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Antimalarial plants used by indigenous people of the Upper Rio Negro in Amazonas, Brazil

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ABSTRACT

Ethnopharmacological relevance

This is the first intercultural review of antimalarial plants in this region. The aim of this study was to document the medicinal plants used against malaria by indigenous people in the Upper Rio Negro region and to review the literature on traditional uses and antimalarial properties of the cited species.

Materials and methods

Participant observation, semi-structured interviews, and ethnobotanical walks were conducted with 89 informants in five indigenous communities between April 2010 and November 2013 to obtain information on the uses of medicinal plants against malaria. We reviewed scientific journals in academic databases for papers published up to January 2014 to find literature on the ethnopharmacology, ethnobotany, and antimalarial activity of the species cited.

Results

Forty-six plant species belonging to 24 families have been documented. Fabaceae (17.4%), Arecaceae (13.0%), and Euphorbiaceae (6.5%) account together for 36.9% of these species. Only seven plant species showed a relatively high consensus. Among the plant parts, barks (34.0%) and roots (28.0%) were the most widely used. Of the 46 species cited, 18 (39.1%) have already been studied for their antimalarial properties, and 26 species (56.5%) have no laboratory essays on antimalarial activity.

Conclusions

Traditional knowledge of the uses of antimalarials is still widespread in indigenous communities of the Upper Rio Negro, where 46 plants species used against malaria were documented. Our studies highlight promising new plants for future studies with high-use consensus: *Glycidendron amazonicum*, *Heteropsis tenuispadix*, *Monopteryx uauçu*, *Phenakospermum guianensis*, *Pouteria ucuqui*, *Sagotia brachysepala* and notably *Aspidosperma schultesii*, *Ampelozizyphus amazonicus*, *Euterpe catinga*, *E. precatória*, *Physalis angulata*, *Cocos nucifera* and *Swartzia argentea*. Experimental validation of these remedies may help in developing new drugs for malaria.

1.Introduction

Malaria, a major public health problem in the world, is complicated by the increased resistance of the parasite to antimalarial drugs. The search for safe, new, and effective chemical structures against the parasite has been undertaken in several countries. Today, 3.3 billion people, half of the world's population, are at risk for malaria, mainly in tropical and subtropical regions (WHO, 2014). In Brazil, 99.7% of malaria transmission is concentrated in the Amazon region, where it is considered the disease of greatest magnitude according to the Ministry of Health (2013), and numerous cases have been reported not far from the area of our fieldwork (Cabral et al., 2010). Owing to the

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