

Brongniartieae (22.01–22.02)

Genus: *Brongniartia* K.S. Kunth

Phylogenetic Number: 22.01.

Tribe: Brongniartieae.

Species Studied—Species in Genus: 15 spp.—56 spp.

Fruit a legume; unilocular; $1.3\text{--}6 \times 0.8\text{--}2.5 \times 0.4\text{--}0.5$ cm; with deciduous calyx; without orifice formed by curving of fruit or fruit segments; straight; not plicate; not twisted; asymmetrical or symmetrical; elliptic or oblong; when asymmetrical with 1 straight and 1 curved suture, both sutures parallelly curved, or both sutures unequally curved; not inflated; compressed; without beak; short tapered at apex; apex aligned with longitudinal axis of fruit; tapered at base; base aligned with longitudinal axis of fruit; with the apex and base uniform in texture; coriaceous; seed chambers externally invisible. Fruit margin not constricted; without sulcus; plain. Fruit wings absent. Fruit nonstipitate. Fruit with all layers dehiscing; splitting along sutures. Dehiscence of valves along both sutures; apical and down (assumed); active; with valves twisting. Replum invisible. Epicarp dull; monochrome; brown or tan; pubescent and indurate; with 1 type of pubescence; with pubescence gray; pliable; with hair bases plain; eglandular; without spines; not smooth; obliquely veined relative to fruit length; not tuberculate; not exfoliating; without cracks. Mesocarp thin; 1-layered; without balsamic vesicles; without fibers; solid; coriaceous. Endocarp dull; monochrome; tan or yellow; fibrous (but fibrous around margins of seeds or not) or smooth; subseptate or nonseptate; with septa thin (tissue paper-like), flexible; with septa eglandular; coriaceous; not exfoliating; remaining fused to mesocarp and epicarp. Seeds 1–8; length transverse (to slightly oblique) or oblique to fruit length; neither overlapping nor touching; in 1 series. Funiculus measured; 1–4 mm long; of 1 length only; flattened; straight. Aril fleshy; hooked; covering less than 1/2 of seed; brown to tan.

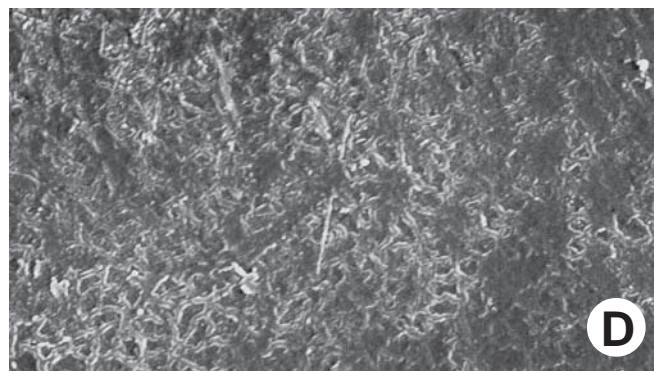
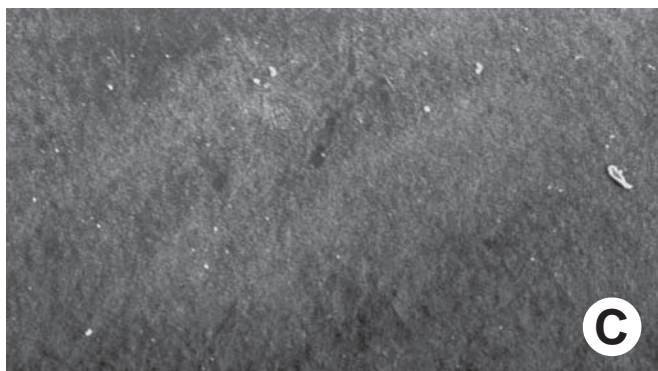
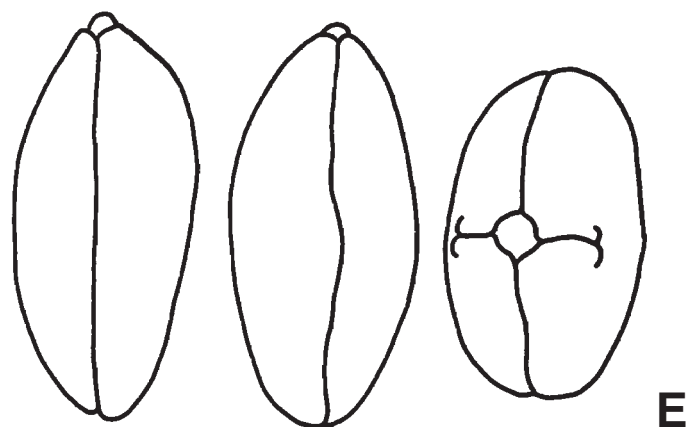
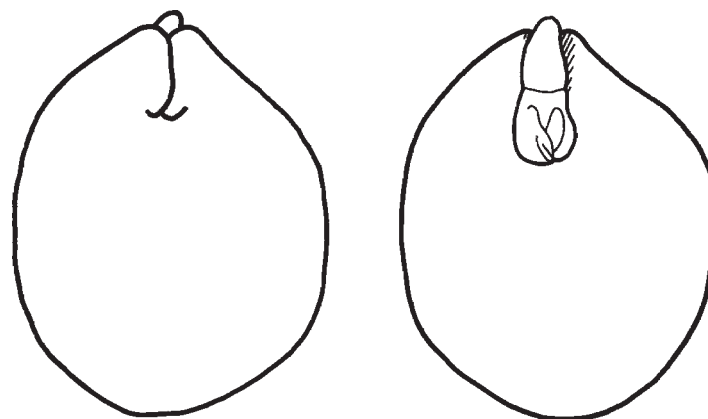
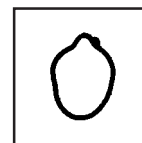
Seed $6\text{--}20 \times 3.5\text{--}6.5 \times 2.5\text{--}4$ mm; not overgrown; angular or not angular; asymmetrical; irregular (because of pressure of adjacent seeds) or oblong to ovate; compressed; without visible radicle and cotyledon lobes; without umbo on seed faces. Testa not adhering to endocarp; glossy; not modified by a bloom; colored; monochrome or mottled; with frequent mottles; brown

