PHYSOCARDAMUM:
A NEW GENUS OF CRUCIFERAE FROM TURKEY

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One of the most interesting results of Dr. Davis' 1966 collecting trip in eastern Turkey was the discovery of a new endemic genus of Cruciferae. Despite the great development of the family in Turkey—about 440 species and 85 genera are recognized in the Flora of Turkey Vol. I—only one endemic genus, *Tchihatchewia* Boiss., was previously known. The addition of *Physocardamum* is therefore of special interest and serves to illustrate the important discoveries that can still be made in Turkey.

Physocardamum Hedge **gen. nov.**

Cruciferae-Lepidieae. Perennis. Folia simplicia, anguste linearia, sessilia, non cordata. Planta pilis irregulariter ramosis obtecta. Sepala non saccata, leviter cucullata. Petala alba. Glandulae medianae desunt. Filamenta antherarum edentata. Ovula quattuor. Siliculae angustiseptatae, membranaceo-inflatae, reflexae; semina duo; stigma depresso-capitatum. Embryo pleurorrhizus (?).

Affinis *Didymophysae* Boiss. sed pilis ramosis, foliis integris nec in 3–5 lacinias divisis nec cuneatis, siliculis reflexis non didymis recedit. Ab *Coluteocarpo* Boiss., pilis ramosis, foliis integris anguste linearibus, siliculis apice emarginatis non apice et basi subattenuatis, floribus minoribus bene differt. Species unica.

P. davisii Hedge **sp. nov.** (Plate 13, and fig. 1).

Perennis, basi lignoso ramosus, surculis sterilibus procumbentibus. *Caules* floriferi 8–15 cm longi, ascendentes erecti, basi copiose foliati, demum sine foliis vel paucifoliati, pilis irregulariter ramosis obsiti. *Folia basalia* anguste linearia, vel lineari-subulata margine integerrima, 8–13 × 0·2(–0·8) mm, basi non amplexicaulia, apice acuta, pilis paucis ramosis, bifidis vel simplicibus, ± adpressis, provisa; nervatura indistincta. *Folia caulina* similia. *Inflorescentia* florifera ignota, fructifera elongato-capitata. *Pedicelli* 5–6 mm. *Sepala* c. 2 mm longa, anguste scarioso-marginata, basi non saccata, leviter cucullata, apice rotundata, glabra. *Petala* alba, c. 4 × 2 mm, oblongo-spathulata, unguiculata, apice rotundata, quam sepala duplo longiora. *Ovarium* sessile, 4-ovulatum, stigmate depresso-capitato. *Siliculae* juveniles 11–15 × 11–15 mm, glabrae, inflatae, tenuiter membranaceae, pallide virides interdum purpureo-suffusae, basi ± late rotundatae, apice emarginatae; stylus brevissimus; funiculus validus. Semina duo.

TURKEY. B9 Ağri: 2 km SW of Hamur (Murat Valley), 1670 m, sloping meadows, perennial; fruits inflated, pale green, flowers white, 2 vi 1966, *Davis* 44017 (holo—E, iso—K).

In O. E. Schulz's classification of the Cruciferae (Pflanzenfam. ed. 2, 17b, 1936), *Physocardamum* would fit within subtribe *Physariinae* of the *Lepidieae*. This contains the three genera, *Coluteocarpus* Boiss., *Didymophysa* Boiss. and *Physaria* (Nutt.) A. Gray, and there is no doubt that these are the closest natural allies of the new genus. The first two are from south-west or central Asia and *Physaria* is North American. All four share the character of inflated

