Review report for AAS Open Research

RESEARCH ARTICLE: Economic value, endogenous knowledge and distribution of Picralima nitida (Stapf) T. Durand and H. Durand in Africa
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Conclusion:
The paper deals with the importance of Picralima nitida (Stapf) T. Durand and H. Durand, known as an important African medicinal plant species in Dahomey Gap region in general and in Togo in particular, especially at the glance of its: i) economic value, ii) endogenous knowledge and distribution. However, the paper failed to take into consideration several aspects such as poor knowledge about the exact distribution of the Picralima nitida plant species, the issue of erosion of local knowledge and the need for its safeguard;and the causes of plant species (Picralima nitida) rarity and any available initiatives/interventions that have been set in place to address the issue along with any available policy and available regulations in place to guiding sustainable management of biodiversity in general and Picralima nitida medicinal plant species in particular. These aspects contribute to undermining the quality of the paper. As a result, in its current stage, the paper could not be accepted for indexing, unless important amelioration is made.

Abstract:
In the background of the paper, the authors failed to point out the drivers of the scarcity of the Picralima nitida medicinal plant species around the Dahomey Gap’s region. Instead, the author just pointed out that the species is rare without reported the causes of such rarity of the species around the study area. This implies that without knowing the drivers of plant species rarity it is impossible to address the issue of the controversy of its distribution and unsustainable use as well as safeguarding endogenous knowledge of its uses.

To understand the background of the paper, it is useful to answer the following questions:
• Why do you think that the species are rare?
• What are the drivers of species rarity?
• How did you carry out the forest inventory?

One of the objectives of the paper should also be directed towards discussing the potential solutions to overturn the issue of the rarity of the Picralima nitida species around the Dahomey Gap’s region. Not going towards such a discussion appears to be an unfinished manuscript.
In the case of the authors have such data, they can just exploit them and back up their arguments about possible interventions to successfully deal with the issue of the rarity of the species
In the case the authors do not have such kind of data, they can just discuss the possible solutions in the light of available literature.
I do not quite understand why the authors used the terms climate gradient if they did not attempt to discriminating the species distribution versus variables related to temperature and precipitation for example.
I suggest that the authors remove the word “climate gradient” throughout the paper because it does not bring much information in species distribution according to differences in temperature and precipitations for example.

**Introduction:**
As a general structure of the paper, the authors failed to be consistent in that regards as they mixed up literature from central Africa region such as Cameroon as follows:
Eyog Matig et al. (2006) report that P. nitida is a tropical African species distributed in Ghana, Côte d’Ivoire, Nigeria, Angola, the Democratic Republic of Congo, Cameroon, and Tanzania
- In Cameroun, P. nitida contributes to more than 12% of household income of Nguila and Mbangassina villages (Yakeu, 2012).

I would rather suggest that the authors focus on the background of his paper as follows:
**In Dahomey Gap’s region or West African region,** they should point out the following aspects:
- The ethnobotanical importance of *Picralima nitida* medicinal plant species;
- The possible or approximative distribution of the *Picralima nitida* plant specie
- The issue of erosion of local knowledge and the need for its safeguard;
- The causes of plant species (*Picralima nitida*) rarity and any available initiatives/interventions that have been set in place to address the issue
- Policy and available regulations in place to guiding sustainable management of biodiversity in general and *Picralima nitida* medicinal plant species in particular;
- At the international and or regional levels, it is important to highlight whether or not there any conservation initiatives on the rare plant species based on Data on the IUCN Red List of Threatened plant species and the local list of threatened (Least Concern (LC) Near Threatened (NT) Vulnerable (VU) Endangered (EN) Critically Endangered (CR) Extinct In The Wild (EW) Extinct (EX)), etc.