or tan; with brown (dark) overlay; glabrous; smooth; coriaceous. Fracture lines absent. Rim absent. Raphe visible or not visible; from lens to base of seed and terminating; color of to lighter than testa; tan; flush. Hilum fully concealed; concealed by funiculus or funicular remnant; with faboid split; with the lips of the faboid split the same color as the rest of the hilum; larger than punctiform; 0.8–1 mm long; with curved outline; circular; subapical to radicle tip; recessed; within rim or not within corona, halo, or rim. Hilum rim color of (but not mottled if testa mottled) or darker than testa (but not mottled if testa mottled). Lens discernible; equal to or greater than 0.5 mm in length; 1–1.2 mm long; with margins straight or curved; linear or elliptic; not in groove of raphe; adjacent to hilum; 0.5 mm from hilum; mounded; same color as testa; brown or tan; not within corona, halo, or rim. Endosperm thin; covering entire embryo; adnate to testa. Cotyledons smooth; both outer faces convex; both the same thickness; both more or less of equal length; not folded; margin entire 180 degrees from base of radicle; similar at apex; partially concealing radicle; split over radicle; with lobes; with lobes overlapping; with basal groin formed by lobes; with the interface division terminating at base of radicle; without margins recessed; tan; inner face flat; glabrous around base of radicle. Embryonic axis straight; parallel to length of seed. Radicle linear; straight with embryonic axis; centered between cotyledons; less than 1/2 length of cotyledons. Plumule well developed; glabrous.

Distribution: Southern United States, Mexico, Central America, South America.

Notes: Arroyo (1981) noted that the “legumes and seeds in *Harpalyce* and *Brongniartia* are quite similar and on this basis the genera are closely related.” She regarded this tribe as “a probably reticulate American group, with ancient austral roots.” Crisp and Weston (1987, pp. 105–107) provided compelling evidence that the *Templetonia* group of the Bossiaeeae should be transferred to the Brongniartieae, but they did not resolve all aspects of the transfer. See the Notes for *Lamprolobium* (23.02). Chappill’s (1995) cladistic analysis of the entire family indicated that the transfer should not be made and that the two tribes should be circumscribed in the traditional manner (Crisp and Weston 1995).

Brongniartia: *B. intermedia* S. Moricand (C–E), *B.* spp. (A–B). A, Valves ($\times 0.9$); B, seeds ($\times 1.5$); C–D, testa ($\times 50$, $\times 1000$); E, embryos ($\times 5$).



Genus: *Harpalyce* A.-P. de Candolle

Phylogenetic Number: 22.02.

Tribe: Brongniartieae.

Species Studied—Species in Genus: 9 spp.—20 spp.

