11. *Villadia kimnachii* Pino & Cieza sp. nov.

Planta succulenta glabra, florens usque ad 28 cm alta. Caulis erectus chalybeus decorticans, supra basin 6–9 mm diam, 3–10 ramis erectis. Rami lycopodiformes, steriles 3.5–8 cm longi, florigeri 10 cm longi, caulibus ad basin 1.8–2 mm diam, griseobrunneis, apicem versus rubescentibus. Folia succulenta dense imbricata spiraliter disposita sessilia perdurantia anguste ovata vel triangularia 5–7.5 mm longa, 2–2.5 mm lata, subacuta, flavovirentia apicibus rufescentibus. Inflorescentia terminalis spica 2.5–7 cm longa, 5–15 floribus sessilibus. Bracteae ovatae-triangulares, 3–5.5 mm longae 1–1.5 mm latae, in quoque flore ternae, angulo fere recto divergentes. Sepala oblonga 3.2–3.8 mm longa 1.4–1.5 mm lata. Petala oblonga lanceolata 4–4.5 mm longa, 1.8–2 mm lata, pallide flavovirentia, a basi usque ad ¾ partem coalita, demum deltoidea introrsum recurvata. Stamina filamentis albis. Carpela 5 fusiformia albovirentia. Squamae nectariferae rectangulares obtusangulae conspicue salmoneae. Floret ab Martio ad Aprilem.

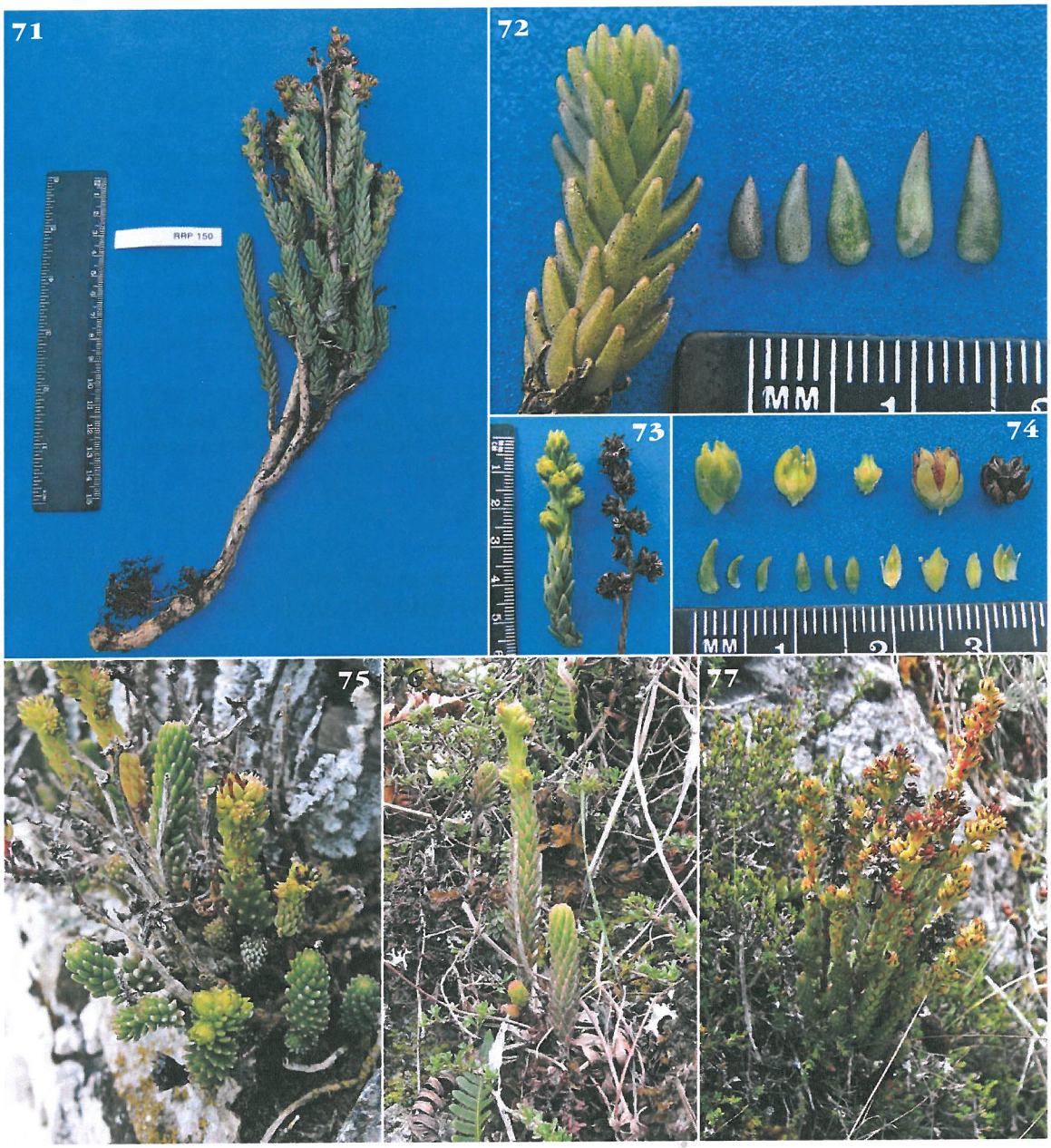
Holotype: Dept. Cajamarca, Prov. San Marcos, Dist. José Sabogal, road from San Isidro to Casablanca, on rocks of ruins, growing with *Peperomia cereoides* var *reducta*, *P. hartwegiana* var *minutifolia*, *Ephedra* cf *americana*, *Pleurothallis* sp, *Oncidium* sp, *Oxalis* sp, 7°14′38″ S, 78°00′33″ W, 3660 m, 15 May 2003, *G. Pino 1147* (*RRP 150*) (USM 224,793).

