Ethnopharmaceuticals for the Treatment of Cutaneous Leishmaniasis of the New World

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Introduction

- **New World Cutaneous Leishmaniasis (NWCL):** Neglected parasitic disease caused by members of the genus *Leishmania*, located primarily in Central and South America.[1]
- **Current challenge:** First-line therapies are costly, limited by toxicity and accessibility, and often ineffective.

- **Ethnopharmaceuticals:** Plant-based compounds with potential anti-leishmanial effects found in and around local endemic communities.[2]
- **Rationale:** These plant-based compounds, with potential anti-leishmanial effects, offer an opportunity to overcome the aforementioned therapeutic challenges. Many such interventions are also supported by anecdotal evidence.

Objective

This study aims to synthesize existing evidence around available ethnopharmaceuticals to promote drug discovery for the treatment of NWCL.

Methods

- PubMed (NCBI), Medline (OVID), Embase (OVID), Web of Science (BioSIS) and LILACS (VHL) were searched using combinations of the search terms and concepts, such as **"cutaneous leishmaniasis"** and **"ethnopharmaceuticals".**
- Inclusion and exclusion of search terms was employed to maximize relevant article extraction.

Inclusion criteria
- Observational studies
- Case reports
- Case series
- Cohort studies
- Clinical trials

Exclusion criteria
- Animal studies
- In vitro and in vivo studies
- Non ethnopharmaceuticals
- Non Leishmania spp. targets
- Mucosal, mucocutaneous or visceral leishmaniasis

- **GRADE** approach used to assess the quality of studies reporting therapeutic interventions.
- **LILACS** articles screened by native Spanish speaking individuals to ensure proper adherence to inclusion and exclusion criteria.
- Data will be grouped and summarized by *Leishmania* spp. and plant species.

Results

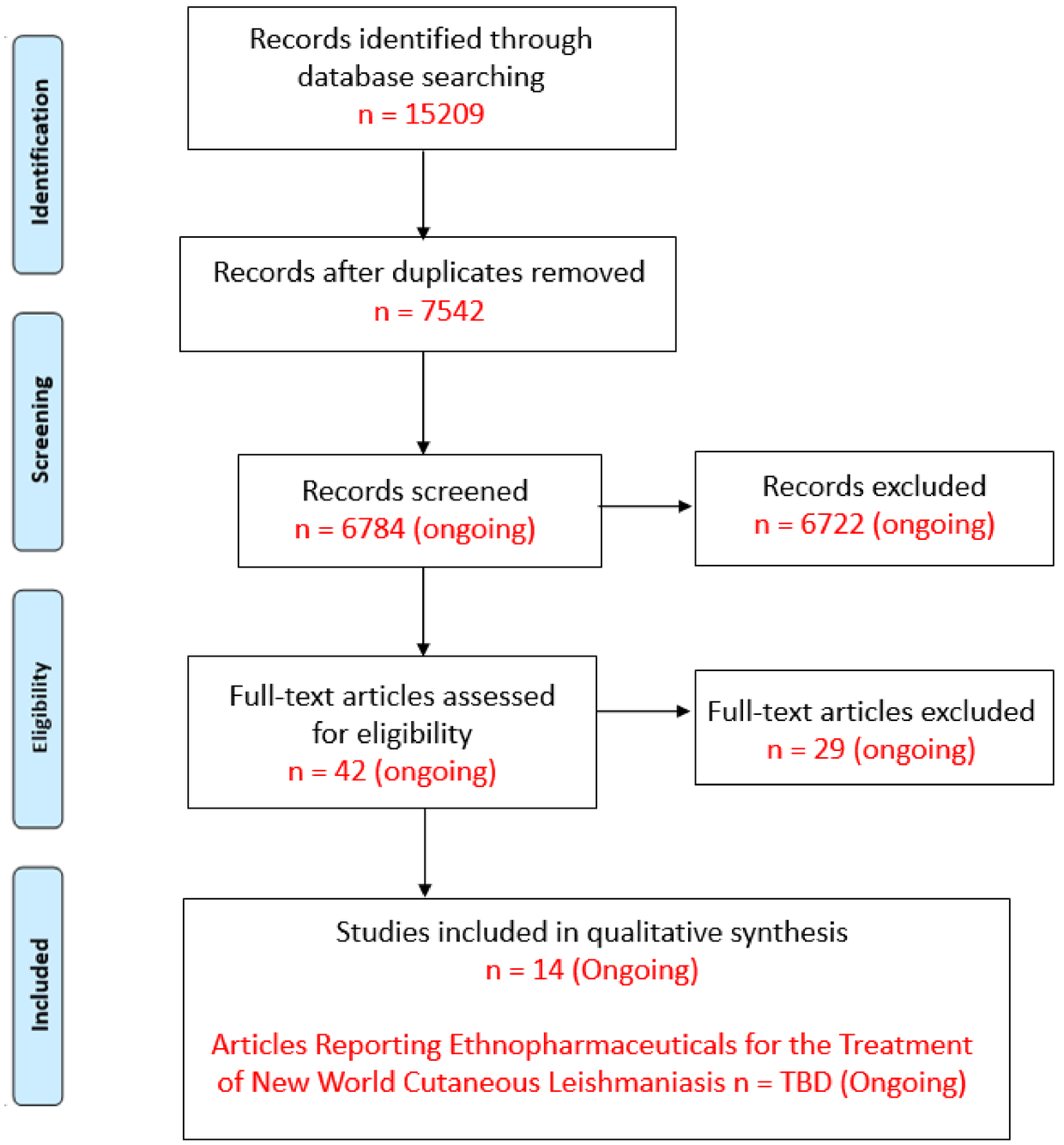

Figure 1: PRISMA flowchart.
The PRISMA flow diagram for the systematic review detailing the database searches, the number of abstracts screened and the full texts retrieved. Updated Feb. 2025.

Discussion & Conclusion

- Screening is ongoing (Figure 1). Focus of systematic review will be on the effects of ethnopharmaceuticals in the context of New World species.
- With climate change and increased human/vector migration, NWCL incidence may rise.

Advantages: Affordable, accessible, and culturally relevant alternatives to toxic and costly therapies. Strengthening drug discovery pipelines with ethnopharmaceutical evidence may guide development of novel therapeutics.
Conclusion: By synthesizing existing evidence, the study identifies promising candidates that may inform future drug discovery and development, particularly for severe cases caused by Leishmania species within the *Viannia* complex.

Future Directions

- Complete this systematic review by completing full text review of studies followed by qualitative analysis.
- Evaluate species-specific efficacy against New World Leishmania.
- Optimize topical formulations for safety, stability, and skin penetration.
- Explore combinatorial use with standard therapies to reduce toxicity and cost.
- Strengthen community-based research to integrate local knowledge into treatment strategies.

References

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