Fruit a legume; unilocular; $1-12 \times 0.8-3.5 \times 0.3-0.6$ (estimated) cm; with deciduous calyx; without orifice formed by curving of fruit or fruit segments; straight to curved (slightly); not plicate; not twisted; symmetrical; oblong to obovate to ovate (when obovate, lower portion of fruit sterile); not inflated; compressed; without beak; short tapered at apex; apex oblique with longitudinal axis of fruit; short tapered at base; base aligned with longitudinal axis of fruit; with the apex and base uniform in texture; fleshy (when fresh), coriaceous, or ligneous (*H. mexicana* J.N. Rose); seed chambers externally visible; with the raised seed chambers not torulose. Fruit margin not constricted; without sulcus; plain. Fruit wings absent. Fruit nonstipitate. Fruit with all layers dehiscing. Dehiscence of valves along both sutures; apical and down; active or passive (*H. mexicana*); with valves revolute. Replum invisible. Epicarp dull or glossy; monochrome; black, brown (reddish-brown to darker), purple, or tan; glabrous; eglandular; without spines; not smooth; with elevated features; obliquely veined relative to fruit length; not tuberculate; obscurely rugose; not exfoliating; without cracks. Mesocarp thin; 1-layered; without balsamic vesicles; without fibers; solid; subligneous. Endocarp dull or glossy (at least lustrous); monochrome; tan; cobwebby, smooth, or spongy; septate or nonseptate; with septa thin (tissue paper-like), flexible or thicker than paper, firm; with septa eglandular; coriaceous; not exfoliating. Seeds 1–15; length oblique (*H. macrocarpa* N.L. Britton & P. Wilson) or transverse to fruit length; neither overlapping nor touching; in 1 series. Funiculus measured; 2–4 mm long; of 1 length only; filiform or triangular; straight. Aril fleshy; topknotlike, cupshaped, or hooked; covering less than 1/2 of seed; brown or tan.

Seed $5-15 \times 2-12 \times 2.5-5$ mm; not overgrown; not angular; asymmetrical; oblong to rectangular; compressed; without visible radicle and cotyledon lobes; without umbo on seed faces. Testa not adhering to endocarp; dull; not modified by a bloom; colored; monochrome; black, brown, cream (*H. parvifolia* H.S. Irwin & M.T.K. Arroyo), ivory, or olive; glabrous or minutely pubescent (*H. robusta* H.S. Irwin & M.T.K.

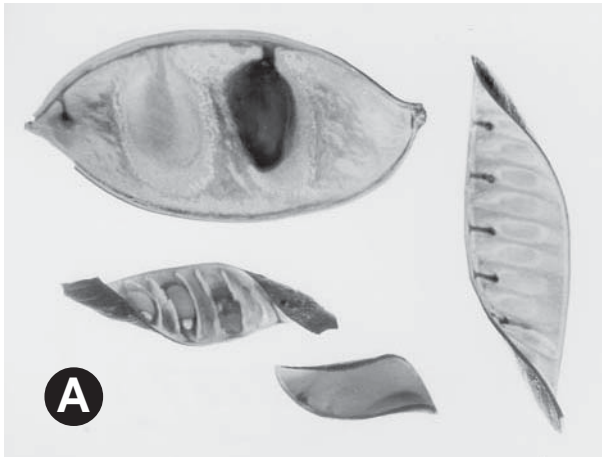
Arroyo fide Arroyo (1976)); smooth; coriaceous. Fracture lines absent. Rim absent. Raphe visible or not visible; from lens to base of seed and terminating; color of testa; recessed. Hilum fully concealed; with faboid split; with the lips of the faboid split the same color as the rest of the hilum; larger than punctiform; 0.5–0.7 mm long; with curved outline; elliptic; subapical to radicle tip; recessed; within rim or not within corona, halo, or rim. Hilum rim color of testa. Lens discernible or not discernible; less than 0.5 mm in length; with margins straight or curved; linear; punctiform; in groove of raphe; adjacent to hilum; recessed; dissimilar color from testa; darker than testa; black; not within corona, halo, or rim. Endosperm thin; covering entire embryo; adnate to testa. Cotyledons smooth; both outer faces convex; both the same thickness; both more or less of equal length; not folded; margin entire 180 degrees from base of radicle; similar at apex; partially concealing radicle; split over radicle; with lobes; with lobes touching (auriculate); with basal groin formed by lobes; with the interface division terminating at base of radicle; without margins recessed; tan; inner face flat; glabrous around base of radicle. Embryonic axis oblique; oblique to length of seed. Radicle linear; oblique to cotyledons; centered between cotyledons; less than 1/2 length of cotyledons. Plumule rudimentary; glabrous.

Distribution: Mexico, Central America, Cuba, Brazil.

Notes: Arroyo (1976) monographed the genus and provided general fruit and seed descriptions for most recognized species. Our studied species were selected from all three sections: *Harpalyce*, *Brazilianae* M.T.K. Arroyo, and *Cubenses* P.A. Rydberg. The lens is a black line in the raphe groove and is surrounded by a punctiform pit.

Harpalyce: *H. brasiliiana* G. Benth (C–E), *H. spp.* (A–B). A, Valves ($\times 1$); B, seeds ($\times 4$); C–D, testa ($\times 50$, $\times 1000$); E, embryos ($\times 5$).

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