Crassulaceae  A. P. de Candolle
(Stonecrop Family)

Succulent herbs to shrubs; stem often with cortical or medullary vascular bundles; with crassulacean acid metabolism (CAM); tannins present; often with alkaloids, sometimes cyanogenic. Hairs simple, but plants more commonly glabrous and glaucous. Leaves alternate, opposite, or whorled, sometimes in a basal rosette, simple or rarely pinnately compound, entire to crenate, dentate or serrate, succulent, with pinnate venation, but veins often obscure. Inflorescences determinate, sometimes reduced to solitary flower, terminal or axillary. Flowers usually bisexual, radial, lacking a hypanthium. Sepals usually 4 or 5, distinct to connate. Petals usually 4 or 5, distinct to connate (and then forming a ± tubular corolla), imbricate. Stamens 4-10; filaments distinct to slightly connate, free or adnate to corolla; anthers opening by terminal pores; pollen grains tricolporate. Carpels usually 4 or 5, distinct to slightly connate at base; ovaries superior, with parietal placentation (or axile at base, if carpels fused); stigmas minute. Each carpel subtended by a scale-like nectar-producing gland. Ovules few to numerous in each carpel. Fruit an aggregate of follicles, rarely a capsule (Figure 8.53).

Distribution and ecology: Widespread from tropical to boreal regions; plants very often of arid habitats.

Genera/species: 35/1500. Major genera: Sedum (450), Crassula (300), Echeveria (150), and Kalanchoe (125). These, along with Diamorpha, Dudleya, Graptapetalum, Lenophyllum, and Villadia occur in the continental urals and/or Canada.

Economic plants and products: Sedum (stonecrop), Echeveria, Kalanchoe, and Semperoivum (houseleek) are grown as ornamentals because of their distinctive succulent leaves.

Figure 8.53  Crassulaceae. (A-D) Sedum pulchellum: (A) overwintering rosette (x 0.75); (B) flowering shoot (x 1.5); (C) flower (x 8); (D) cross-section through four carpels of gynoecium (x 30). (E-J) S. pusillum: (E) habit of mature plant (x 1.5); (F) immature follicles in longitudinal section, note nectaries (solid black) at base of carpels (x 9); (G) immature follicle (x 1.5); (H) mature, dehisced follicles (x 1.5); (I) seed (x 35); (J) embryo (x 35). (K) S. glaucophyllum: leafy shoot (x 1.5). (L) S. ternatum, leafy shoot (x 0.75). (M) S. telephioides: outline of leaf (x 0.75). (From Sponberg 1978, J.Arnold Arbor. 59: p.206.)