STUDY OF THE GENETIC DIVERSITY OF POPULATIONS OF \textit{Pilocarpus microphyllus} (RUTACEAE) USING ISSR MARKERS.

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Introduction

\textit{Pilocarpus microphyllus} Stapf ex Wardlew., popularly known as jaborandi, is characterized by its shrubby habit, compound leaves and small flowers arranged in racemes. The plant is indigenous to northern and northeastern Brazil, occurring in eastern Pará, northwestern Maranhão and northern Piaui [1]. It is a species of great economic interest, and the source of the alkaloid pilocarpine, used in the treatment of xerostomia and glaucoma. Although widely used in the pharmaceutical industry, little is known about the genetic diversity of this species in its natural habitat [2]. This work presents a study the genetic diversity of natural populations and cultivated collections of \textit{P. microphyllus}.

Methods

A total of 125 plants in five populations of \textit{P. microphyllus} were sampled for the analyses. 48 primers were tested and five (UBC 807, UBC 810, UBC 812, UBC UBC 825 and 856) used in the study of genetic variability. The distribution of genotypes within the five populations was analyzed using Bayesian methods (Structure) as well as cluster analysis (Neighbour-Joining algorithm) (in DarWin), and genetic diversity within and between populations was estimated and analysed using AMOVA and The principal coordinate analysis (PCoA) (in GenAlEx) [3].

Results e Discussion

Five different genetic groups were recognized in the data, each of which characterized the populations: Parauapebas (PA), Mata Rome (MA), Luzilândia (PI), Coastal Tablelands (PI) and Matias Olimpio (PI). The population with the highest interpopulation diversity was that of the Coastal Tablelands (80 %) and the lowest diversity in the Luzilândia population (42%).

Dissimilarity data for the five populations showed basal branches with low support value. Also noted that there is heterogeneity in populations, and the population Coastal Tablelands (PI) and Matias Olimpio (PI). The population with the highest interpopulation diversity was that of the Coastal Tablelands (80 %) and the lowest diversity in the Luzilândia population (42%).

The principal coordinate analysis (PCoA) showed that all five populations of \textit{P. microphyllus}, there is a greater distance from the population Luzilândia and other groups, and approximate populations of Matias Olimpio and Mata Rome, these last being the closest geographically.

Figure. \textit{Pilocarpus microphyllus} native.

Conclusion

The population of Coastal Tablelands in Parnaíba (PI), showed the largest mixing between populations. The fact that this population be cultivated may have led to this result, since this population is the presence of other cultivars.

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