

Chromosome counts in *Hymenaea* L. and *Guibourtia* Benn. (Leguminosae, Caesalpinioideae) and its taxonomic implications

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Abstract

Hymenaea and *Guibourtia* are part of the Hymenaea clade and they present interesting taxonomic challenges and biogeographical patterns. This work presents karyotype data from representatives of these genera and some preliminary evidences for an improvement of taxonomy and biodiversity knowledge of the group.

Key words: Cytogenetic, CMA/DAPI, Systematic.

Introduction

Hymenaea L. and *Guibourtia* Benn. are included in the Detarieae tribe (Leguminosae, Caesalpinioideae) and, together with the genus *Peltogyne* Vogel, they form the Hymenaea clade¹. Representatives of this clade are mainly recognized by their arboreal size, bifoliolate leaves and capability of producing resin. Due to a vegetative similarity between these genera, it is common to find mixed materials in herbarium collections and even misidentification data in some species lists. *Hymenaea* and *Guibourtia* currently comprises about 14 species each², nevertheless, the distribution of these species presents a curious pattern, since *Hymenaea* has most of its diversity in the Neotropical region, with the exception of *H. verrucosa* Gaert., which is restricted to East Africa and Madagascar, while *Guibourtia* has most of its diversity on the African continent with the exception of *G. hymenaeifolia* (Moric.) J. Léonard, restricted to South American continent². Even with an evident difficulty in the delimitation of taxa and an interesting biogeography pattern, the knowledge on cytological characteristics for the group is still scarce. Thus, this work aims to provide karyotype data for representatives of Hymenaea clade, helping further taxonomic and evolutionary studies.

Results and Discussion

The species *Hymenaea courbaril* L., *H. stigonocarpa* Hayne and *H. parvifolia* Huber presented chromosome counts of $2n=24$, following previously studies³ and two pairs of CMA⁺ bands (GC-rich sites). The species *G. hymenaeifolia* presented a chromosome count of $2n=10$ and one pair of CMA⁺ bands. The chromosome number presented by *G. hymenaeifolia* stands out by escaping from the range presented by other caesalpinoids legumes ($2n=22$ to $2n=24$)⁴. Moreover, this Neotropics species differs from the existing data for the

African species *G. ehie* (A. Chev.) J. Leonard, which presented the count of $2n=24$ ⁵.

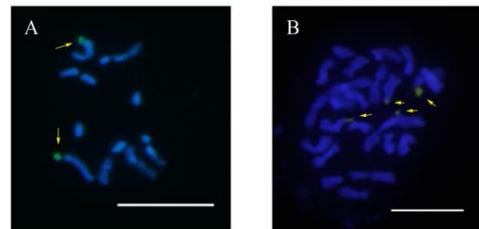


Image 1. Mitotic metaphases of A. *G. hymenaeifolia*; B. *H. stigonocarpa* (arrows point to CMA⁺ bands; bar = 10µm).

Conclusions

With the data obtained until now, we conclude that representatives from Hymenaea clade present predominantly a chromosome number of $2n=24$. Moreover, the chromosome number presented by the Neotropical species *G. hymenaeifolia* can be an indicative of isolation and that this species do not belongs to genus *Guibourtia*. Further studies are being conducted to evaluate if this taxon can be treated as a new legume genus. We intend to obtain data from more taxa, including *Peltogyne* species and associate these data with phylogenetic and taxonomic studies that are being carried out in the DBV-IB for a better understanding of the biogeography and diversification of the Hymenaea clade.

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¹Bruneau, A. et al. *Syst. Bot.* **2001**, 26(3), 487-514.

²Mackinder, B. In: Lewis, G.; Schrire, B.; Mackinder, B.; Lock, M. (eds.) *Legumes of the World*. Royal Botanic Gardens, Kew. **2005**, 577.

³Lee, Y.T.; Langenheim, J.H. *University of California Publications in Botany.* **1975**, 69, 109.

⁴Poggio, L.; Shirley, M.E.; Renée, H.F. *Rodriguésia.* **2008**, 59(3), 423-433.

⁵Mangenot, S.; Georges, M. *B. Soc. Bot. Fr.* **1962**, 109(2), 411-447.