In Togo as a country, a similar structure has to be elaborated as follows:
- The ethnobotanical importance of *Picralima nitida* medicinal plant species;
- The possible or approximative distribution of the *Picralima nitida* plant specie
- The issue of erosion of local knowledge and the need for its safeguard;
- The causes of plant species (*Picralima nitida*) rarity and any available initiatives/interventions that have been set in place to address the issue
- Policy and available regulations in place to guiding sustainable management of biodiversity in general and *Picralima nitida* medicinal plant species in particular;
- At the national level, it is also important to highlight whether or not there any conservation initiatives on the rare plant species based on Data on the IUCN Red List of Threatened plant species and the local list of threatened (Least Concern (LC) Near
Threatened (NT) Vulnerable (VU) Endangered (EN) Critically Endangered (CR) Extinct In The Wild (EW) Extinct (EX), etc.

More importantly, the aspect related to the use of the climatic gradient does not fit properly in this study because of the authors did not use any climatic gradient variables such as temperature and precipitation to assess the distribution of the species across the study area (but not across both Dahomey Gap and Congo Bassin regions).

**General and specific objectives:**

Regarding the objective of the paper stated as follows “There is a need to dispel the ambiguity over the distribution areas of this species and to document the important threats to its conservation. This study assesses (1) the economic value and endogenous knowledge of *P. nitida* in Africa and (2) the effect of climate gradient on the species distribution”.

I think that this general objective does not capture the full content of the paper as a result I suggest the following one “This paper aims at assessing the economic value, document the endogenous knowledge on the plant species, and sheds a light on the distribution of *Picralima nitida* (Stapf) T. Durand and H. Durand in Dahomey Gap’s region by talking the following research questions:

1. What is the economic value of the *Picralima nitida* species around the study area?
2. To what extent local communities know about the ethnobotanical values of the species?
3. What are the drivers of species rarity around the study area?
4. What is the current distribution of the species around the study area?
5. What solutions can be suggested to overturn the issue of species rarity around the study area?

**Materials and methods:**

**Study area**

The focus of the study is too large because it includes both the DG region and the Congo Bassin region. It should not be the case. The paper should focus only on both Benin and Togo as study areas. To understand the background of the targeted area, I suggest the author focus on the following questions/aspects:

- Why and how did you select Togo and Benin as case studies?
- Climate, rainfall, precipitation, etc.
- Forest diversity, richness, and its distribution (especially the *Picralima nitida* plant species)
- Population, livelihood uses, especially based on *Picralima nitida* plant species.
- What is the economic value of *Picralima nitida* plant species?
- To what extend local communities know and use *P. nitida* for treating various diseases
- To what extent is the issue of erosion of local knowledge around both study areas?
• What are other well-known vulnerability factors that contribute to threatening plant species?
• Point out any data (local, national, regional, and international) on the conservation status of *Picralima nitida* plant species that are considered as rare around the DG region (ex. Data on the IUCN Red List of Threatened plant species and the local list of threatened (Least Concern (LC) Near Threatened (NT) Vulnerable (VU) Endangered (EN) Critically Endangered (CR) Extinct In The Wild (EW) Extinct (EX))
• Available policy and regulation tackling the decline of *Picralima nitida* plant species.
• Ant issues of conservation and the needs of sustainable management of the plant species in place.

Among other issues include the following:
Figure 1 should only focus on the DG Region (Togo and Benin) but not in the Congo Bassin region as it is also the case of Figure 2. This implies that the color of Figure 2 should be removed as well otherwise the significance of the colors should be explained to the readers.

**Data collection:**
To allow other scholars to replicate such a kind of study, further clarifications are needed, especially regarding the preliminary and the main survey:

**Preliminary survey:**
• How many respondents did you approach regarding the ethnobotanical uses, economic value, and distribution of the plant species around both selected study areas?
• What were the results regarding the ethnobotanical uses, economic value, and distribution of the plant species during such a phase?
• How much refinement of the questionnaire did you do concerning the ethnobotanical uses, economic value, and distribution of the plant species?

