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Uses and Conservation Practices of Two Plants with Melliferous Potential in the Binah Prefecture of Togo: *Vitex doniana* Sweet (Lamiaceae) and *Diospyros mespiliformis* Hochst. ex A. DC. (Ebenaceae)

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Original Research Article

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Abstract

Background: The Sudanese savannas of Togo are rich in wild fruit trees with significant beekeeping and socioeconomic potential, including *Vitex doniana* Sweet and *Diospyros mespiliformis* Hochst. These natural melliferous resources are overexploited in certain areas of the country, thus reducing their ecosystem benefits.

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Aims: This study, conducted in the Binah prefecture, contributes to improving the sustainable management of spontaneous woody resources.
Methodology: Ethnobotanical data were collected through semi-structured individual interviews and focus groups with a sample of 205 people. These interviews were conducted using a pre-established questionnaire or an interview guide, allowing for the targeting of individuals with proven knowledge of the species or resource persons designated by the groups. The methods of preserving these plants by the local populations were documented during these interviews.
Result: The seven (7) uses of *Vitex doniana* and *Diospyros mespiliformis* reported by local populations are: food, medicinal, fodder, timber, fuelwood, crafts, and oral hygiene. Food use was the most frequently cited. Conservation in agroecosystems and home gardens is identified as a key local strategy for managing natural resources. The vulnerability of these two species is a combined consequence of their high use value and their limited local domestication.
Conclusion: It is imperative to provide technical and financial support to local communities in implementing sustainable management strategies for these natural resources of high ecosystem value.

Keywords: Ethnobotany; conservation strategies; Vitex doniana; Diospyros mespiliformis; Binah; Togo.

1. Introduction

In Africa, local populations are extremely dependent on products derived from spontaneous vegetation, such as non-timber forest products (NTFPs) (Ali et al., 2021). Beyond agriculture, livestock farming, and fishing, the harvesting of NTFPs constitutes an important source of income, food, and medicine for rural communities (Mawunu et al., 2017; Tchatchambe et al., 2017a, b; Mawunu et al., 2019; Masengo & Ngbolua, 2022). Wild fruit trees are natural resources that play a vital role in the daily lives of these rural communities. Today, they occupy a significant place in the food, pharmaceutical, and medicinal industries worldwide (Mapongmetsem et al., 2012; Idohou et al., 2013). The resources derived from these fruit trees constitute important dietary supplements during lean periods (Diarra et al., 2016; Daanon et al., 2021).

However, these wild fruit trees are subjected to enormous anthropogenic pressures due to overexploitation (Sinsin et al., 2004; Akpona et al., 2009). Poor harvesting practices also lead to the risk of extinction of these local species. This degradation of natural vegetation is increasingly exacerbated by the harvesting of plant parts, particularly for medicinal (Faye, 2010) and energy purposes. Wild plant resources continue to degrade at an alarming rate, hence the need for new strategies for the sustainable management of natural resources, especially wild fruit trees. Several research projects have been initiated worldwide to enhance the value of natural resources, particularly the sustainable management of wild fruit trees (Akpona et al., 2009; Akpavi et al., 2013). Indeed, local knowledge of wild plant species is crucial for boosting the socioeconomic resilience of communities in the face of climate change (Bellefontaine, 2010; Mapongmetsem et al., 2012; Garba et al., 2019).

Among these natural resources, our study focused on the black plum (*Vitex doniana* Sweet) and the African ebony (*Diospyros mespiliformis* Hochst. Ex A. DC), two wild fruit species with a wide distribution, belonging respectively to the Lamiaceae (*V. doniana*) and Ebenaceae (*D. mespiliformis*) families according to the APG III classification. These are multi-purpose resources recognised for their medicinal, nutritional, and beekeeping properties. They constitute excellent nectar sources for bees, with flowers, fruits, and leaves used locally. In traditional medicine, these two species are used to treat several illnesses, including malaria, diarrhea, and anaemia (Ali et al., 2021).

In Togo, particularly in the Binah prefecture, these two species have very strong socio-cultural values. Despite their socio-economic importance in the lives of local communities, little information is available on their conservation status, ecological value, and vulnerability. Furthermore, they are subject to multiple degradation factors, primarily anthropogenic, in the Binah prefecture. Given the persistent degradation of the vegetation cover of these two species due to human activities. The implementation of a sustainable management policy is becoming essential.

The overall objective of this study is to promote local knowledge on the conservation and sustainable management of natural resources in the Binah Prefecture. Specifically, it aims, firstly, to determine the different

ways in which *V. doniana* and *D. mespiliformis* are used by communities in the Binah Prefecture, and secondly, to identify conservation strategies for these two species in this prefecture of Togo.

2. Material and Methods

2.1 Study Area

The Binah Prefecture is located between 9°45'0'' North latitude and 1°16'60'' East longitude at an altitude of 486 meters. It is bordered to the north by the Doufelgou Prefecture, to the south by the Kozah Prefecture, to the east by the Republic of Benin, and to the west by the Kozah and Doufelgou Prefectures (Fig. 1).

