



REVIEWER'S REPORT

Manuscript No.: IJAR- 56515

Title: Ethnobotany and antimicrobial potential of ethanolic extracts of plants sold in the markets of Boundiali (Northern Ivory Coast)

Recommendation:

Accept after major revision

Rating	Excel.	Good	Fair	Poor
Originality			✓	
Techn. Quality				✓
Clarity				✓
Significance			✓	

Reviewer's ID: JPR-198

Detailed Reviewer's Report

The manuscript addresses a relevant topic — ethnopharmacological validation of traditional medicinal plants against multidrug-resistant bacteria in northern Cote. However, the study contains critical methodological flaws, data inconsistencies, missing information, and presentation errors that must be resolved before it can be considered for publication.

Major Comments

- 1. Novelty and Justification:** The study's contribution is not clearly stated. The authors must define the knowledge gap and justify selection of the ten plants from the initial pool of 38.
- 2. Ethnobotanical Survey:** Number of informants, selection criteria, ethical approval, informed consent, and quantitative ethnobotanical indices (Use Value, ICF) are all missing.
- 3. Extraction Method:** Hexane defatting is not justified. Extracts must be labeled "defatted ethanolic extracts" and the rationale explained.
- 4. Inoculum Preparation — Non-Standard**

The authors report using different volumes (100 µL for Enterobacteriaceae, 1000 µL for *Staphylococcus aureus*, 10 µL for *Pseudomonas aeruginosa*) to achieve 10⁶ CFU/mL. Using different volumes per species to achieve 10⁶ CFU/mL is non-standard. Standardization must be done via optical density uniformly across all strains.

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5. MIC/MBC Determination — Methodological Ambiguity

Mixing 1 mL of extract with 1 mL of inoculum effectively halves the extract concentration in the assay. The reported MIC values likely reflect pre-mixing concentrations, not final assay concentrations. This must be clarified, and MIC/MBC values should be reported as final concentrations in the test system.

6. Missing Controls: No positive antibiotic controls or negative solvent controls are reported. This is a fundamental requirement and must be addressed.

7. Inhibition Zone Classification — Non-Standard Criteria

The classification criteria used (Ponce et al., 2003) are not recognized international standards (CLSI or EUCAST). The authors must either adopt a recognized standard or clearly justify their chosen threshold.

8. Data Errors in Table 4

- *Ps. aeruginosa* 872: MIC reported as 1.56 ± 7.2 mg/mL. A standard deviation of 7.2 with a mean of 1.56 is mathematically impossible (implies negative concentrations). This must be corrected.
- *E. coli* ATCC: MBC (0.39 mg/mL) is lower than MIC (0.97 mg/mL), which is biologically impossible. This is likely a typographical error and must be corrected.

9. Table 5 — High Variability and Underpowered Analysis

MIC and MBC values in Table 5 show large standard deviations (e.g., 2.575 ± 2.0 ; 2.92 ± 3.1), indicating either high experimental variability or data errors. With only 3–4 strains per phenotype group, the ANOVA is severely underpowered to detect meaningful differences. This limitation must be explicitly acknowledged.

10. Only One Extract Tested for MIC/MBC

MIC and MBC determination was performed only for *Funtumia africana*. While the selection rationale is briefly mentioned, it should be more explicitly justified, particularly given that nine other extracts showed measurable antibacterial activity.

11. Figure–Text Inconsistencies:

- **Figure 1 (text vs. figure):** Text states leaves = 55%, stem bark = 36%, root bark = 9%. Figure shows leaves = 60%, stem bark = 30%, root bark = 10%. These values are inconsistent and must be reconciled.
- **Figure 2:** The text states the most common method was "oral administration (50%), followed by oral administration (31%)" — an obvious contradiction. The second category appears to be "bath" based on Figure 2. This must be corrected.

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12. Phytochemical Screening: Claiming 13 compound groups is not supported by the methods described. A plant-by-plant phytochemical table is required.

13. Discussion: The discussion repeats results without interpretation. It must address clinical relevance of MIC values, comparison with published data, and limitations of the study.

14. Combretaceae — Internal Inconsistency

The Discussion (line 339) references the Combretaceae family, but this family does not appear among the 9 botanical families listed for the 10 study plants. This must be clarified or corrected.

Minor Comments

- 1. Typographical errors:** "Funtumiaafricana" (line 15) should read *Funtumia africana*; "AlCl₃" and "FeCl₃" should read AlCl₃ and FeCl₃.
- 2. Species nomenclature:** Scientific names must be consistently italicized throughout.
- 3. "Savage" phenotype** (Table 1): Should read "Wild-type."
- 4. Formulas missing:** Percentage calculation formulas referenced at lines 101–102 are absent from the text.
- 5. Replication not stated:** The manuscript does not specify how many experimental replicates were performed for agar diffusion assays.
- 6. References:** Several references are outdated, lack DOIs, or are from non-peer-reviewed sources (e.g., Traoré, 2013 from AFRIK.COM; Guessennd, 2013 from an institutional URL). These should be replaced with peer-reviewed equivalents where possible.
- 7. Language:** Multiple grammatical errors, missing spaces between words, and awkward phrasing appear throughout. Professional English language editing is required prior to resubmission.