A succulent glabrous herb, 15–28 cm tall when flowering. Roots fibrous, short, 0.5–1.5 cm long, 0.1 mm diam, brown. Stem erect, (0.4–) 0.6–0.9 cm diam at base, shiny light gray-brownish, epidermis peeling off easily, branching every 2–3 cm (Fig 71). Branches 3–10, rarely arising from base, erect, vegetative shoots 3.5–8 cm long, 1.8–2.5 mm diam at base, grayish, stem and leaves together forming a column 6–8 mm diam, flowering shoots up to 10 cm long, stem tapering to 1.5–2 mm diam, light reddish-green near apex. Leaves succulent, sessile, spirally arranged, crowded and adpressed to stem on all vegetative and flowering shoots but absent on primary stem and branches, attached at an acute angle, slightly incurved, narrowly ovate to narrowly deltoid, 5–7.5 mm long, 2–2.5 mm wide, 2–2.2 mm thick, obtuse to subacute, upper side flat to slightly concave, lower side convex, bright yellowish-green, apices reddish, margins en-

dish-green. Flower buds 4 × 4 mm. Bracteoles three per flower, the largest opposite to the stem and the other two lateral placed at 90°, one at each side of the flower, 3–5.5 mm long, 1–1.5 mm wide, narrowly ovate-deltoid, apex obtuse, upper side flat-concave, lower side convex, slightly upcurved, with a hyaline spur at base, bright green. Pedicels absent. Sepals oblong, 3.2–3.8 mm long, 1.4–1.5 mm wide, bright green, apex obtuse. Petals oblong to lanceolate, apex deltoid obtusely acute, adnate along the proximal three fourths, incurved along the distal fourth, 4–4.5 mm long, 1.8–2 mm wide, outer surface convex, pale greenish-yellow, inner surface concave, light greenish-yellow, margins entire. Stamens ten, the five epipetalous 2.4–2.6 mm long, the antesepalous 2.8–3 mm long, filaments white, conical, 0.25 mm diam Anthers ovoid, 0.4 × 0.3 mm, yellow. Gynoecium ovoid, 2 × 2.4 mm, light green. Carpels five. Styles 0.8 mm long, green. Nectary scales oblong to deltoid, 1.2 long × 0.8 mm wide, bright salmon-pink. Fruit a dehiscent capsule appearing from May to June, 5.5 × 4 mm, dry carpels brown (Fig 74).

This species was observed in 2003 at the type locality of *P. cereoides* var *reducta* and *P. hartwegiana* var *minutifolia* (Pino and others 2004) and mistaken for the common *Sedum* species of Cajamarca, *S. isidorum* (Fig 75). However, the stems of *Villadia kimnachii* are erect and very long, with non-deciduous leaves adpressed closely to the stem as in some species of *Lycopodium* (Fig 76). Fertile stems produce spikes with flowers similar to those of *V. klopfensteinii*, but in that species the distal leaves on the long flowering stems are very laxly attached (Figs 46, 48, 49), while *V. kimnachii* forms very compact plants with erect, stiff inflorescences (Fig 77). The salmon-colored nectary scales are conspicuous (Fig 74).

The species is dedicated to Myron Kimnach, horticulturist, taxonomist, Director Emeritus of the Huntington Botanical Gardens, former editor of the *Cactus and Succulent Journal* (USA) and *Haseltonia*, and a student of the flora of Peru. He has described four new species of Peruvian echeverias and was one of the Huntington Botanical Gardens team that discovered *Sedum isidorum*.



Figures 71–77. *Villadia kimnachii.* **Figure 71.** *V. kimnachii* in habitat. **Figure 72.** Detail of the young shoot (left) and leaves (right). **Figure 73.** Comparison of spike with flowers (left) and mature dry spike (right). **Figure 74.** Detail of the flowers. From left to right: (above) flower, flower section, gynoecium with nectaries, immature fruit, dry fruit; (below) bracts (3), sepals (3), petal (inner, outer, and lateral view). Note the remarkable salmon-colored nectaries. **Figure 75.** *V. kimnachii* in habitat at Casablanca initiating anthesis. **Figure 76.** Young *V. kimnachii* with lycopodium-like growth. **Figure 77.** Mature *V. kimnachii* with mature spikes. Figures 17, 19, 20 by Sidney Novoa; Figures 33, 34, 35, 42, 46, 48, 49, 50, 56, 61, 63, 69, 70, 75, 76, 77 by Nelson Cieza; all others by Guillermo Pino.