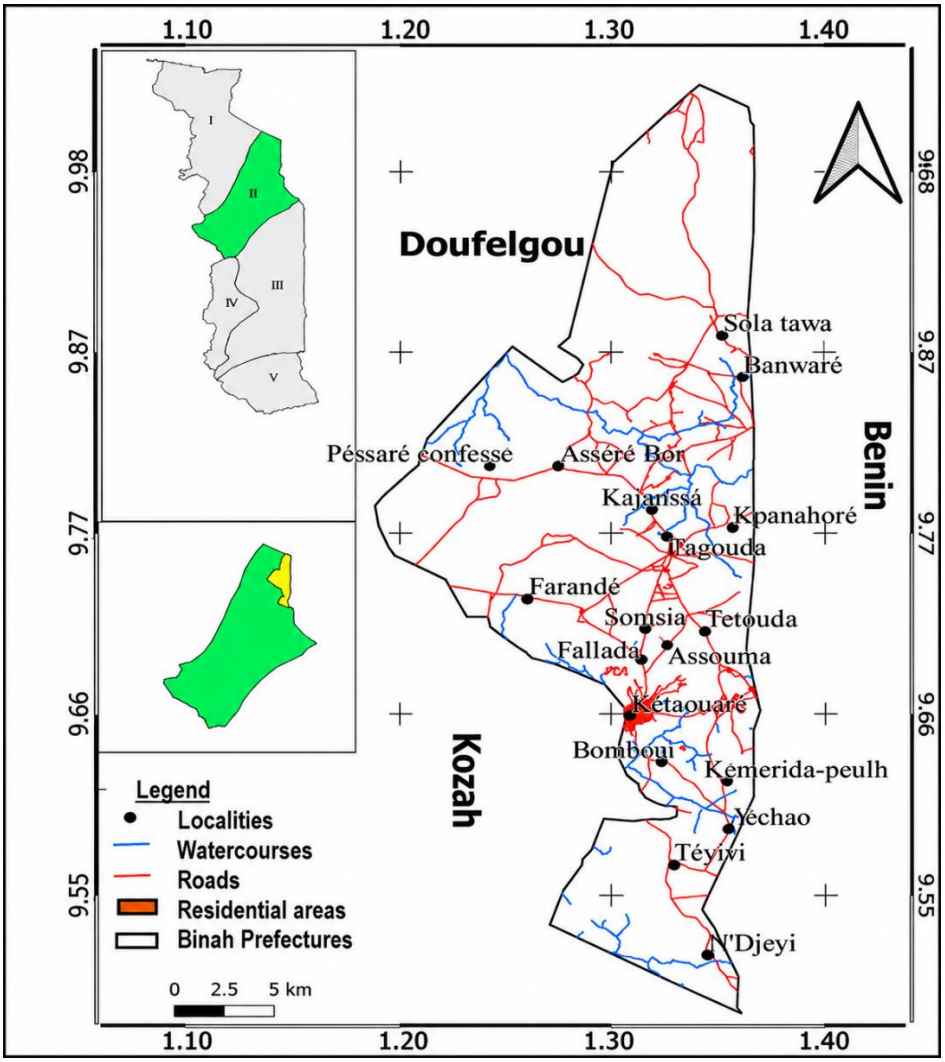

Fig. 1. Location of the Study Area

This study area has a highly varied topography and diverse soils. The Binah prefecture is drained by the Binah River. The climate is Sudano-Guinean, characterized by two distinct seasons. Rainfall varies between 1100 and 1700 mm annually. Average annual temperatures range from 17° to 27°C. The vegetation is characterized by a predominantly herbaceous savanna with some remnants of gallery forests. Covering an area of 534.7 km², the Binah prefecture has a population of 84,199 inhabitants, with a density of 157.5 inhabitants/km² (Regional Directorate of Statistics, 2022). It is dominated by the Kabye (79.80%), followed by minority ethnic groups such as the Solla, Logba, Kotokoli, and Fulani.

2.2 Study Method

2.2.1 Ethnobotanical Surveys

A preliminary survey was conducted to determine the GPS coordinates of the localities in the study area. Information was obtained from the populations of 18 villages distributed across 7 cantons in the two communes of the Binah prefecture (Fig. 2).

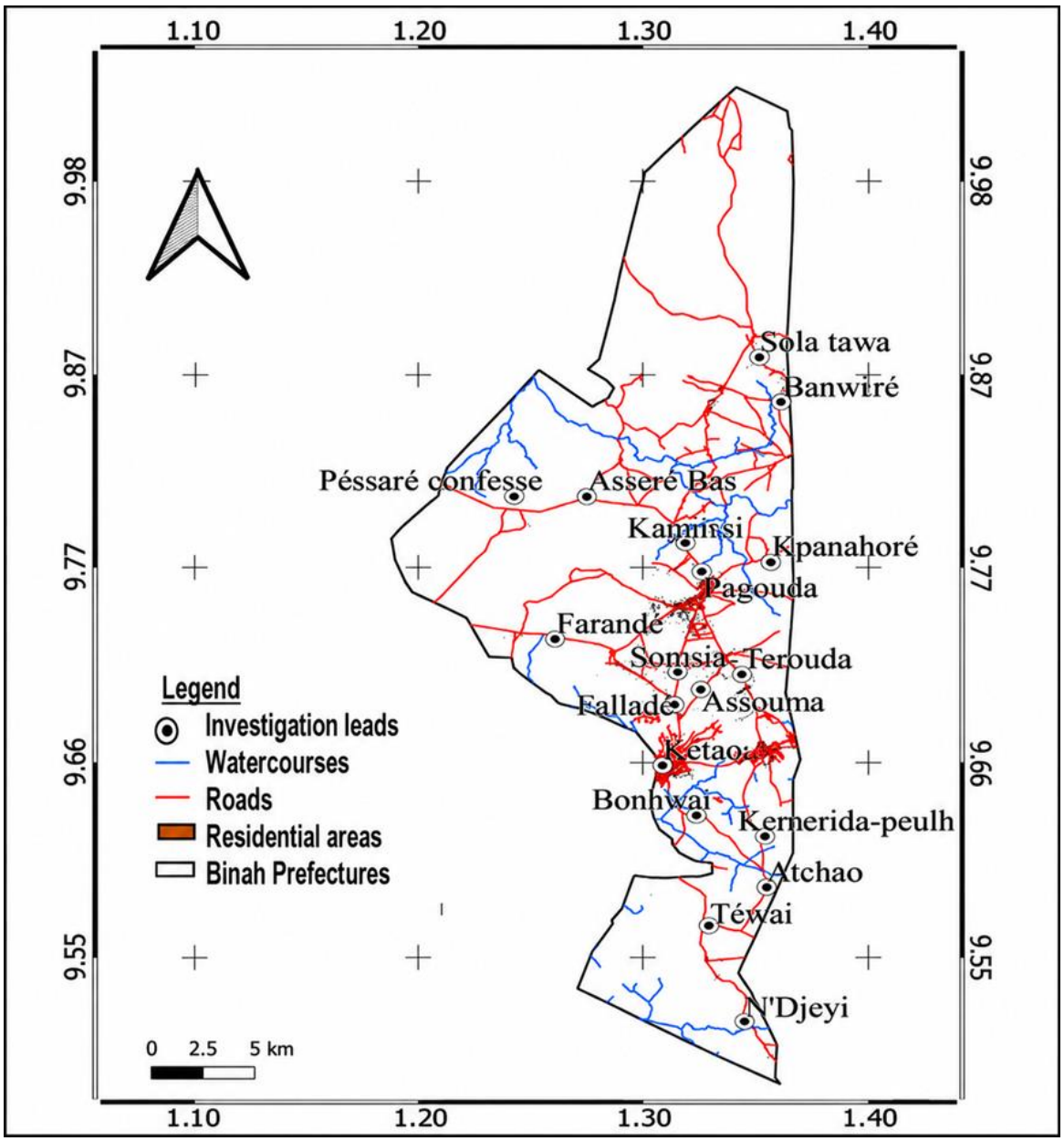

Fig. 2. Map of the distribution of surveyed localities

These locations were chosen based on sampling guided by the presence of these species (Uprety et al., 2012; Garba et al., 2019). Two criteria were used to select the locations: the first was the actual presence of both species in the location, and the second was the presence of signs or evidence of harvesting of woody parts (wood, bark, roots).

