

## Small structure, big significance: seed morphology of South American species of *Mitracarpus* (Rubiaceae – Spermaceae)

Souza E.B.<sup>1\*</sup>, Nuñez Florentin M.<sup>2</sup>, Nepomuceno A.<sup>3</sup>, Portela L.H.X<sup>4</sup>, Santos F.A.R.<sup>3</sup> & Zappi D.C.<sup>6</sup>

<sup>1</sup>Universidade Estadual Vale do Acaraú, UVA, Sobral, Ceará, Brazil. <sup>2</sup>Instituto de Botánica del Nordeste, CONICET-UNNE, Corrientes, Argentina. <sup>3</sup>Universidade Estadual de Feira de Santana, UEFS-PPGBot, Feira de Santana, Bahia, Brazil. <sup>4</sup>Universidade Estadual Vale do Acaraú, UVA-PROPGE, Sobral, Ceará, Brazil. <sup>5</sup>Universidade de Brasília, UnB, Brasília, Brazil.

\*Presenting author: Souza E.B. E-mail elnatan\_souza@uvanet.br

*Mitracarpus* Zucc. ex Schult. & Schult.f. comprises about 50 species distributed mainly throughout tropical and subtropical regions of the New World, from southern United States to central Argentina. Considering the importance of micromorphological characters for the taxonomy of Spermaceae s.s. (Rubiaceae), the present study aimed to analyse the taxonomic significance of seed micromorphology in *Mitracarpus* species from South America. The seeds of 29 species were analysed through light microscopy and scanning electron microscopy (SEM). For SEM analyses the seeds were mounted on stubs, air dried, covered with gold-palladium. The analyses revealed four patterns and eight subtypes in *Mitracarpus*, based mainly on the shape of the ventral groove and exotesta features: (1) X-shaped groove: 1.1. reticulate-areolate exotesta, without cruciform depression (*M. eritricoides*, *M. parvulus*, *M. longicalyx*, *M. nitidus*); 1.2. reticulate-areolate exotesta, with cruciform depression (*M. albomarginatus*, *M. bacigalupoeae*, *M. fernandesii*); 1.3. reticulate-foveate exotesta, without cruciform depression (*M. brasiliensis*, *M. federalensis*, *M. hirtus*, *M. microspermus*, *M. nitidus*, *M. polygonifolius*); 1.4. papillate exotesta, without cruciform depression (*M. pusillus*, *M. recurvatus*, *M. steyermarkii*); 1.5. reticulate-foveate exotesta, with cruciform depression (*M. anthospermoides*, *M. carajasensis*, *M. baturitensis*, *M. bicrucis*, *M. frigidus*); (2) Inverted-Y-shaped groove, reticulate-foveate exotesta, without cruciform depression (*M. eichleri*, *M. salzmannianus*, *M. semirianus*); (3) Rectangular-quadrangular-shaped groove, reticulate-areolate exotesta, without cruciform depression (*M. hasslerianus*, *M. lhotzkyanus*, *M. megapotamicus*, *M. rigidifolius*); (4) Oblong-shaped groove, reticulate-foveate exotesta, without cruciform depression (*M. diversifolius*). The data obtained here have shown the systematic importance of seed characteristics in *Mitracarpus*, as well their value to indicate affinities among species. It is expected that this study regarding the seed characters in *Mitracarpus* can provide a potential source of apomorphies to discern the clades in future molecular phylogenetic analyses.

Acknowledgements: FUNCAP (Process BP5-0197-00136.01.00/22); Royal Botanic Gardens, Kew; KLARF (Kew Latin American Research Fellowships Programme); CONICET.