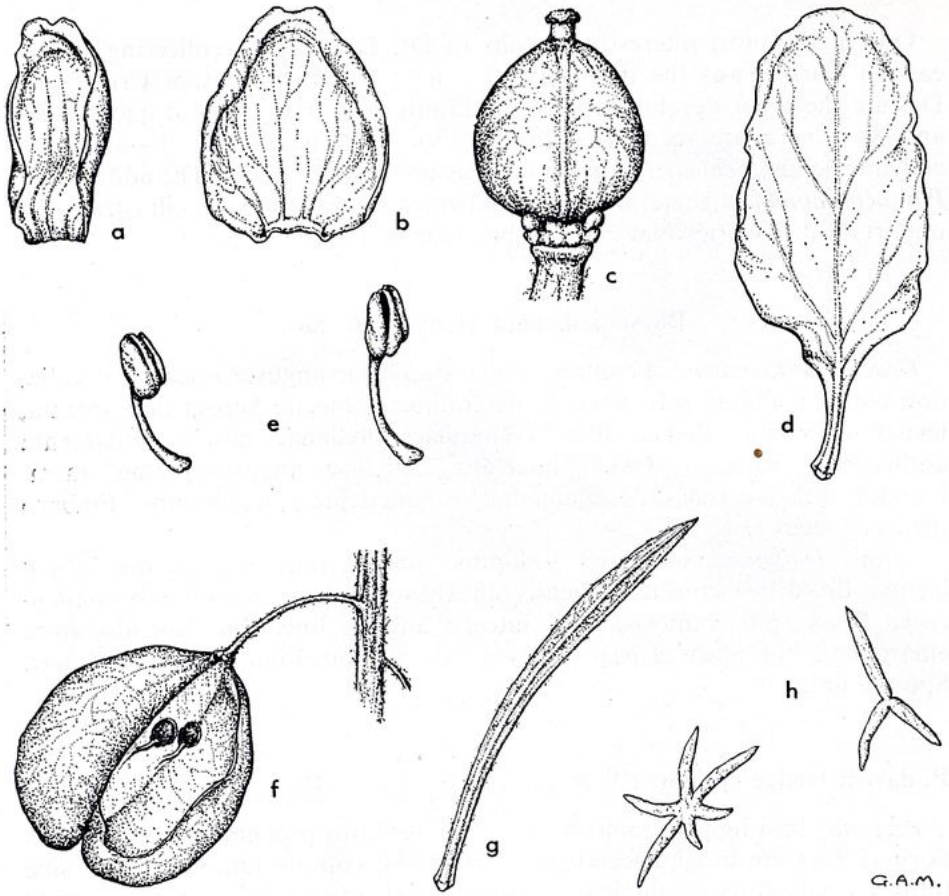

FIG. 1. *Physocardamum davisii* Hedge.
a., b. sepals; c. ovary; d. petal; e. stamens (all × 12); f. silicule with part of the valve removed (× 2); g. leaf (× 4); h. hairs (× 75).

fruits with more or less membranous valves and among the seventy or so genera of the angustiseptate Cruciferae, they are the only genera with this type of fruit. Among the latiseptate Cruciferae the following genera in south-west Asia have clearly inflated fruits: *Physoptychis* Boiss., *Alyssoides* Adans. and *Straussiella* Hausskn. Slightly inflated fruits also occur in *Pseudovesicaria* (Boiss.) Rupr. and in certain species of *Draba* L., *Alyssum* L. and *Fibigia* Medik. The new genus clearly differs from these latiseptate genera both in general facies and technical characters and cannot be considered as allied to them.