2.2.2 Data Collection

Data were collected through focus groups using an interview guide designed to target individuals with proven knowledge of the species or resource persons designated by the groups (Ali et al., 2021), as well as through individual interviews using a pre-established questionnaire. The questionnaire primarily inquired about the respondent's age, sex, ethnicity, occupation or main activity, level of education, and place of origin. The questions about the species relate to the various forms of use, the organs used and their preservation methods, the availability of organs, the status of the population, the different threats facing these species, and the conservation and restoration strategies. The questionnaires are administered in the local language, Kabye, to ensure that respondents understand the questions.

2.3 Data Analysis and Processing

The collected data were entered and processed using Microsoft Excel® 2016. Ethnobotanical indices, as defined by previous work (Assogba et al., 2017), are calculated using the following formulas:

- Citation Frequency (CF)

$$FC = \frac{\text{Number of citations from a part}}{\text{Total number of respondents}} \times 100$$

- The total number of reported uses for the plant (reported use, RU) is equal to the sum of the reported uses per plant part: RU = Σ RUplant part. l

3. Results and Discussion

3.1 Results

3.1.1 Respondent Profile

The surveys included a total of 205 informants in the study area. Categorising all respondents allowed us to present their percentage representation based on factors such as ethnicity, education level, occupation, age, and sex. The majority of respondents were Kabye. Most of these individuals were farmers with a primary school education. More men than women responded to the questionnaires due to their availability and knowledge of the plants. (Table 1).

Table 1. Distribution of respondents according to certain social criteria

Criteria evaluated	**Ethnic group**				**Level of education**		
Investigators	**Kabyè**	**Kotokoli**	**Peulhs**	**Sola**	**Primary**	**Secondary**	**Illiterate**
Rate (%)	71	7	17	5	46.82	20	32.68
Criteria evaluated	**Profession**				**Age range**		
Investigators	**Farmers**	**Resellers**	**Housewives**	**Artisans**	**20 - 39**	**40 – 59**	**≥ 60**
Rate (%)	38.5	33.17	9.76	5.37	45.54 – 47.12	40.38 – 49.59	12.50 – 13.86
Criteria evaluated	**Sex**						
Investigators	**Woman**	**Man**					
Rate (%)	42.93	57.07					

3.1.2 Used Plant Parts of *V. doniana* and *D. mespiliformis* and Their Areas of Use

A total of twenty (20) specific uses of the species *D. mespiliformis* and sixteen (16) of *V. doniana* were identified by the respondents and grouped into seven (7) areas. These species are used for food, crafts, medicine, animal feed, construction timber, fuelwood, and as toothpicks. Only six (6) parts are used on each of the two plants. These are: the trunk, the leaf, the fruit, the branch, the trunk bark, and the root (Figs. 3 and 4).

Analysis of Fig. 4 also shows that in *D. mespiliformis*, the branches are the most used plant parts (4 uses: crafts, timber, fuelwood, and toothpicks), followed by the trunk (3 uses: crafts, timber, and fuelwood). In contrast, in *V. doniana*, the leaves have the most uses (4 uses: crafts, food, fodder, and medicinal), followed by the trunk (3 uses: crafts, timber, and fuelwood).

3.1.2.1 Food Uses

In this area, all respondents stated that they only use the fruits of *D. mespiliformis*. Whereas with *V. doniana*, in addition to the fruits, which are used by 69.47% of respondents, the leaves are also used (30.53%).

3.1.2.2 Medicinal Uses

In this area, women have more knowledge about both plants (67.57%). Three (3) types of organs are used in both plants: leaves, trunk bark, and roots. In terms of frequency, leaves are the most used (63.19%), followed by trunk bark (34.04%) for *D. mespiliformis*, while in *V. doniana*, bark (46.67%) is used, followed by leaves (40%) (Fig. 5).

