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A new species of *Potentilla* (Rosaceae) from Peloponnesus, Greece

GREGORY IATROÚ

RÉSUMÉ

IATROÚ, G. (1985). Une nouvelle espèce de *Potentilla* (Rosaceae), du Péloponnèse, Grèce. *Candollea* 40: 121-128. En anglais, résumé français.

Potentilla arcadiensis est une espèce nouvelle décrite des rochers calcaires de la partie orientale du Mt. Parnon en Arcadie (Péloponnèse, Grèce). Cette espèce appartient au sous-genre *Fragariastrum*, section *Fragariastrum*, série *Crassinerviae*. Les relations entre cette espèce et deux espèces voisines, les *Potentilla crassinervia*, endémique de Corse et de Sardaigne et, *P. libanotica*, endémique de l'Anatolie du Sud (Turquie du Sud, Syrie occidentale et Liban du Nord) sont examinées. Le nombre chromosomique $2n = 14$ révèle une origine ancienne.

ABSTRACT

IATROÚ, G. (1985). A new species of *Potentilla* (Rosaceae) from Peloponnesus, Greece. *Candollea* 40: 121-128. In English, French abstract.

Potentilla arcadiensis is described from limestone cliffs of the E. side of Mt. Parnon in the province of Arkadhia, Peloponnesus, Greece. This species belonging to *Potentilla* subgenus *Fragariastrum* sectio *Fragariastrum* series *Crassinerviae* is related to *Potentilla crassinervia* endemic to Corsica and Sardinia and to the S. Anatolian endemic *P. libanotica*. The chromosome number $2n = 14$ indicates an ancient origin.

***Potentilla arcadiensis* Iatroú, sp. nova (Fig. 1).**

Typus: Greece, Peloponnesus, prov. Arkadhia in declivibus orientalibus montis Parnon; ad Monasterium Elona, in rupibus calcareis, alt. ca. 550 m, 7.VIII.1983, *Gr. Iatroú & E. Kokkinos 1911* (holotypus UPA).

Planta perennis basi suffrutescens multicaulis, caulibus viridibus tenuibus erectis vel ascendentibus 10-25(-30) cm altis; tota planta dense pilosa. Pili ad caulem, petiolum pedicellosque pro maxima parte simplices 1-1.2 mm longi; pili glandulosi usque ad 1 mm longis stipite uniseriato e cellulis 2-4 constanti. Folia radicalia petiolis 3-5 cm longis; foliola viridia herbacea obovata aut late obovata (15-25 × 10-18 mm) anguste cuneata ad basim, nervis validis, margine profunde incisa, ad apicem crenato-serrata dentibus acutis. Stipulae foliorum radicalium modice latae (3-5 mm) ± virides, herbaceae, auriculis lanceolatis sensim acuminatis 4-8 mm longis praeditae. Inflorescentia terminalis laxa multiflora; flores longe pedicellati, pedicellis 1.5-3.5 cm longis, late aperti, sepalis petalisque ± horizontaliter stellatim expansis. Phylla epicalycis sepalis subaequilonga, 3.5-4.5 × 1.5-2 mm. Petala alba sepalis longiora elliptico-oblonga vel obovato-oblonga apice ± retusa sparse pilosa ad apicem 4.5-6 × 2-2.5 mm. Filamenta glabra; antherae 0.8-1 mm longae. Fructus 0.7-1 mm longus, tantum ad apicem versus pilosus, pilis 0.5-0.7 mm longis. Stylus filiformis subapicalis 2.5-3 mm longus, glaberrimus.

Numerus chromosomatum: $2n = 14$.

Ex affinitate *Potentilla crassinervia* Viv. et *P. libanotica* Boiss.