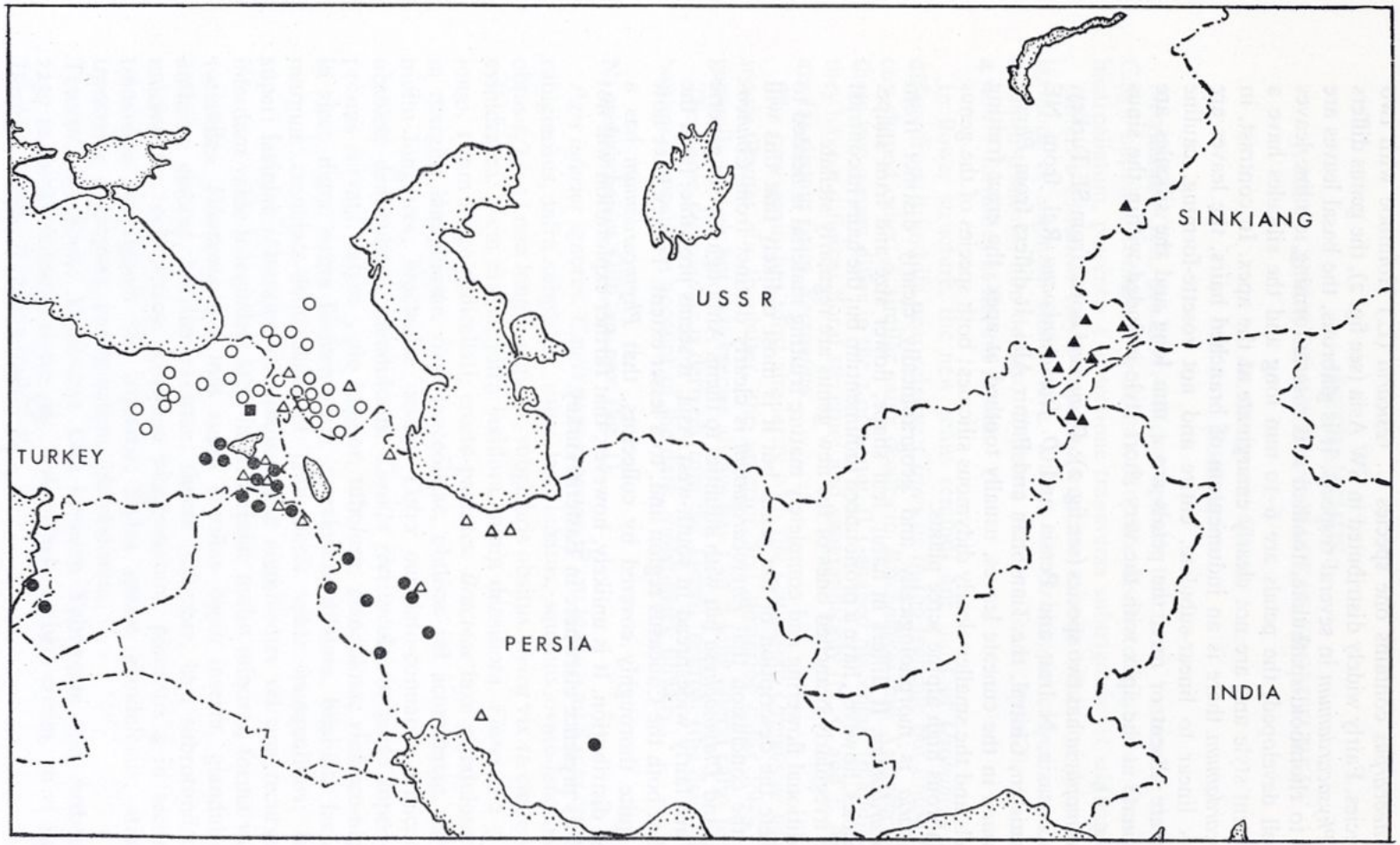

FIG. 2. Distribution of: ■ *Physocardamum davisii* Hedge; ○ *Coluteocarpus vesicaria* (L.) Holmboe subsp. *vesicaria* and ● subsp. *boissieri* (O. E. Schulz) Hedge; △ *Didymophysa aucheri* Boiss. and ▲ *D. fedtschenkoana* Rgl. The records have taken from the literature and herbarium specimens. *Didymophysa aucheri* has been recorded from the Pamir-Alai but this requires confirmation: *D. fedtschenkoana* is probably more widespread in the Pamir-Alai—Tian Shan region than indicated on the map.

Coluteocarpus contains one species *C. vesicaria* (L.) Holmboe with two subspecies. Fairly widely distributed in SW Asia (see fig. 2), the genus differs from *Physocardamum* in several respects. It is glabrous, the basal leaves are linear to rhomboid-spathulate, toothed and rosette-forming, cauline leaves are well developed, the petals are 6–10 mm long and the silicules have a prominent style and are not clearly emarginate at the apex. In contrast, in *Physocardamum* there is an indumentum of branched hairs, the leaves are narrow linear to linear-subulate, entire and not rosette-forming, cauline leaves are absent or rare, the petals are 4 mm long and the silicules are emarginate at the apex with the very short style included within the sinus (see fig. 1).

Didymophysa has two species (see fig. 2): *D. aucheri* Boiss. from SE Turkey, Transcaucasia, N Iraq and Persia and *D. fedtschenkoana* Rgl. from NE Afghanistan, Chitral, the Tian Shan and Pamir Alai. It differs from *Physocardamum* in the cuneate leaves, usually toothed at apex, the erect fruiting pedicels and the smaller clearly didymous silicules; both species of the genus are glabrous high alpine scree plants.

Physaria is morphologically and geographically clearly distinct from *Physocardamum*. It differs in habit, leaf shape, flower size and fruit shape. All species, however, have a pronounced indumentum but the hairs in contrast to the irregularly branched ones of the new genus are regularly stellate.

Additional flowering and completely mature fruiting material is needed to complete the description of the genus but it is most unlikely that this will effect the conclusion that *Physocardamum* is clearly distinct from *Coluteocarpus* and *Didymophysa* but with affinities to them. Although its two generic allies are fairly widespread in south-west Asia, it seems probable, from the fact that both the Caucasus region and, to a lesser extent, Turkey have now been quite thoroughly covered by collectors, that *Physocardamum* has a limited distribution. It is unlikely, however, that further exploration will not reveal its presence elsewhere in Eastern Turkey.

PLATE 13. Type specimen of *Physocardamum davisii* Hedge.