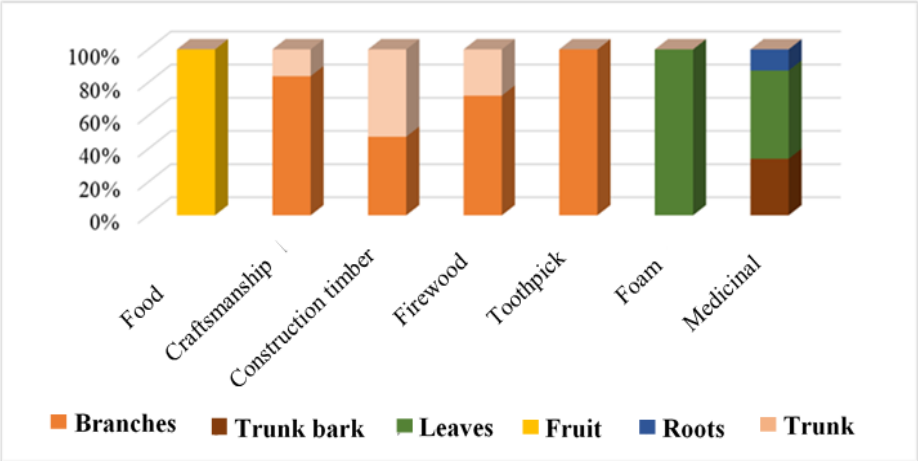

Fig. 3. Use value of *D. mespiliformis* organs and their areas of applications

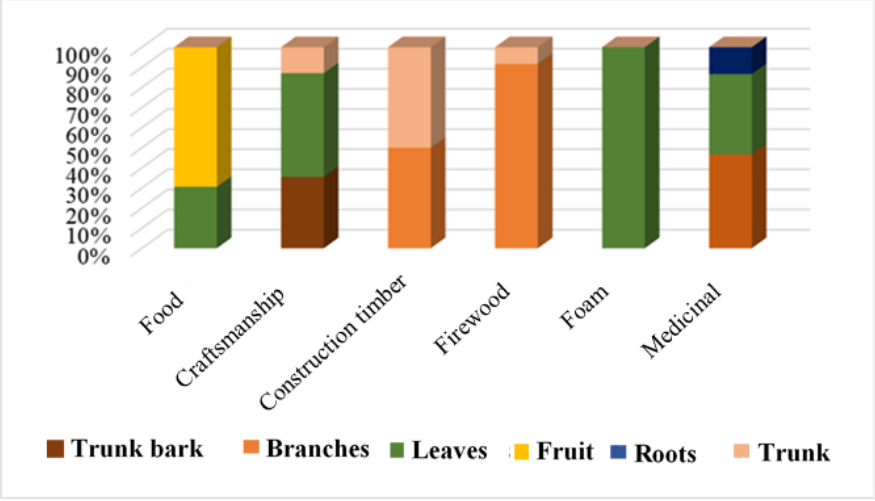

Fig. 4. Use value of *V. doniana* organs and their areas of applications

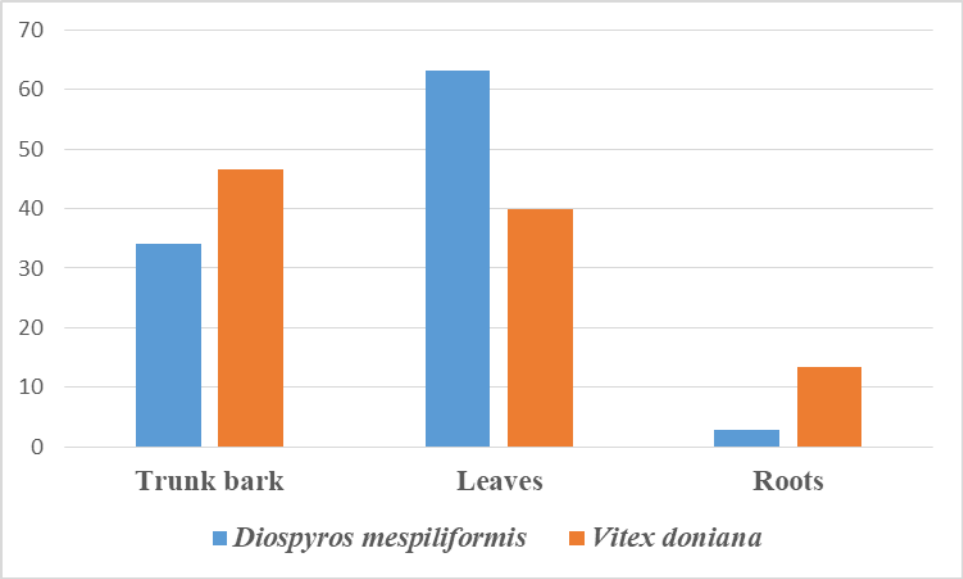

Fig. 5. Diversity of organs used

A total of thirteen (13) diseases were identified, eight (8) of which were treated with *V. doniana* and five (5) with *D. mespiliformis*. The most frequently reported ailments and symptoms were malaria (52.17%) and diarrhea (39.13%) for *D. mespiliformis*. In contrast, body rashes (35.71%) and anemia (21.43%) were the diseases most often treated with *V. doniana* (Fig. 6).

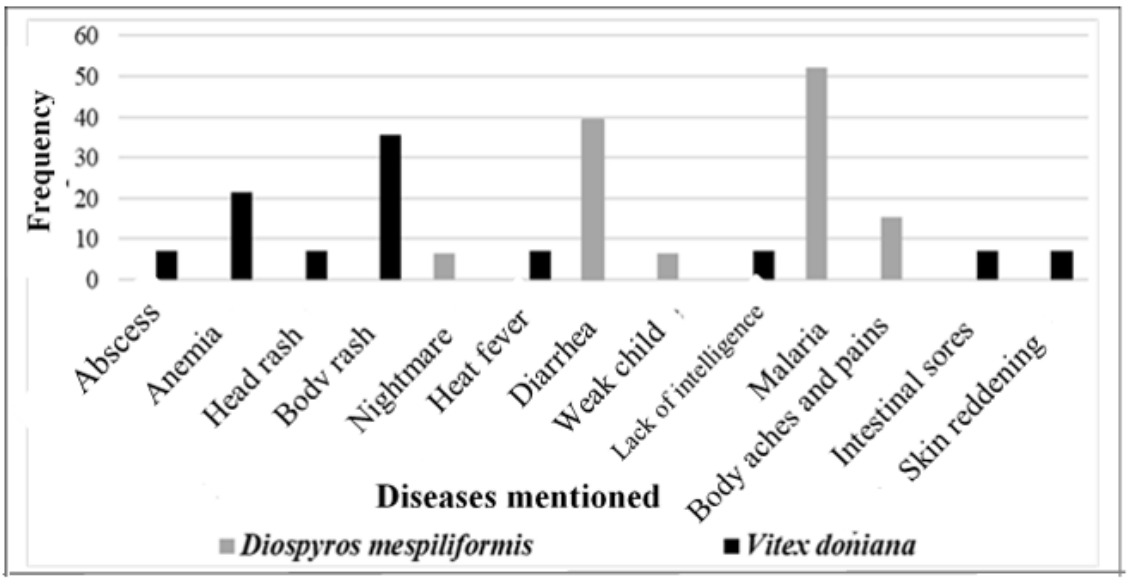

Fig. 6. Diversity of ailments treated

In general, the document of preparation methods were decoction, calcination, and maceration. Decoction is the most commonly used method. Various methods of drug administration were also identified i.e. oral administration and body baths are used with *D. mespiliformis*; cutaneous and local application are used for *V. doniana*.

Indeed, according to respondents, with *D. mespiliformis*, local or oral administration of decocted leaves cures malaria; these young leaves, bark, or roots are crushed fresh and drunk, or preferably roasted with millet powder and sucked to stop diarrhoea. A decoction of the bark and roots is also used to treat malaria. Regarding *V.*

doniana, not only is a decoction of the bark and roots drunk to combat anemia, but it is also used in combination with the bark of *Parkia biglobosa* (African locust bean) and *Khaya senegalensis* to treat intestinal wounds. The leaf buds are harvested, then decocted and used as a bath, or roasted in a mixture with natural oil and applied to the body to treat skin conditions.

3.1.2.3 Artisanal Uses

In total, 30.69% (*V. doniana*) and 29.81% (*D. mespiliformis*) of respondents use these plants in this context. Respondents use only the trunk, leaves, and bark of *V. doniana*, with the leaf being the most frequently used part (51.61%); in contrast, only the branches (83.87%) and trunks (16.13%) are used for *D. mespiliformis* (Fig. 7).