Perennial, densely pubescens. Base of the stem woody, producing several erect or ascending flowering shoots 10-25(-30) cm high. Hairs on shoots, petiols and pedicels mostly simple 1-1.2 mm long, the glandular hairs up to 1 mm long, with unilinear stipe consisting of 2-4 cells. Basal leaves

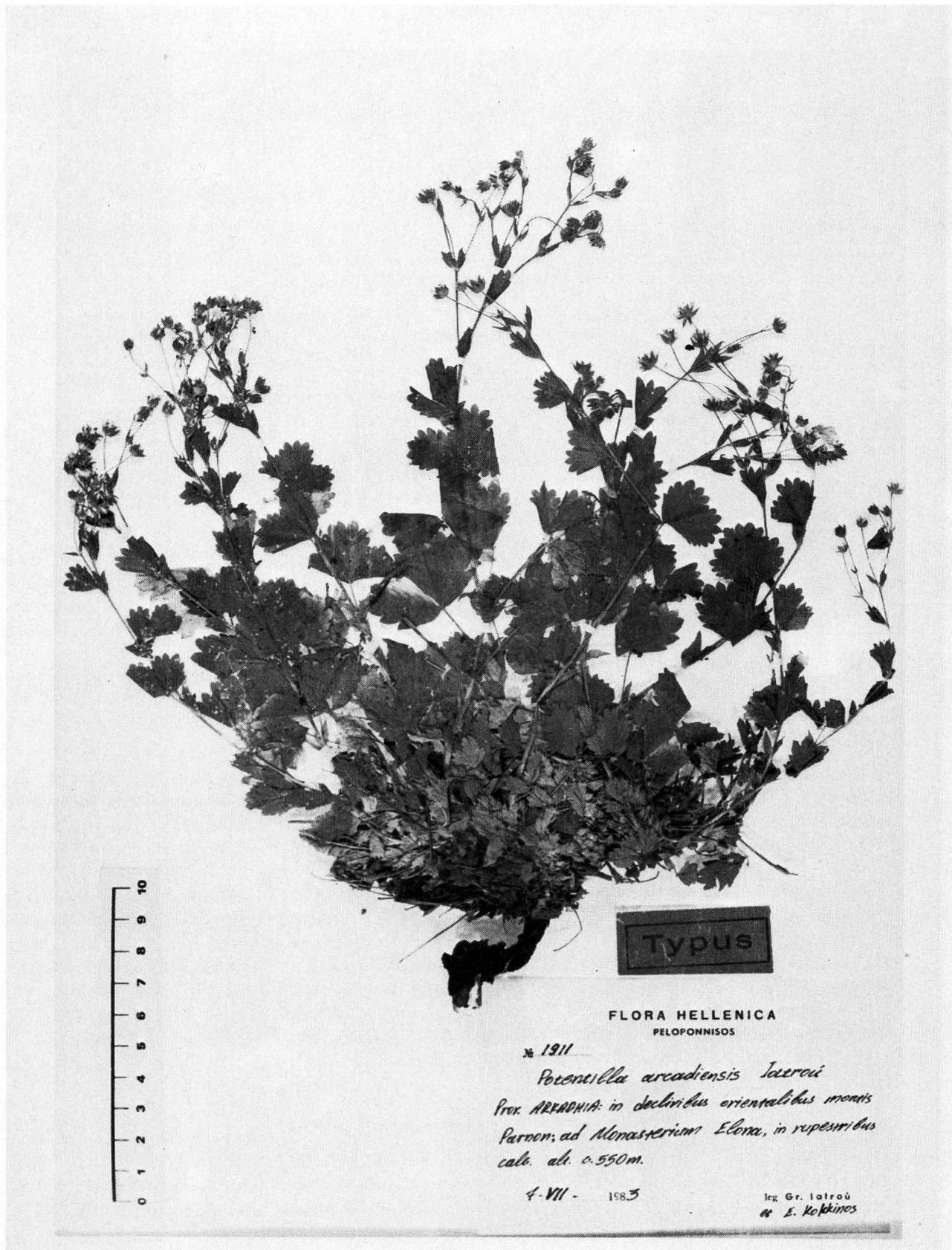


Fig. 1. — *Potentilla arcadiensis* (holotypus).

