

DIOON HOLMGRENII (ZAMIACEAE), A NEW SPECIES FROM MEXICO

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De Luca, Paolo, Sergio Sabato (Istituto di Botanica, Università di Napoli, via Foria 223, Napoli, Italy) and Mario Vazquez Torres (Facultad de Ciencias Biológicas, Universidad Veracruzana, Xalapa, Veracruz, Mexico). *Dioon holmgrenii* (Zamiaceae), a new species from Mexico. *Brittonia* 33: 552-555. 1981. —A new species of *Dioon* (***Dioon holmgrenii***), found on the Pacific slope of southern Oaxaca, is characterized by leaflets which are spinulose especially on the upper margin, elongate and narrow. Distribution and ecology of Oaxacan *Dioon* species are reported.

In the course of our investigation of distribution and taxonomy of the genus *Dioon* Lindl. in Mexico we collected in southern Oaxaca near the Pacific coast a *Dioon* which turned out upon examination to be a new species.

Dioon holmgrenii De Luca, Sabato & Vazquez Torres, sp. nov. (Figs. 1 & 2)

Truncus cylindricus usque ad 6 m altus, 30-40 cm diam. Cataphylla lanata, 7-9 cm longa, basi 2 cm. Folia numerosa, adscendentia, plana, coriacea, glabra, in statu juvenili pubescentia, 130-150 cm longa et ultra. Rachis semiteres, recta aut prope apicem leviter torta. Petiolus semiteres, 13-15 cm longus. Foliola 115-130 et ultra utroque latere, subopposita, lineari-lanceolata, acute pungentia, paulo revoluta, separata, secus rachim fere recto angulo inserta, spinosa. Foliola inferiora 1-1.5 cm longa, 2 mm ca lata, deinde sensim accrescentia, 5-7 mm separata, margine superiore dentibus 1-2 rarissime 3, spinosis, 1.5-2 mm longis praedita, margine inferiore integerrima vel 1 dente spinoso 1 mm longo praedita; foliola mediana 10-12 cm longa, 7-9 mm lata, ca 15-nervia, margine inferiore integerrima vel 1 dente spinoso 2 mm longo praedita, 4 mm ca separata; foliola superiora sensim decrescentia usque ad 1 cm vel minus longa, 2 mm lata, margine superiore dentibus 2-4 spinosis 1.5-2 mm longis praedita, margine inferiore integerrima vel rariter 1 spinosa, 2 mm separata atque prope apicem confertiora. Strobilis femineus ovoideus vel ovoideo-cylindricus, 30-50 cm longus, 20-30 cm diam.; squamae deltoideo-ovatae 9-12 cm longae, 4-5 cm latae, extus dense lanosae; semina subglobosa 2.5-3 cm diam. vel ovoideo-cylindrica 3.5-4 cm longa et 2.5 cm lata. Strobilus masculinus elongato-cylindricus, ca 40 cm longus, 7.5 cm latus; microsporophylla basi angustata, 2 cm longa, 1.2 cm lata, parte fertili biloba, in apicem sterilem sursum recurvata et subdeltoidea.

TYPE: MEXICO. OAXACA:

Vazquez Torres 2304 (HOLOTYPE: XALUV; ISOTYPES: ENCB, FI, MEXU, NAP, NY).

Other specimens examined: MEXICO. OAXACA:

US);
1965,

D. E. Breedlove 9812 A (CAS, F,
12 Aug

18 Sep 1973, S. R. Hill 1684 (NY).

The peculiar characters of this species are flat fronds with leaflets spinulose, especially on the upper margin, elongate, narrow and spaced along the whole rachis except at apex. Because of its flat fronds and the shape and size of its leaflets *D. holmgrenii* could be related only to *D. caputoi* De Luca, Sabato & Vazquez Torres, *D. purpusii* Rose and *D. edule* Lindl. It differs from *D. caputoi* (De Luca et al., 1980b) and *D. purpusii* (Rose, 1909, De Luca et al., 1979) in its leaflets not arising at an acute angle from the rachis and in its microsporophylls, the tips of which are deltoid and not sharply pointing out. It differs from *D. edule* (Lindley, 1843; Schuster, 1932) in its spinulose, not entire leaflets.



Fig. 1. Middle portion of frond of *Dioon holmgrenii* showing spinulose leaflets on both margins, xl.

The authors observed living specimens of *Dioon holmgrenii* in the understory of a humid pine-oak forest, on slopes near ravines in soil rich in humus, on coastal hills of Sierra Madre del Sur (Fig. 3). Specimens were collected from the same restricted area by Ray Bandar, Dennis Breedlove and Steven Hill. Its common name is Palmera de Sol or Plumilla (on account of its very pubescent young leaves).

