4. Crassula venezuelensis (*Steyermark*) *Bywater & Wickens* comb. nov.

Tillaea venezuelensis Steyermark in Fieldiana Bot. 28: 914 (1957). Type: Venezuela between Chachopo and Los Apartaderos, near El Aguila, *Steyermark* 55906 (holotype F!; isotype K! NY!).

Erect to decumbent herb. Aquatic stems up to 100 mm long. Leaves narrowly triangular-lanceolate 3·5–5 mm long, submucronate, forming an acute angle to the stem. Pedicels up to 15 mm long. Flowers 1 per node, 4-merous 1·2–2·3 × 1–1·9 mm. Sepals triangular-ovate 1 × 0·8 mm. Petals 1·4 × 0·7 mm, exceeding sepals. Scales filamentous 0·6 mm long. Carpels 6–8 seeded. (Fig. 2 F–K).

Seed. [LM]: large, oblong, (0·43–)0·54–0·63(–0·68) × 0·2–0·25 (–0·34) mm, reddish-brown, longitudinally striate, minutely rugulose. [SEM]: striations consisting of long rugose cells joined by rounded, interlinking lobes. (Plate 30 A–B). Of the 22 specimens examined, seeds were studied from 19, some of which were immature but the surface structure is consistent and the seeds large.

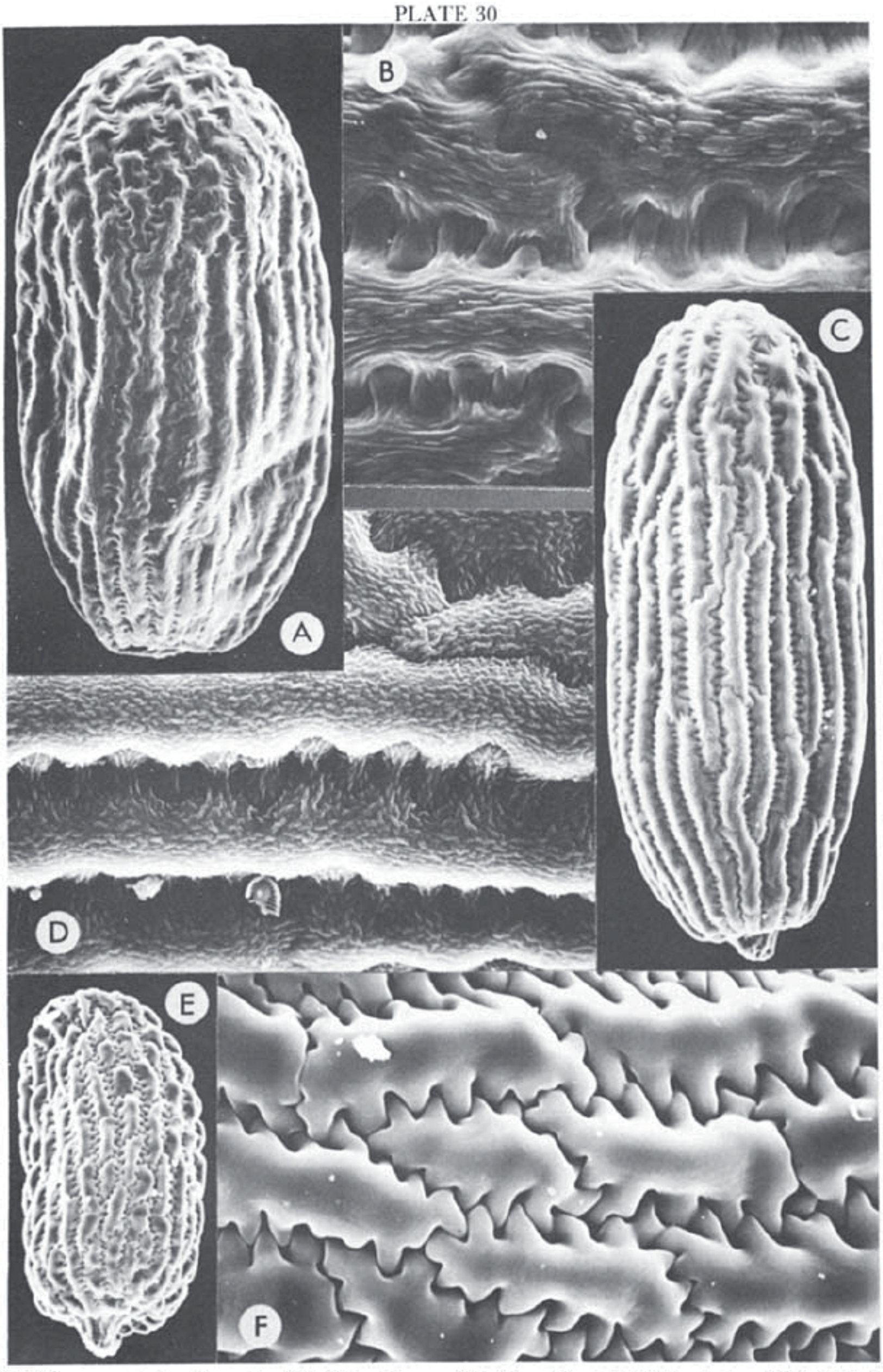
Habitat. Mainly aquatic; inland lakes and lakesides, at high altitudes, 3000–4500 m.

Distribution. Colombia, Venezuela, Ecuador, Peru, Bolivia, ? Chile (Map 1).

As the flowers of the type of *C. venezuelensis* are immature, seed characters cannot be used. Habit and gross morphology, particularly the narrowly triangular, sharply pointed leaves, place this specimen within a taxon found in the north and west of South America which has large, broadly oblong, striate seeds.

C. venezuelensis can be separated from *C. peduncularis* and *C. viridis*, which are similar in outward appearance, by the relatively large, non-papillate, seeds. It differs from *C. saginoides* in its leaf shape, larger seed and predominantly aquatic habitat. It is frequently found at high altitudes, between 3000 and 4500 m, unlike *C. peduncularis* which is rarely found over 1000 m.

PLATE 30



A–B *C. venezuelensis*: **A** seed × 145; **B** surface × 725, from *Cazalet & Pennington 5476*; **C–D** *C. minutissima*: **C** seed × 145; **D** surface × 725, from *Skottsberg 710*; **E–F** *C. solierii*: **E** seed × 145; **F** surface × 725, from *Wheeler 3389*.