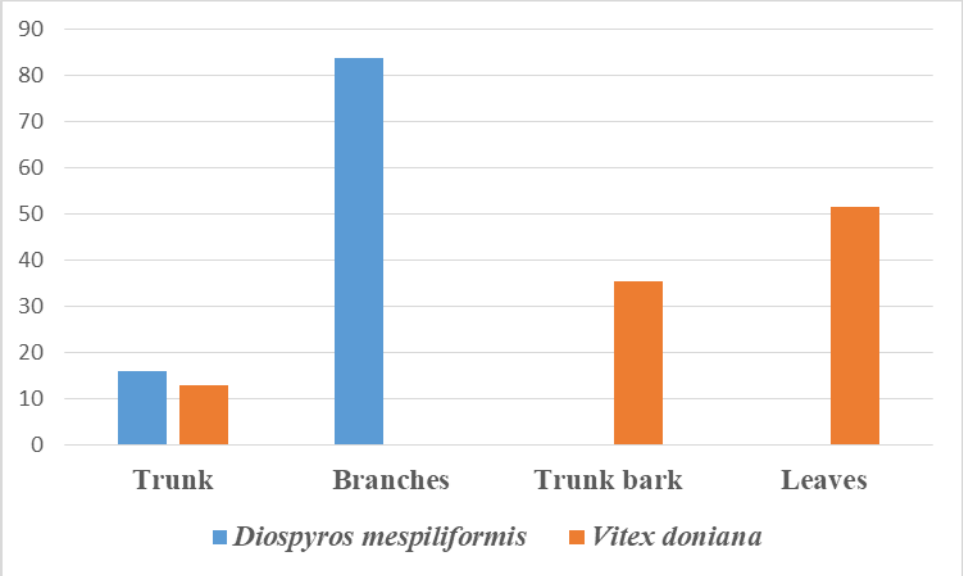

Fig. 7. Frequency of different organs use

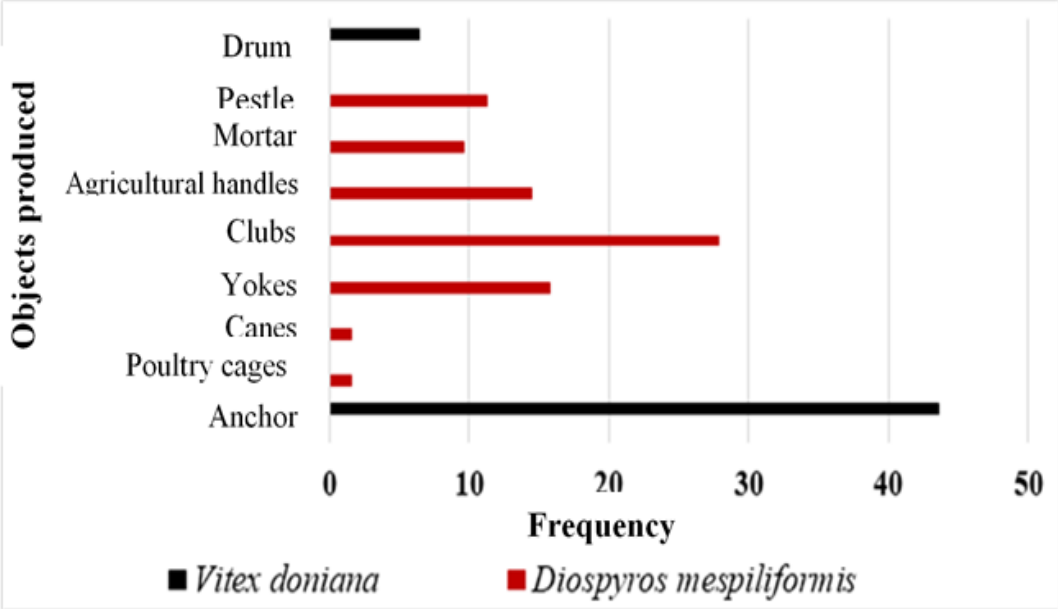

Fig. 8. Importance of objects made from *V. doniana* and *D. mespiliformis*

Photo 1. Handles A hoe made from branches of *D. mespiliformis* (Bonnwaï, July 2022)

Photo 2. An anchor made from the bark and leaves of *V. doniana* (Assouma-Peulh, July 2022)

The wood of *D. mespiliformis* is used to make clubs, agricultural handles, yokes, walking sticks, poultry cages, pestles, and mortars. The club (27.81%) is the most frequently cited item (Fig. 8). Along with *V. doniana*, the trunk of the tree is used to make drums; its leaves and bark are prepared to obtain writing ink (Fig. 8, Photos 1 and 2).

3.1.2.4 Forage Use

This area received few responses from respondents (0.99% for *V. doniana* and 14.42% for *D. mespiliformis*). The leaves remain the most commonly used part for forage. They are harvested by cutting and fed to tethered goats and sheep. The fruits of both species, once ripe, fall easily and are highly valued by livestock, especially cattle in the case of *D. mespiliformis.*

3.1.2.5 Fuelwood and Construction Wood Use

The *V. doniana* plant is more frequently mentioned in the fuelwood category than in the construction category, with the branch being the most commonly used part (86.84%). The wood is used in households for cooking and also for sale. As for the *D. mespiliformis* plant, the branches are the most commonly used parts. Its timber is sawn to obtain the rafters and planks used for formwork and building construction (Fig. 9)

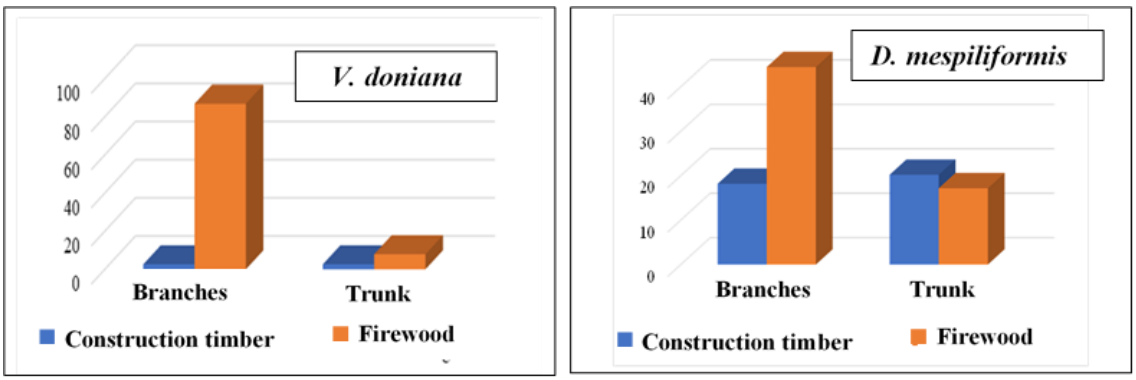

Fig. 9. Use of *V. doniana* and *D. mespiliformis* for firewood and construction

3.1.2.6 Sociocultural Considerations

The *D. mespiliformis* plant is considered a family fetish by some Kabye people. Indeed, rituals are performed under the tree by family members to obtain favors. For them, their ancestors reside within it. Also among the Kabye, the tree's branches are cut to obtain a club-shaped spear called Agaraou, used by the young initiate « Evalou » who has just entered the adult community. This tool is the only weapon of defense during the initiation