**Main survey:**
• In both countries, how did you access and sample the 120 key informants?
• Are the local languages used in both countries different or similar? In the case that they are different, there might be also differences in uses and practice of local knowledge so how did you do to capture such differences?
• What are the reasons that drove you to select the following two phytodistricts (Pobè and Vallée de l’Ouémé) in Benin?
• The same question holds for the case of Togo.
• What are also the other criteria for selecting the key informants in the survey?
• What are the other data collection approaches did you use such as transect walk, field observation, group discussion, etc, especially to cross-check information gathered?
• How did you select the households to be involved in the survey as you mention that the survey was carried out through the households using a local guide?
• What are the other criteria for selecting key informants in addition to age over 18 years old (ethnicity, gender, education level, etc)?
  o In my view this criterion contributes to bring more bias to the data. Usually, local people knowledge based on key informant intervention tend to be used as a common approach. In the case of your study, and because of the rarity of the plant species, using the criteria based on the availability of at least one species of *Picralima nitida* plant species represents a crucial criterion.
  o However, one should expect to have knowledge about how many *Picralima nitida* plant species have been encountered among the 120 key informants interviewed from selected localities and in both countries.
• How did you select localities to be involved in the study areas?
• How did you collect data on the economic and socio-cultural values of the species, the uses and organs used, the frequency of use, and the main threats of the species? Did you also collect data on the possible solutions to overturn the threats on the species?
• If yes, such data should also be used to discuss the possible solutions to enhance conservation status and management of the rare plant species around both study areas.

**About the Literature search:**
In my viewpoint, the data collected regarding this aspect could have been used to back up the results of this study rather than being used as a data collection approach.

This brings some ambiguity because the authors carried out ethnobotanical studies (fieldwork) to capture a similar aspect, except the distribution of the plant species. As a result, the access of the search engine could have focused only on assessing the distribution of the species. This implies that the authors should clearly mention the following aspects for a better understanding of the process:
How many articles did you get while looking for the following theme or keywords “Distribution” AND “Picralima nitida”; “Togo” AND “Picralima nitida”; “Benin” AND “Picralima nitida”.
The author could have also used the only keywords search “Togo” AND “Picralima nitida”; “Benin” AND “Picralima nitida” from various databases including Google Scholar, Web of Science, Scopus, PubMed Central and JSTOR in addition to reports, thesis and Biodiversity databases (www.prota.org and www.gbif.org).

Then, from data gathered, the authors could have mentioned the following questions:
• How many articles were obtained?
• How much refinement was made to remove nonrelevant articles?
• And how many articles remain now?
Data analysis:
This first part of the data analysis section related to the importance of P. nitida for the surveyed populations was determined by the calculation of the use frequency of the plant properties (FUP) seems to be ok for me.

However, the data analysis section related to the “Effect of climate gradient on the species density and distribution” is inappropriate and cannot be used in this study because variables such as temperatures and precipitation was not accessed neither used for discriminating climate gradient against the species density and distribution. On the contrary, data from gathered from the GBIF website could be used to pinpoint the distribution of the rare plant species across both regions as well as their density if the website allows them to do so.

Additionally, the need for enhancing the conservation status and sustainable management could be emphasized by using the following information:

- Point out any data (local, national, regional, and international) on the conservation status of *Picralima nitida* plant species that are considered as rare around the DG region (ex. Data on the IUCN Red List of Threatened plant species and the local list of threatened (Least Concern (LC) Near Threatened (NT) Vulnerable (VU) Endangered (EN) Critically Endangered (CR) Extinct In The Wild (EW) Extinct (EX))
- Available policy and regulation tackling the decline of *Picralima nitida* plant species.
- Any issues of conservation and the needs of sustainable management of the plant species in place.

Results:

1. The socio-demographic profile of key informants in both study areas.
2. The economic value of the *Picralima nitida* species around the study areas.
3. Key informants’ endogenous knowledge about the plant species and the drivers of species rarity around both study areas.
4. The current distribution of the species around both study areas.
5. Suggested to overturn the issue of species rarity around both study areas.

Discussion:

1. The economic value of the *Picralima nitida* species, key informants’ endogenous knowledge on plants used to treat various diseases.
2. The issue of the erosion of local knowledge;
3. Discussion about the factors causing the erosion of local knowledge and affecting the current distribution of the plant species, and opportunity to overturn the issue of species rarity around both study areas.