

Morphology and anatomy of fruits and seeds of three species of *Erythroxylum P. Browne* (Erythroxylaceae)

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Abstract

The “cerrado” (*sensu lato*) vegetation includes 20 to 25% of the Brazilian territory showing a very rich and diversified flora with around 6,062 Phanerogam species, such as trees, large shrubs, and many tree-like and herbaceous species. Incomplete knowledge of the flora and scattered information restricted to a small number of species make difficult any attempt to establish a rational preservation program of the “cerrados” and identification of particularly critical areas. Morphological and anatomical aspects of most “cerrado” plants are unknown; morphological and anatomical studies on fruits and seeds of “cerrado” plants are even more scarce. Because the Erythroxylaceae family is one the most representative “cerrado” plants, we have studied the morphology, anatomy, and ontogenesis of fruits and seeds of *Erythroxylum campestre*, *E. cuneifolium*, and *E. suberosum*, native “cerrado” species of São Paulo State. The fruit is drupaceous, red when mature, with persistent calyx; the seed is bitegmic, albuminous, and contains an axial embryo with short embryonic axis and fleshy cotyledons. The fruits are anatomically divided into three developmental stages: I – characterized by many cell divisions on the ovary wall and floral bud ovules, and flowers in anthesis and post-anthesis; II – large pericarp and seed growth of immature fruits up until their final size; and III – pericarp and seed maturation with embryo differentiation. During fruit development, we have observed that the tissue that lignifies and delimitates the pyrene is derived from the inner mesocarp associated to the uniseriate endocarp. The seminal integuments are papyraceous with lignified exotegmen. We have concluded that to include the fruits studied here, the classical definition of drupaceous fruits has to be revised, as it is not always that only the endocarp is woody. To include the studied species of *Erythroxylum* as drupaceous fruits, they should be defined as those presenting a woody inner pericarp region, which can include mesocarp and/or endocarp tissues.

Key-words: morphology, anatomy, fruit, seed, Erythroxylaceae.

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