period. As for *V. doniana*, the Fulani consider it the « tree of intelligence ». They claim that using the ink obtained from the plant to write the Holy Quran awakens the human mind, and its decoction is given to those deemed unintelligent to drink.

3.1.3 Conservation of *Vitex doniana* and *Diospyros mespiliformis*

3.1.3.1 Local Population Perceptions of Natural Population Dynamics of the Two Species

Almost all respondents are local people. All categories of respondents state that *D. mespiliformis* and *V. doniana* are found in the wild and are aware of the decline in the populations of these two species. The reasons for this decline are primarily anthropogenic: excessive logging, agriculture (93.17%), and bushfires (29.81%). However, 38.46% of respondents believe that very small seedlings and shoots of *D. mespiliformis* are present in natural environments (mountains and riverbanks). 21.78% of respondents also stated that *V. doniana* is conserved along riverbanks.

3.1.3.2 Conservation of Plant Parts

All respondents use both plants. However, 98.07% of respondents stated that they do not preserve the plant parts they use, being aware that not all parts are available year-round. Among them, 16.83% pay for *V. doniana* parts and 14% for *D. mespiliformis* parts. The remaining respondents dry the fruits of *D. mespiliformis* (1.92%) and the leaves of *V. doniana* after cooking (5.94%). These parts (fruit and leaves) are stored in jerrycans or plastic bags for use during periods of scarcity.

The population stated that temporary parts (fruit, flowers, and leaves) are used only when available, while other parts are harvested at any time on the plant.

3.1.3.3 Preservation of the Whole Plant

Three forms were provided by respondents for these two species. These are:

- Conservation of the species in agroforestry parks,
- Conservation in front of the house,
- Conservation in the backyard.

The second conservation method is the most common. It is adopted by 37.5% for *D. mespiliformis* and 21.78% for *V. doniana* (Table 2).

Table 2. Relative frequency of preservation methods

Conservation strategies	*Diospyros mespiliformis* (%)	*Vitex doniana* (%)
Floor in agricultural parks	1.92	7.92
Floor in front of the house	37.5	21.78
Floor in home gardens	0	1.98

The local population explains that the tree preserved in front of their house (Photo 3) provides shade, creating a place to rest. Other reasons were given depending on the location of the trees (preservation in fields and in gardens). Unfortunately, these trees are most often pruned in fields.

Observations during surveys and botanical inventories showed that many *D. mespiliformis* trees are present in the mountains, particularly in the localities of Pessaré, Farendè, and Asséré. This preservation is also observed in sacred places (family or community sacred forests) and burial sites. Some *D. mespiliformis* trees (3 to 5) are present in the small markets of certain villages: the Pessaré market in Pessaré, the Kadjanga market in Pagouda, and the Tchalaidè market in Sirka.

Information was also gathered from six (6) village chiefs regarding the current state of preservation. They assert that no initiative has yet been taken to restore the stands of the two species. Nevertheless, some stands exist in

their natural (unplanted) state within the newly established community forests and have the same protection rights as the companion species.

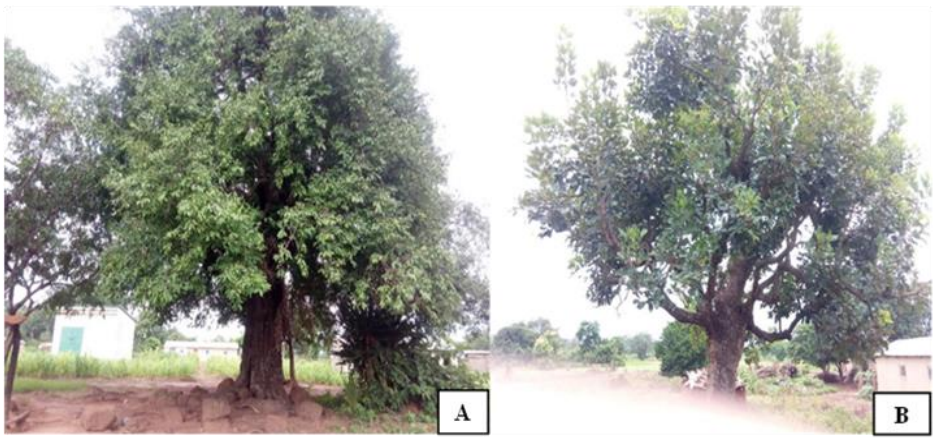

Photo 3. Presentation of an old *D. mespiliformis* tree in Tèrouda (A) and *V. doniana* tree in Atchaou (B), preserved in front of the houses

3.2 Discussion

3.2.1 Uses of *V. doniana* and *D. mespiliformis*

This study has shown that *V. doniana* and *D. mespiliformis* are multi-purpose species in rural areas of the Binah prefecture in Togo. Twenty (20) and sixteen (16) specific uses were reported by the communities for *D. mespiliformis* and *V. doniana*, respectively. These two species are used relatively less than other local species in Togo, such as *Khaya senegalensis* (Issa et al., 2018) or *Sterculia setigera*. The differences in terms of value and diversity of uses are probably linked to the specificity of the species used and the cultural variability of the study area.

