. A few respondents reported applying a powder made from dried bark to wounds to accelerate healing, with a perceived efficacy reported by informants as 8 out of 10, though these therapeutic claims have not been scientifically validated. Another use involves the burnt leaves, administered in combination with other barks to treat digestive disorders, although its effectiveness could not be assessed. Furthermore, no traditional uses of the seeds or kernels were reported apart from those relating to the oil, which suggests limited local utilisation of this part of the plant.

3.6. Sourcing, Extraction and Use of the Oil

The information gathered on *Griffonia simplicifolia* oil (Table 4) remains limited, reflecting a lack of knowledge regarding this resource among the populations surveyed. The few respondents indicated that the kernels are purchased exclusively at local markets, at prices ranging from 500 to 2,000 FCFA/kg. Three extraction methods were reported: mechanical pressing, solvent extraction and maceration. The declared extraction yields, ranging from 30 to 80 per cent, represent respondents subjective estimates and are substantially higher than the oil content of 5–12 per cent reported in the scientific literature [14] (Novidzro et al., 2019), likely reflecting confusion between extraction yield and the quantity of material obtained per batch. The colour of the oil, described as blackish (66.7 per cent) or white (33.3 per cent), indicate a wide variability in knowledge and the absence of standardised processes.

Of the 33 knowledgeable informants who reported knowledge of seed oil (17.7% of 186), 22 (66.7%) attributed therapeutic or cosmetic uses to it, particularly in the treatment of skin conditions, wounds and burns, as well as nervous disorders and depression whilst 11 (33.3%) reported using it in the preparation of ointments, and 11 (33.3%) indicated a contraindication during pregnancy. These uses represent traditional claims reported by respondents and have not been scientifically validated.

Table 4. Characteristics of the supply, extraction and use of the oil.

Parameter	Reported values
Source of kernels	Purchased at the market
Reported price (FCFA/kg)	500, 1,000 and 2,000
Extraction method	Mechanical pressing, solvent extraction and maceration
Declared extraction yield (respondents estimate)	30% and 80%
Reported oil colour	Blackish (66%), white (33%),

3.7. Economic Utilisation and Marketing of *Griffonia Simplicifolia*

The utilisation of *Griffonia simplicifolia* remains largely at a household or local level. Among respondents familiar with the species, 35.5 per cent report using its parts for personal consumption, whilst 11.8 per cent indicate that they are involved in its commercialisation, mainly for the leaves and seeds. This low proportion of traders suggests that the economic exploitation of the plant remains underdeveloped and relies more on individual initiatives than on a genuine commercial organisation.

Furthermore, the survey did not yield any specific information on the revenue generated by the plant’s various parts, with the exception of a few details regarding the seeds. Similarly, no data was obtained regarding marketing channels, the stakeholders involved, the volumes marketed or the existence of an organised supply chain, particularly for oil from the seeds. These observations reflect the low level of organisation within the *Griffonia simplicifolia* value chain in Togo.

3.8. Acceptability of a Locally Produced Oil

The acceptability of locally produced *Griffonia simplicifolia* oil remains conditional. The majority of respondents expressed a favourable attitude towards the potential production and marketing of this oil, but only provided that further information on the product were available. The main expectations relate to knowledge of its nutritional and therapeutic properties, its manufacturing process, its food safety standards and its efficacy. In these circumstances, respondents were cautious about their willingness to pay and identified the lack of information as the main barrier to adopting this oil. These results reflect a low level of knowledge about this resource and highlight the need for awareness-raising support prior to any commercialisation strategy.

4. Discussion

4.1. Influence of Ecological Distribution on Ethnobotanical Knowledge of *Griffonia Simplicifolia*

The regional distribution (West Africa) of knowledge on *Griffonia simplicifolia* confirms that ethnobotanical knowledge is closely linked to the ecological availability of the species [7, 17] (Phillips & Gentry, 1993; Martin, 1995). The high level of knowledge observed in the Maritime region is consistent with the natural distribution of *Griffonia simplicifolia*, which grows mainly in secondary forests and humid Guinean formations in West Africa [5] (Burkill, 1995). Conversely, the low level of knowledge recorded in the Kara region likely reflects the species’ rarity in drier Sudanese zones, where opportunities for observation and the transmission of knowledge are limited (Cotton, 1996). Although socio-economic factors may also influence the dissemination of knowledge, particularly through the trade in seeds intended for the production of 5-hydroxytryptophan (5-HTP) [9] (Cunningham et al., 2021), the results emphasise that proximity to the resource remains the main determinant of local knowledge. They thus highlight the value of combining ethnobotanical, ecological and socio-economic approaches to guide strategies for the conservation and sustainable use of *Griffonia simplicifolia* in Togo. This pattern is consistent with findings from other biogeographical contexts showing that phytoclimatic gradients significantly determine plant distribution and associated local knowledge [18] (Naz et al., 2026).