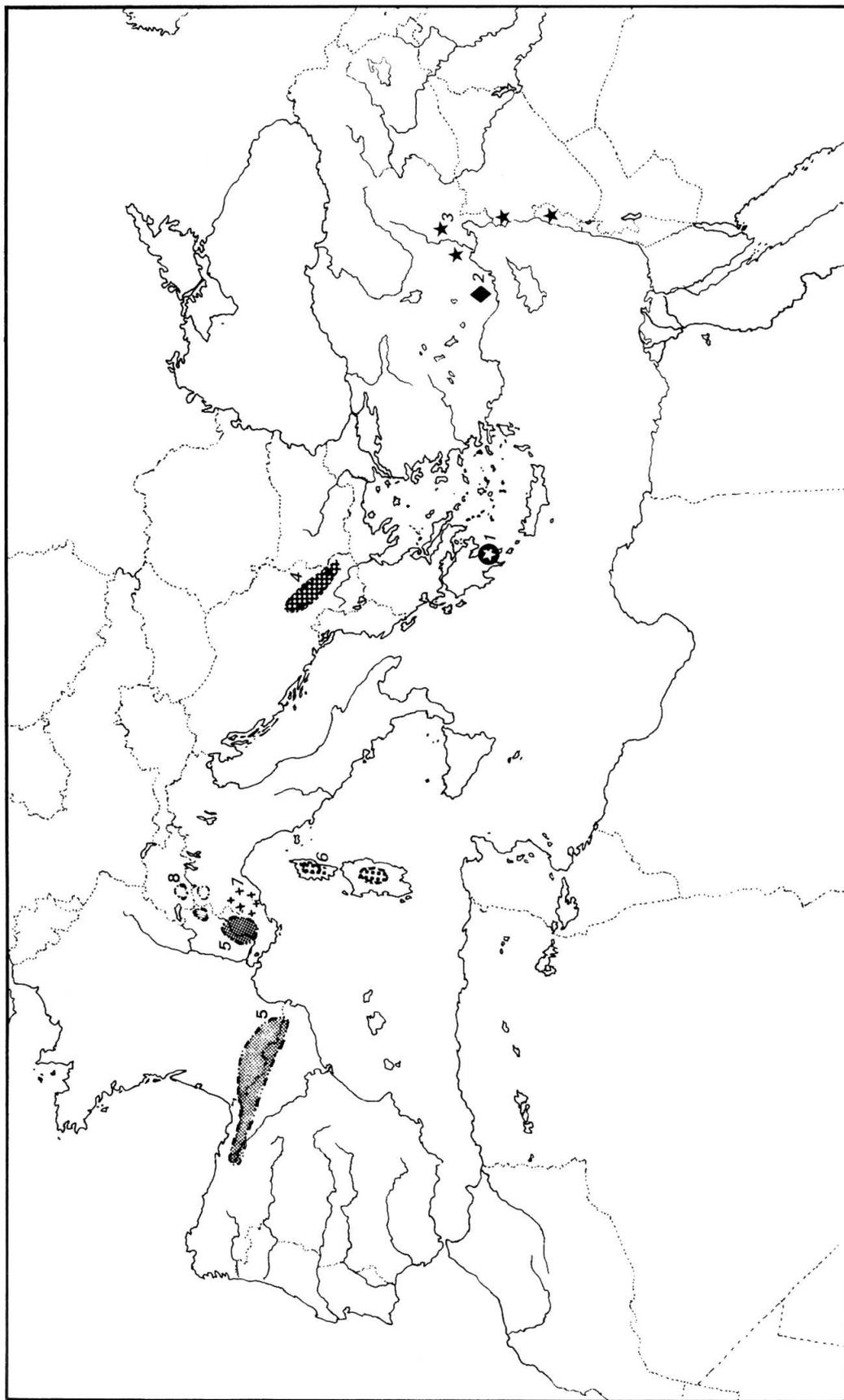


Fig. 2. — Map of geographical distribution of *Potentilla* group *Crassinerviae* and group *Libanoiticae*.
1. *P. arcadiensis*; 2. *P. isaurica*; 3. *P. libanotica*; 4. *P. haynaldiana*; 5. *P. nivalis*; 6. *P. crassinervia*; 7. *P. valderia*; 8. *P. grammopetala*.