The reported uses are: food, medicinal, crafts, animal feed, construction timber, fuelwood, and toothpicks. The types of plant organs used are: the trunk, leaf, fruit, branch, bark, and root. The results of our research corroborate, in terms of plant organ diversity, those of Garba et al. (2019), conducted on *Tamarindus indica* in Niger. In the food sector, the fruit is the most used organ for both plants in the Binah region. Similar results were reported by Adomou et al. (2009) in Benin in their study on *Annona senegalensis*. Indeed, due to the nutritional value of the fruits of *V. doniana* and *D. mespiliformis*, they are essential for human health and well-being, particularly in rural areas (Ebbo et al., 2020; Ebbo et al., 2022). The branches and leaves are the most valued parts of these multifunctional fruit trees. However, these organs are obtained through pruning, which disrupts the plants' vegetative cycle. Medicinally, eight reported human ailments are treated with *V. doniana* and five with *D. mespiliformis*. However, this list is relatively small compared to the more than 32 diseases treated with *V. doniana* in Benin, or the more than 29 diseases reported by Ali et al. (2021) in studies conducted in Niger on *D. mespiliformis* that are not included in our study. Nevertheless, the organs used for treatment—leaves, bark, and roots—in our study are all cited by these authors. These different organs of both plants, *D. mespiliformis* and *V. doniana*, are used to treat malaria and diarrhoea, body blemishes and anaemia. Obtaining a sufficient quantity of hard-to-extract molecules like tannins explains this result. These various medicinal uses represent an asset for future exploration of several medicinal properties through ethnopharmacological studies. The area of use ranks second. This result is explained by the use of their wood by women in households for cooking and also for sale. This wood, obtained through felling and pruning, suggests strong anthropogenic pressure on these species.

3.2.2 Conservation of *V. doniana* and *D. mespiliformis*

For planned use, only the fruits of *D. mespiliformis* and the leaves of *V. doniana*, used by 1.92% and 5.94% respectively, are preserved by drying. These results show a near-total absence of preservation of the organs of

these species in the area. This could be due to the low value placed on these species. Processing its dried parts allows for the production of powder, juice, or preserves, making them available year-round (Diarra et al., 2016). The lack of preservation of these parts could also be due to the low density of mature trees. Domestication of these plants (37.5% for *D. mespiliformis* and 21.78% for *V. doniana*) is the most common form of conservation in the prefecture.

In terms of local strategy, domestication is the most prevalent. These local species are kept in fields, gardens, and in front of houses to take advantage of their parts and the shade they provide. This form of local conservation is likely a palliative solution to their heavy use and ensures their availability. Cultural and artisanal values, intrinsically linked to traditions, add another dimension to the sustainable management of this natural resource. Indeed, both species also hold significant totemic value for certain communities. The dense stands in mountainous areas are due to the difficulty of accessing these resources. In this area, both plants grow wild while new community forests are being established through planting. This attitude demonstrates the lack of investment by the local population in the restoration of these two species. Therefore, integrating these two fruit trees into the agroforestry system is crucial in the Binah prefecture.

4. Conclusion

This study shows that the local population is familiar with *V. doniana* and *D. mespiliformis* and uses them in various ways. Food and fuelwood are the most frequently cited uses by respondents. The plant parts used include leaves, fruit, branches, trunk, bark, and roots. The fruit is the most commonly used part of both species for food. Harvesting their wood for fuel and construction poses a significant threat to the survival of these species. Logging and agricultural activities promote the establishment of invasive species.

Despite all the services these two fruit-bearing plants provide, they are not being cultivated. However, some residents have chosen to preserve them in front of their houses, in their fields, and in their gardens. These methods do not guarantee the future of these stands. Much effort must be made to ensure the long-term viability of these two plant resources. The only way to successfully conserve them is through the integration of these species into agroforestry.

Consent

As per international standards or university standards, respondents' written consent has been collected and preserved by the author(s).

Disclaimer (Artificial Intelligence)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during writing or editing of this manuscript.

Competing Interests

Authors have declared that they have no known competing financial interests or non-financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

Adomou, A. C., Mama, A., Missikpode, R., & Sinsin, B. (2009). Cartographie et caractérisation floristique de la forêt marécageuse de Lokoli (Bénin). *International Journal of Biological and Chemical Sciences, 3*(3), 492–503. https://doi.org/10.4314/ijbcs.v3i3.45327

Akpavi, S., Kanda, M., Odah, K., Akpakpah, K. E., Kossi-Titrikou, K., Boutaré, I., & Akpagana, K. (2013). Valeur socio-culturelle des plantes alimentaires: Un facteur de préservation [Socio-cultural value of food plants: A preservation factor]. *European Scientific Journal, 9*(32), 383–395.

Akpona, T. J. D., Glèlè Kakaï, R. L., & Akpona, A. H. (2009). Ethnobotanique et structure des peuplements d'espèces de brosse végétale au Sud et au Centre du Bénin. *Bulletin de la Recherche Agronomique du Bénin*, (63), 1–12.

Ali, A., Oumarou, M., Mounkaila, S., Mahamane, A., & Saadou, M. (2021). Perception paysanne de l'utilisation de *Diospyros mespiliformis* Hochst. ex A. Rich au Niger [Peasant's perception of *Diospyros mespiliformis* Hochst. ex A. Rich use in Niger]. *Journal of Applied Biosciences, 160*, 16460–16474. https://doi.org/10.35759/JABs.160.3

Assogba, G. A., Fandohan, A. B., Salako, V. K., & Assogbadjo, A. E. (2017). Usages de *Bombax costatum* (Malvaceae) dans les terroirs riverains de la réserve de biosphère de la Pendjari, République du Bénin [Uses of *Bombax costatum* (Malvaceae) in the riparian areas of the Pendjari Biosphere Reserve, Republic of Benin]. *Bois et Forêts des Tropiques, 333*, 17–29. https://revues.cirad.fr/index.php/BFT/article/view/31465

Bellefontaine, R. (2010). De la domestication à l'amélioration variétale de l'arganier (*Argania spinosa* L. Skeels)? [From domestication to varietal improvement of the argan tree (*Argania spinosa* L. Skeels)?] *Sécheresse, 21*(1), 42–53. https://www.jle.com/en/revues/sec/e-docs/de_la_domestication_a_lamelioration_varietale_de_larganier_argania_spinosa_l._skeels__283763/article.phtml?cle_doc=00045473

Daanon, A., Padonou, E., Akakpo, B., & Marcel, H. (2021). Variabilité des utilisations de *Diospyros mespiliformis* Hochst. suivant les facteurs sociodémographiques au Nord-Bénin [Variability in the uses of *Diospyros mespiliformis* Hochst. according to socio-demographic factors in northern Benin]. *Bois & Forets des Tropiques, 347*, 27–38.