4.2. Influence of Socio-demographic Characteristics on Ethnobotanical Knowledge of *Griffonia Simplicifolia*

The male predominance observed in our sample (76.3%) is consistent with patterns reported in other ethnobotanical surveys in which men serve as primary harvesters and traders of wild plant resources [19] (Ullah et al., 2024a)

The majority of respondents fall within the 31–50 age group, confirming that ethnobotanical knowledge is primarily held by adults with practical experience of plant resources [17, 20] (Phillips & Gentry, 1993; Reyes-García et al., 2007). Furthermore, The high proportion of respondents with secondary or higher education in our sample (82.2%) is consistent with observations from urban ethnobotanical surveys, where formal education does not preclude retention of traditional plant knowledge [21] (Ullah et al., 2024c). This situation may be linked to the growing interest in this species due to its economic and nutraceutical potential [22, 23] (Voeks, 2007; Albuquerque et al., 2019). These findings highlight the need to involve all social groups in the conservation and sustainable management of this plant resource.

4.3. Botanical Identification and Vernacular Nomenclature of *Griffonia simplicifolia*

The predominance of vernacular names in Ewe (76.5 per cent) reflects the strong cultural roots of *Griffonia simplicifolia* in southern Togo, consistent with its natural distribution in the humid regions of Guinea [5, 8, 9] (Burkill, 1995; Cunningham et al., 2021). In ethnobotany, vernacular names are a key element in the identification and transmission of local knowledge [7, 8] (Martin, 1995; Cotton, 1996). The coexistence of several names (Gbogbotroloe, Gbeyibo and Gbodouti) reflects the linguistic diversity of local communities [15] (Alexiades, 1996). Furthermore, respondents primarily identify the species based on visible morphological characteristics, notably the leaves, pods and seeds, whilst some describe several diagnostic characteristics in detail, reflecting a greater familiarity with the plant (*Griffonia simplicifolia*) [17, 24] (Berlin, 1992; Phillips & Gentry, 1993). These findings highlight the importance of local knowledge in strategies for the conservation and sustainable use of *Griffonia simplicifolia* [9, 23] (Cunningham, 2001; Albuquerque et al., 2019). The coexistence of multiple vernacular names for the same species is a widespread phenomenon in ethnobotanical studies and reflects linguistic diversity within and among communities [25] (Ullah et al., 2023).

4.4. Traditional Uses of the Parts of *Griffonia simplicifolia*

The use of *Griffonia simplicifolia* is dominated by livestock feed (89.2 per cent), primarily consisting of leaves and young stems, confirming its role as a local forage resource in several regions. This observation is consistent with research showing that wild species constitute an important source of fodder for ruminants in sub-Saharan Africa, particularly during periods of pasture scarcity [26, 27] (Le Houerou, 1980; Devendra, 1992).

Conversely, this perception contrasts with the scientific literature, which focuses primarily on the seeds due to their high 5-hydroxytryptophan (5-HTP) content, widely utilised in the nutraceutical industry for its effects on depression, anxiety and sleep disorders [10-12] (Bell, 1976; Birdsall, 1998; Rondanelli et al., 2012). This discrepancy highlights a difference between local uses, centred on the vegetative parts, and international utilisation, which focuses on the seeds [9] (Cunningham et al., 2021).

Similar patterns of marginal medicinal plant use relative to fodder in traditional communities have been documented in other ethnobotanical contexts [25] (Ullah et al., 2025), suggesting that the dominance of a single utilisation category (zotechnical) may reflect the economic priorities of the surveyed communities rather than the absence of therapeutic knowledge.

The few reported medicinal uses (bark for wounds, calcined leaves for digestive disorders) could be explained by the pres-

ence of bioactive metabolites frequently described in the Fabaceae family, notably tannins and flavonoids [28] (Bruneton, 2009). However, it should be emphasised that all reported medicinal uses are based on traditional knowledge and require phytochemical and pharmacological validation before any therapeutic claims can be made.

The lack of traditional use of the seeds, apart from their possible processing into oil, suggests that their current economic value is primarily linked to the recent development of international markets rather than to local practices. These findings highlight the importance of integrating local knowledge into any strategy for the conservation and sustainable utilisation of *Griffonia simplicifolia*, by supporting the development of a potential value chain through awareness-raising and knowledge transfer initiatives [7, 8] (Martin, 1995; Cotton, 1996).