	<i>Potentilla arcadiensis</i>	<i>Potentilla crassinervia</i>	<i>Potentilla libanotica</i>
<i>Stems</i>	10-25(-30) cm high, densely pubescent, mostly with simple hairs (1-1.2 mm), and glandular hairs (up to 1 mm).	up to 20(-40) cm high, densely pubescent with erect-patent, long and short hairs, and glandular hairs.	5-20 cm high, densely pubescent, mostly with glandular hairs, and shorter erect simple ones.
<i>Leaves</i>	ternate (very rarely a few digitate); petioles 3-5 cm long; leaflets 3(-5) green herbaceous, broadly ovate to obovate (15-25 × 10-18 mm), narrowly cuneate at base, nerves valid, margins crenate-serrate at apex, teeth ± acute; stipules of basal leaves not very broad (3-5 mm), ± green herbaceous 8-12 mm long, auricles 4-8 mm.	digitate; petioles 5.5-7.5 cm long; leaflets 5.10-30 × 8-13 mm, obovate, narrowly cuneate at base, veins prominent beneath. Stipules of basal leaves ovate to ovate-lanceolate 6-8 mm broad, 15-22 mm long, auricles 6-10 mm long.	ternate; petioles 5-7 cm long; leaflets broadly ovate to rotundate, 15-25 × 10-20 mm, cuneate at apex or up to half way down to the base, sparsely adpressed-villous green, with scattered subsessil glands. Stipules of basal leaves 5-7 mm broad, 17-22 mm long, auricles 5-9 mm long.
<i>Flowers</i>	numerous, long pedicellated (1.5-3.5 cm); epicalyx-segments and sepals ± equal, ovate-lanceolate 3.5-5.5 × 2-2.5 mm; petals white, elliptic-oblong or obovate-oblong 4.5-6 × 2-2.5 mm ± truncate and sparsely pubescent at apex, longer than sepals.	5 or more, shortly pedicellate (0.5-1 cm); epicalyx-segments lanceolate or ovate-lanceolate 4-6 mm ± equal to the ovate sepals; petals white, almost circular 6.5-8 × 6-7 mm, entire longer than sepals.	numerous, shortly pedicellate (0.6-1.2 mm); epicalyx-segments lanceolate 4-6.5 × 1.5-2.2 mm ± equal to the ovate (up to 2.7 mm broad) sepals, acuminate; petals white, obovate to ovate 5-7.5 × 2.5-4 mm, obtuse at apex, longer than sepals.
	Filaments glabrous.	Filaments glabrous (or rarely sparsely hairy at base).	Filaments glabrous.
	Style subterminal filiform 2.5-3 mm long, glabrous.	Style subterminal filiform 3-3.5 mm, glabrous.	Style subterminal filiform 3.5-5 mm long, hairy.
	Achenes 0.7-1 mm, hairy at apex only (hairs 0.5-0.7 mm long).	Achenes 1-1.5 mm hairy on all surface.	Achenes 1.2-1.8 mm hairy on all surface.
<i>Distribution</i>	E. Peloponnesus, ca. 550 m.	Corsica, Sardinia (900-1200-2500 m).	Turkey, Syria, Lebanon, 1500-2000 m.

Tab. 1. — Differences between *Potentilla arcadiensis* and related species. Measurements are based on herbarium material checked by the author.

trifoliolate (very rarely a few digitate) with the same colour in both surfaces, petioles 3-5 cm long; leaflets green herbaceous broadly obovate to obovate (15-25 × 10-18 mm), narrowly cuneate at base, nerves valid, margins incised crenate-serrate at apex, teeth ± acute; in the upper surface sometimes exist scattered sessile glands. Stipules of basal leaves not very broad (3-5 mm), ± green herbaceous, with auricles lanceolate somewhat acuminate 4-8 mm long. Inflorescence a terminal loose cyme, flowers long pedicellated, pedicels 1.5-3.5 cm long, broadly open in a star like horizontal orientation. Epicalyx-segments and sepals ± equal, ovate-lanceolate 3.5-4.5 × 1.5-2 mm. Petals white elliptic-oblong or obovate-oblong 4.5-6 × 2-2.5 mm, ± truncate and sparsely pubescent at apex, longer than sepals. Filaments glabrous, anthers 0.8-1 mm long. Achenes 0.7-1 mm long, hairy at apex only, hairs 0.5-0.7 mm long. Style subterminal filiform 2.5-3 mm long, glabrous. Flowering period: from mid May to late July.

Potentilla arcadiensis is endemic on Mt. Parnon of E. Peloponnesus and it is known only from the area of the Monastery of Elona over the village of Leonidion in Arkhadia. It is a typical chasmophyte growing in crevices of almost vertical limestone cliffs, in an altitude of ca. 550 m. It grows in association with *Teucrium francisci-wernerii* Rech. fil., *Trachelium asperuloides* Boiss., *Asperula taygetea* Boiss. & Heldr. and *Petrorhagia grandiflora* Iatroú.

