



## CHEMOSYSTEMATIC STUDY OF MORACEAE FAMILY UNDER THE PERSPECTIVE OF CHEMOMETRIC ANALYSIS

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**Abstract:** The Moraceae family has a great importance among the angiosperms. It consists of 37 genus and 1500 species, which are extensively distributed.<sup>1,2</sup> In Brazilian biomes 23 genus and approximately 350 species have been described.<sup>1,3,4</sup> The intrafamiliar classification, based on morphologic and anatomic characters and on phylogenetic data, organizes the genus within the tribes Artocarpeae, Castilleae, Dorstenieae, Ficeae e Moreae.<sup>5</sup> The purpose of the present study is to collaborate in the comprehension of the relations between the genus and the tribes of this taxon, through the exploration of chemosystematics data of the Moraceae family, using the grouping analysis (CA) and the factor analysis (FA), as chemometric method. The Chemosystematic analysis was performed, through a bibliographic survey of the number of occurrence of secondary metabolites isolated from the Moraceae family. With the assistance of *Scifinder*, 678 papers were identified, in the period between 1907 and 2014, enumerating 3728 special metabolites in Moraceae, which are widely distributed within the tribes Artocarpeae (1242), Castilleae (350), Dorstenieae (486), Ficeae (557) and Moreae (1071). According to literature, the biogenesis of metabolites occurring in Moraceae, derives, preponderantly, from mixed pathway (1827), followed by the acetate pathway (1280) and from shikimate pathway (404). However, it is observed that each tribe of the family has a specific tendency. While in Artocarpeae and Moreae it is highlighted the preference for the substances from mixed route, in Castilleae and Ficeae the ones that most occur are those that comes from acetate course. Finally, Dorstenieae presents a reasonable productive equity. Coherently with chemosystematics, the CA has pointed two groups. The first consists on Artocarpeae and Moreae, and the second is formed by the Castilleae, Dorstenieae and Ficeae tribes. Besides, the FA evidenced that is correlation in genus. This way, the chemometric results are in confluence with the intrafamily classification. The chemometric analysis has distinguished the tribes according to their particularities, in which concerns to the biosynthesis of special metabolites. This prominence was pointed in this pioneering Chemosystematic study of Moraceae family and it was profitable in the legitimization of intrafamiliar classification.

### References:

- [1] Carauta, J. P. P. 1980. Moraceae: Notas Taxonômicas. Rodriguésia. 32 [53]: 109-116.
- [2] Zerega, N. J.C.; Clement, W. L.; Datwyler, S. L.; Weiblen, G. D. 2005. Biogeography and divergence times in the mulberry family (Moraceae). Molecular Phylogenetics and Evolution. 37: 402-416.
- [3] Carauta, J.P.P.; Sastre, C.; Romaniuc-Neto, S. 1996. Índice das Espécies Moráceas do Brasil. Albertoa.4 [7]: 77-93.
- [4] Romaniuc-Neto, S.; Carauta, J.P.P.; Vianna -Filho, M.D.M.; Pereira, R.A.S.; Ribeiro, J.E.L. S., Machado, A.F.P., Santos, A., Pelissari, G. 2010. Moraceae in Lista de Espécies da Flora do Brasil. Jardim Botânico do Rio de Janeiro. Rio de Janeiro, RJ.
- [5] Datwyler, S. L.; Weiblen, G. D. 2004. On the origin the fig: Phylogenetic relationships of Moraceae from *ndhF* sequences. V [5]: 767-777.