4.5. Knowledge and Prospects for the Utilisation of *Griffonia simplicifolia* Oil in Togo

The results show that *Griffonia simplicifolia* remains an underutilised resource in Togo, with its use primarily directed towards self-consumption and only marginal commercialisation. This situation reflects a poorly structured supply chain, which is characteristic of many non-timber forest products [29, 30] (Shackleton et al., 2011; FAO, 2022). Unlike in Ghana, where the seeds form the basis of an organised export sector due to their high 5-hydroxytryptophan (5-HTP) content [9] (Cunningham et al., 2021), no comparable value chain has been identified in Togo.

Knowledge regarding the oil extracted from the seeds remains particularly limited [31] (Voeks, 2007). The fact that supply relies exclusively on the purchase of kernels, the diversity of reported extraction methods, and the variability in yields and oil characteristics all point to a low level of standardisation in practices. The reported yields, which are sometimes inconsistent with the actual oil content of the seeds (5–12 per cent), suggest empirical estimates or confusion between extraction yield and the quantity obtained [7, 14] (Martin, 1995; Novidzro et al., 2019).

Despite the nutritional and industrial potential of this oil, particularly its high content of linoleic acid, tocopherols and phytosterols [14] (Novidzro et al., 2019), its commercial exploitation remains in its infancy. These results highlight the need for further research into extraction processes, physicochemical characterisation, product acceptability and the development of a sustainable value chain for *Griffonia simplicifolia* in Togo. Ethnobotanical inventories such as the present study provide a baseline for conservation prioritisation of underutilised plant species, a function increasingly recognised in conservation biology [31, 32] (Voeks, 2007; Ullah et al., 2024b)

4.6. Acceptability of *Griffonia simplicifolia* Oil

The acceptability of *Griffonia simplicifolia* oil depends mainly on the level of consumer information, which is consistent with research showing that knowledge, perceptions of quality and trust determine the adoption of new food products [32-34] (Grunert, 2005; Verbeke, 2005; Siegrist, 2008). Respondents' caution stems from their limited familiarity with this oil, in contrast to traditional oils that are more firmly established in local customs [36] (Ullah et al., 2023). Consequently, promoting its use will require better dissemination of information on its safety, nutritional composition and potential benefits, particularly its high content of linoleic acid, tocopherols and phytosterols [14-35] (Novidzro et al., 2019; Ullah et al., 2024a). The development of such a sector will therefore need to combine technical innovation, consumer awareness-raising and the involvement of local communities [7, 8, 37] (Martin, 1995; Cotton, 1996; Ullah et al., 2024c).

4.7. Limitations of the Study

This study has certain limitations that must be taken into account when interpreting the results:

Restricting the ethnobotanical content analysis to knowledgeable informants (n = 186; 71.0% of recruits) reduced the effective sample size for most analyses and may have affected the representativeness and statistical power of the reported proportions, particularly for plant organs and uses cited by fewer than 30 respondents.

The regional variation in knowledge is based primarily on the Kara and Maritime regions; the other regions, the Plateaux, Central and Savanes regions, are virtually absent, which prevents the documentation of a complete gradient and limits the scope of the contrast reported to a comparison between two regions.

The probable recruitment bias associated with snowball sampling, which began with urban contacts and those with higher levels of education, may under-represent traditional healers, farmers and rural harvesters, who were also targeted by the initial protocol.

The self-reported nature of all the data (extraction yields, oil price, perceived efficacy), which is not corroborated by direct measurements or observations.

5. Conclusion

This study has documented, for the first time, the ethnobotanical knowledge and traditional uses of *Griffonia simplicifolia* in Togo, with a particular focus on the oil extracted from its seeds. The results show that the ecological distribution of the species was strongly associated with local knowledge, with a higher level of familiarity in the Maritime region, where interactions between people and the plant appear to be more significant. The knowledge gathered is based primarily on empirical identification of the species and on vernacular names

that are deeply rooted in the local culture. The reported uses are dominated by animal feed, whilst medicinal uses for humans remain limited; furthermore, although the seeds are valued internationally for their high 5-hydroxytryptophan (5-HTP) content, they remain poorly integrated into local practices. The oil extracted from the seeds appears to be an emerging resource, characterised by limited knowledge, non-standardised extraction processes and a poorly structured economic value chain. Its acceptance remains contingent upon better consumer information regarding its quality, safety and potential properties. Despite these limitations, *Griffonia simplicifolia* offers interesting potential for development in Togo, particularly due to the reported nutritional properties of its oil. However, the development of a sustainable value chain requires further studies on the distribution of the species, domestication, the optimisation of extraction processes, the physicochemical and biological characterisation of the oil, as well as an assessment of its safety and acceptability. The development of this resource must therefore form part of an integrated approach combining local knowledge, scientific research, the organisation of stakeholders and the conservation of natural resources.

Abbreviations

FAO	Food and Agriculture Organization
WHO	World Health Organization
CBD	Convention on Biological Diversity

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Author Contributions

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Conflicts of Interest

The authors declare that they have no conflicts of interest.

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