Diarra, N., Togola, A., Denou, A., Willcox, M., Daou, C., & Diallo, D. (2016). Etude ethnobotanique des plantes alimentaires utilisées en période de soudure dans les régions Sud du Mali. *International Journal of Biological and Chemical Sciences, 10*(1), 184–197. https://www.ajol.info/index.php/ijbcs/article/download/141587/131330/0

Ebbo, A. A., Sani, D., Suleiman, M. M., Ahmad, A., & Hassan, A. Z. (2022). Assessment of antioxidant and wound healing activity of the crude methanolic extract of *Diospyros mespiliformis* Hochst. ex A. DC. (Ebenaceae) and its fractions in Wistar rats. *South African Journal of Botany, 150*, 305–312. https://doi.org/10.1016/j.sajb.2022.07.034

Ebbo, A. A., Sani, D., Suleiman, M. M., Ahmad, A., & Hassan, A. Z. (2020). Acute and sub-chronic toxicity evaluation of the crude methanolic extract of *Diospyros mespiliformis* Hochst. ex A. DC. (Ebenaceae) and its fractions. *Toxicology Reports, 7*, 1138–1144. https://doi.org/10.1016/j.toxrep.2020.08.028

Faye, E. H. (2010). *Diagnostic partiel de la flore et de la végétation des Niayes et du bassin arachidier au Sénégal: Application de méthodes floristique, phytosociologique, ethnobotanique et cartographique* [Partial diagnosis of the flora and vegetation of the Niayes and the groundnut basin in Senegal: Application of floristic, phytosociological, ethnobotanical and cartographic methods] [Doctoral thesis, Université Libre de Bruxelles].

Garba, A., Abdou, A., Abdou, L., & Mahamane, A. (2019). Perceptions and socioeconomic uses of tamarind (*Tamarindus indica* L.) in southwestern Niger: Implications for domestication and sustainable conservation. *40*(2), 6584–6602.

Idohou, R., Assogbadjo, A. E., Fandohan, B., Gouwakinnou, G. N., Glele Kakai, R. L., Sinsin, B., & Maxted, N. (2013). National inventory and prioritization of crop wild relatives: Case study for Benin. *Genetic Resources and Crop Evolution, 60*(4), 1337–1352. https://link.springer.com/article/10.1007/s10722-012-9923-6

Issa, I., Wala, K., Dourma, M., Atakpama, W., Kanda, M., & Akpagana, K. (2018). Valeur ethnobotanique de l'espèce, *Khaya senegalensis* (Desr.) A. Juss (Meliaceae) auprès des populations riveraines de la chaîne de l'Atacora au Togo [Ethnobotanical value of the species *Khaya senegalensis* (Desr.) A. Juss (Meliaceae) among the populations living along the Atacora mountain range in Togo]. *Moroccan Journal of Agronomic and Veterinary Sciences, 6*(1), 64–72. https://www.agrimaroc.org/index.php/Actes_IAVH2/article/view/512

Mapongmetsem, P. M., Kapchie, V. N., & Tefempa, B. H. (2012). Diversity of local fruit trees and their contribution in sustaining the rural livelihood in the Northern Cameroon. *Ethiopian Journal of Environmental Studies and Management, 5*(1), 32–46. https://doi.org/10.4314/ejesm.v5i1.5

Masengo, C. A., Djolu, R. D., Ngbolua, K. N., Nagahuedi, J. M. S., Ilumbe, B. I., & Mpiana, P. T. (2022). Étude ethnobotanique et vulnérabilité de *Vitex doniana* Sweet (Lamiaceae) dans la forêt péri-urbaine de Gbado-Lite, République démocratique du Congo. *Revue Marocaine des Sciences Agronomiques et Vétérinaires, 10*(1), 179–184. https://www.agrimaroc.org/index.php/Actes_IAVH2/article/view/1067

Mawunu, M., Dionisio, C. A., Lukoki, L., & Ngbolua, L. N. (2019). Ethnobotanical and socio-economics of *Dracaena camerooniana* Baker in Uíge Province, Northern Angola. *Journal of Agriculture and Ecology Research International, 20*(2), 1–15. https://pdfs.semanticscholar.org/aa65/537847c96746955a6c3121202233941da06c.pdf

Mawunu, M., Eduardo, A. S., Balomba, P., Mohindo, A. A., Bongo, G., & Ngbolua, K. N. (2017). Food security and livelihood of rural households of Songololo Territory in Kongo Central Province, Democratic Republic of the Congo. *International Journal of Health Economics and Policy, 2*(3), 97–103.

Sinsin, B., Eyog Matig, O., Assogbadjo, A. E., Gaoue, O. G., & Sinadouwirou, T. (2004). Dendrometric characteristics as indicators of pressure of *Afzelia africana* Sm. dynamic changes in trees found in different climatic zones of Benin. *Biodiversity and Conservation, 13*, 1555–1570. https://doi.org/10.1023/B:BIOC.0000021328.56517.46

Tchatchambe, N. B. J., Solomo, E. B., Kirongozi, B. F., Lebisabo, B. C., Dhed'a, D. B., Tchatchambe, W. B. J., Ngombe, K. N., Mpiana, P. T., Mbemba, F. T., & Ngbolua, K. N. (2017a). Evaluation de la valeur nutritive et des facteurs antinutritionnels de quatre légumes alimentaires sauvages consommées à Kisangani et ses environs (Province de la Tshopo, RD Congo) [Evaluation of the nutritional value and antinutritional factors of four wild food vegetables consumed in Kisangani and its surroundings (Tshopo Province, Democratic Republic of Congo)]. *International Journal of Innovation and Scientific Research, 30*, 75–90.

Tchatchambe, N. B. J., Solomo, E. B., Kirongozi, B. F., Lebisabo, C. B., Dhed'a, B. D., Tchatchambe, W. B. J., Ngombe, K. N., Mpiana, P. T., Mbemba, F. T., & Ngbolua, K. N. (2017b). Analyses nutritionnelle et toxicologique de trois plantes alimentaires traditionnelles de la Tshopo en République Démocratique du Congo [Nutritional and toxicological analyses of three traditional edible plant species of Tshopo in the Democratic Republic of the Congo]. *International Journal of Innovation and Scientific Research, 30*(2), 105–118. http://www.ijisr.issr-journals.org/abstract.php?article=IJISR-16-276-02

Uprety, Y., Poudel, R., Shrestha, K., Rajbhandary, S., Tiwari, N., & Asselin, H. (2012). Diversity of use and local knowledge of wild edible plant resources in Nepal. *Journal of Ethnobiology and Ethnomedicine, 8*(16). https://doi.org/10.1186/1746-4269-8-16

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