The area around this station belongs to the subhumid Mediterranean zone with an annual mean precipitation of 600-800 mm and an annual mean sunlight of 2800 hrs.

The fact that *Potentilla arcadiensis* does not seem to have close relatives between the species of this genus inhabiting the area of Greece is very noticeable. Its closest relatives seem to be *P. crassinervia* Viv. endemic to Corsica and Sardinia and *P. libanotica* Boiss. distributed in S. Anatolia (S. Turkey, W. Syria, N. Lebanon).

The chromosome number of *P. arcadiensis* is diploid ($2n = 14$) and the karyotype (Fig. 3A, e) consists of thin and small chromosomes 1.2-2 µm long. It is very difficult to make any significant karyological notes. This chromosome number coincides with the ones of *P. crassinervia* Viv., *P. valderia* L. and *P. haynaldiana* Janka of the group of *Crassinerviae* (CONTANDRIOPOULOS, 1962).

The general morphology of the basal leaves of *P. arcadiensis* places this plant close to *P. libanotica* and *P. isaurica*, but the hairlessness of the style and the morphology of the rest of the floral parts place this plant close to *P. crassinervia* and *P. grammopetala*. The presence of one or two digitate basal leaves in each plant of *P. arcadiensis*, its distribution (Fig. 2), and morphology, suggest an intermediate position between the species of the E. and W. Mediterranean area.

Considering the more significant floral characters *P. arcadiensis* belongs to *Potentilla* L. subgenus *Fragariastrum* (Heister ex Fabr.) Reichenb. sect. *Fragariastrum* (BALL, PAWLOWSKI & WALTERS, 1968) group *Crassinerviae* (Th. Wolf) Pawl. (PAWLOWSKI, 1965) and is closely related to *P. crassinervia* Viv. endemic to Corsica and Sardinia and to *P. libanotica* Boiss. of S. Anatolia, but differs from both in a number of characters (Tab. 1). The most important differences between *P. arcadiensis* and the other two species, as well as with their closest relatives, are the shape and the size of the basal leaves, the type of hairiness on stems and petioles, the shape and the size of petals and the hairiness on achenes and styles (Fig. 3, 4). The basal leaves of *P. arcadiensis* are mostly ternate, like the ones of *P. libanotica* and *P. isaurica* (Davis) Pawl., but with much shorter petioles (3-5 cm) and also much shorter stipules. Very rarely one or two basal leaves, in each plant, are digitate. The ones of *P. crassinervia* are always digitate and those of *P. grammopetala* Mor. are ternate to digitate with very long petioles and stipules. The differences in the petals of *P. arcadiensis* and the petals of the other species are very characteristic especially the hairiness at the apex. Only *P. valderia* L. in the group of *Crassinerviae* has sometimes petals with hairs at the apex (PAWLOWSKI, 1965), but all the other parts of this plant are very different from *P. arcadiensis*. The hairiness of *P. arcadiensis* is very dense and consists mostly of simple hairs (1-1.2 mm), the glandular ones (up to 1 mm), while in *P. crassinervia* it consists of long and short simple hairs and very short, almost sessile, glandular ones, the hairiness in *P. isaurica* consist of mostly glandular hairs. The achenes of *P. arcadiensis* have hairs at the apex only, while the ones of *P. crassinervia* and *P. libanotica* are hairy on all their surface. The achenes of *P. grammopetala* are glabrous and the sometimes referred hairs on them belong to the receptacle. The style in *P. arcadiensis* is glabrous like the ones of *P. crassinervia* and *P. grammopetala*, while the styles of *P. libanotica* and *P. isaurica* are hairy (sect. *Plumosistylae* Pawl. (PAWLOWSKI, 1965)).

