INTRODUCTION

Malaria is one of the most important infectious diseases in underdeveloped countries, particularly in Africa. It affects about 500 million people each year, leading to 1.5 million deaths per year. Multi-resistance to most antimalarials in use is now widespread, while the cost of effective treatment, through different antimalarial drug combinations, is prohibitive for the majority of the affected populations. Plants used in traditional medicine are one major potential source for new antimalarial compounds. The recognition and validation of traditional medicinal practices as well as the search for natural antimalarial compounds could lead to new strategies for malaria control. The species *Pycaanthus angolensis* (Mysticaricaceae) is described to be used by traditional healers of São Tomé and Principe islands for the treatment of malaria and fever. Beside its use in traditional medicine against malaria and fever, it is also used in the cure of oral thrust, fungal skin infections, shingles, chest pain and headaches. The only reported compounds isolated from this species include allantoin, flavonoids, dihydroguaiaeric acid and pycnanthuquinones A, B and C. A previous study demonstrated that the crude ethanolic extract of the bark of *Pycaanthus angolensis* had evident antiplasmodial activity against chloroquine resistant *Plasmodium falciparum*. In this communication we present a bioguided phytochemical study of the species and the results regarding the antimalarial in vitro tests against two strains of *Plasmodium falciparum*, 3D7-chloroquine sensitive and Dd2-chloroquine resistant, for the extracts, fractions and isolated compounds.

RESULTS AND DISCUSSION

A new dibenzylbutane lignan was isolated, 4,4′-dihydroxy-3-methoxylignan (1) along with other four lignans: (-)-dihydroguaiaeric acid (2), hinokinin (6), heliobuphthalmin (7) and talamidin (9). Three new lignans were obtained from derivationation of 2, 4′-hydroxy-3′,3′-trimethoxylignan (3), 3,3′,4,4′-tetramethoxylignan (4) and 4,4′-dicaetoxy-3′,3′-dimethoxyturan (5) (−)-dihydrocubebine (8) was got by reduction of 7. Ozic acid (10) was isolated and submitted to a methylation reaction yielding methyl 4R,5S,9R,10S,8-8′,12,14-labdanetrien-18-oate (11). The steroids stigma-4-ene-β,β-ol-3-one (12), β-sitosterol (13) and stigmasteral (14) were also isolated. The extracts, the main fractions and the isolated compounds were tested in *vitro* for their antimalarial activity. In contrast with the crude extract and the fractions, the compounds have not shown significant antimalarial activity in both strains. Unless the active compounds were lost during fractionation, these results might be explained by synergistic effects between the different components of the complex extracts and could suggest that a standardization of the bark extract might be the best solution to a rational use of this traditional antimalarial plant.

**Table 1**: Antimalarial in *vitro* activity against 3D7-chloroquine sensitive *Plasmodium falciparum* of the extracts prepared for the preliminary study and the fractions derived from the fractionation of the total extract.

**Table 2**: Antimalarial in *vitro* activity against 3D7-chloroquine sensitive and Dd2-chloroquine resistant *Plasmodium falciparum* of isolated compounds.

MATERIALS AND METHODS

Extraction and fractionation: The powdered stem bark of *Pycaanthus angolensis* was extracted at room temperature with dichromotereph (4 x 10L). Fractionation and purification were performed by classic chromatographic techniques. Methylation of 2 and 10 was done with dimethoxymethane. Acetylation of 2 was achieved with acetic anhydride and pyridine. 7 was reduced with LiAlH4. Identification of all compounds was achieved by physical and spectroscopic methods (IR, EIMS, 1H NMR, 13C NMR, DEPT and 2D experiments – H H COSY, HMOC, and HMBC) and data obtained was in agreement with data reported in the literature. Antimalarial activity assays: Extracts, fractions and isolated compounds were tested by the susceptibility microassay technique. Two strains of *Plasmodium falciparum*, 3D7-chloroquine sensitive and Dd2-chloroquine resistant, were continuously maintained in culture [12] and used in these assays.