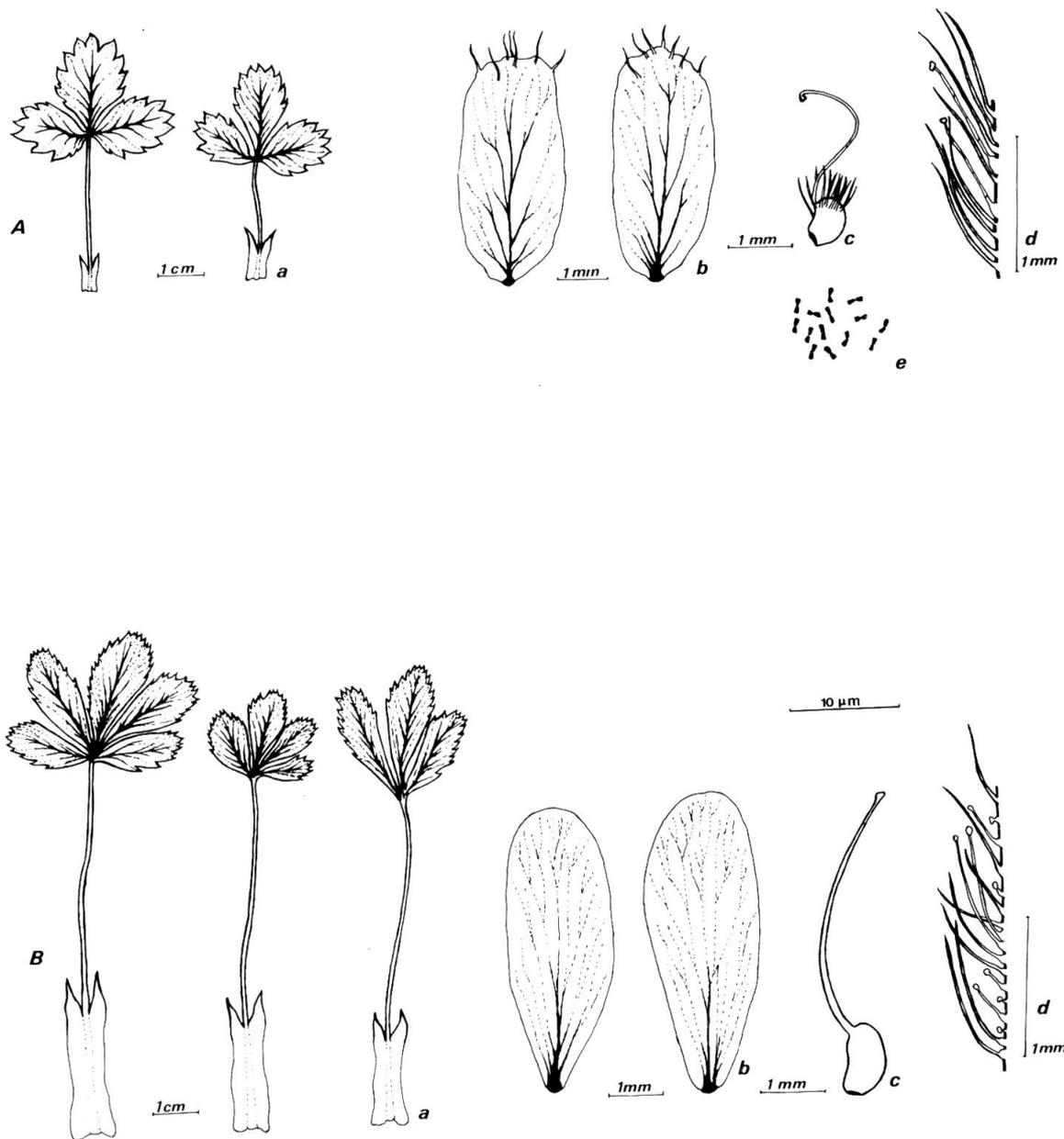


Fig. 3. — Differences between basal leaves, hairiness of pedicels, petals, achenes and styles.
A, *P. arcadiensis*: **a**, basal leaves; **b**, petals; **c**, achene and style; **d**, hairs on pedicels; **e**, karyotype.
B, *P. grammopetala*: **a**, basal leaves; **b**, petals; **c**, achene and style; **d**, hairs on pedicels.

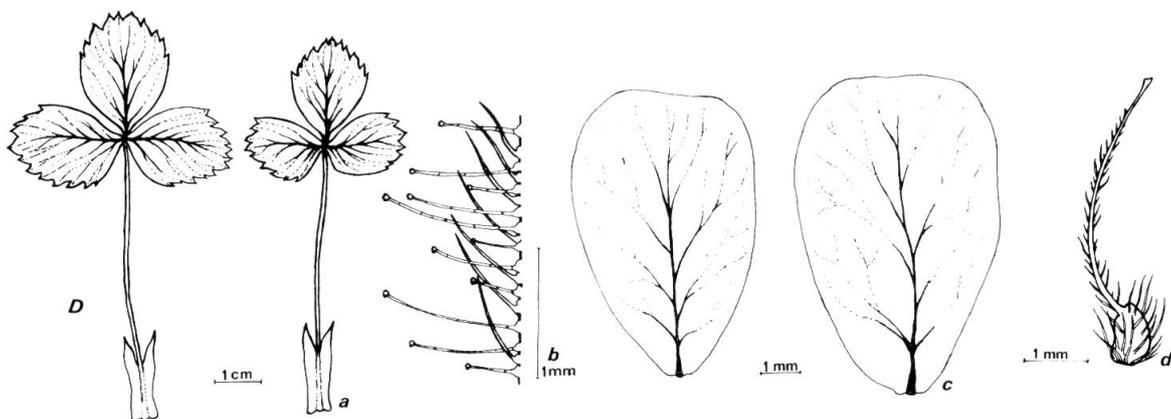
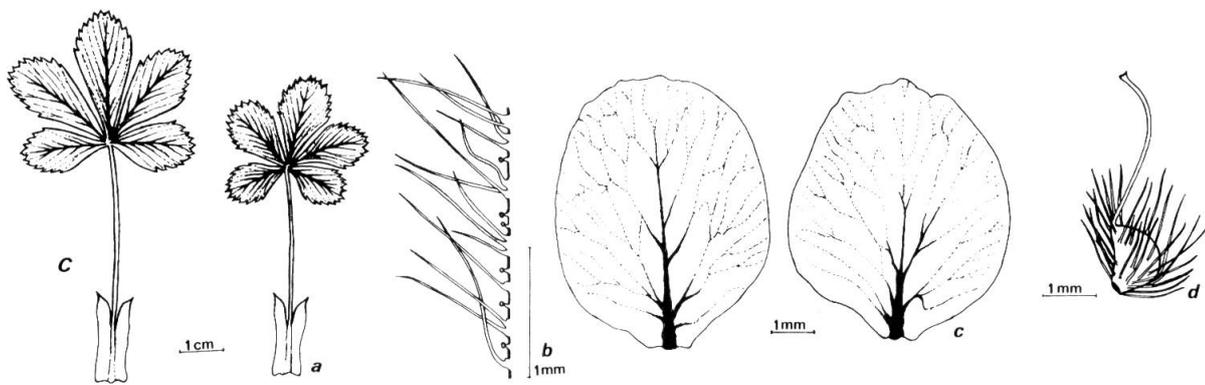


Fig. 4. — Differences between basal leaves, hairiness of pedicels, petals, achenes and styles.

C, *P. crassinervia*: **a**, basal leaves; **b**, hairs on pedicels; **c**, petals; **d**, achene and style.

D, *P. libanotica*: **a**, basal leaves; **b**, hairs on pedicels; **c**, petals; **d**, achene and style.

The general appearance of *P. arcadiensis* reveals a small and elegant herbaceous cushion-forme plant, consisting of short and very dense herbaceous basal leaves, from which the flowering shoots are coming up, erect or ascending.

Wolf in his monography of *Potentilla* says about the group of *Crassinerviae* "The *Trichocarpae herbaceae* are referred to a very old period from where their rareness and isolation result" and further more "their ancestors should be the suffrutescent *Potentilla* species (*Trichocarpae suffruticulosae*), which migrated at Tertiary from the North (primitive centre of genus *Potentilla*) to the Mediterranean mountains where they have been differentiated". This theory of Wolf is supported by cytological data since all the studied species of this group are diploid ($2n = 14$) (CONTANDRIOPOULOS, 1962).

The diploid *P. arcadiensis* belongs to those very ancient species which have a very small or a discontinuous area of distribution and may reveal a very ancient origin. The presence of *P. arcadiensis* in Peloponnesus, like the presence of *P. crassinervia* in Corsica, confirms to the role of Mediterranean mountains for the conservation of ancient types.

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