Dioon holmgrenii is the only Oaxacan species of the genus found along the Pacific side of Sierra Madre del Sur. The remaining species are distributed in the inner mountains of Sierra del Norte de Oaxaca and are orographically well separated from *D. holmgrenii* by the Oaxaca Plateau (Fig. 3). Moreover the ecological conditions of the Oaxacan species of *Dioon* are very different: *D. spinulosum* Dyer and *D. rzedowskii* De Luca, Moretti, Sabato & Vazquez Torres in an evergreen and semi-evergreen tropical forest (De Luca et al., 1980a); *D. purpusii* in a tropical deciduous forest (De Luca et al., 1979); and *D. holmgrenii* in a pine-oak forest, like *D. califanoi* De Luca & Sabato. However, *D. holmgrenii* grows in a moist habitat at a low altitude (580-850 m), whereas *D. califanoi* grows in a xeric habitat at a higher altitude (1500-3250 m) (De Luca & Sabato, 1979).

This species is dedicated to Dr. Noel H. Holmgren, botanist from The New York Botanical Garden (U. S. A), for his contribution to taxonomy of American plants.

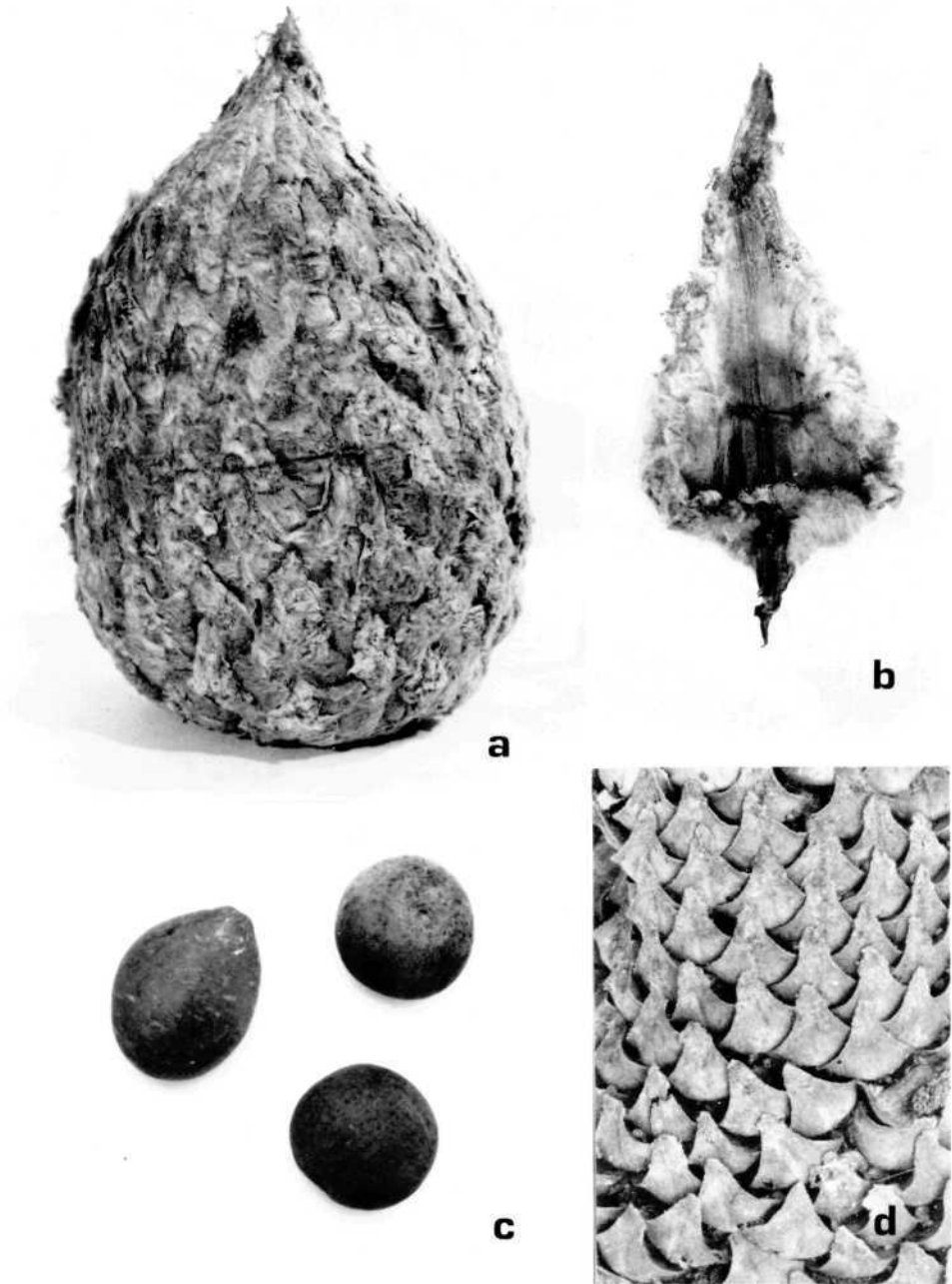


FIG. 2. *Dioon holmgrenii*. A. Megasporangiate cone, $\times 1/3$. B. Megasporophyll, $\times 2/3$. C. Seeds, $\times 3/4$. D. Portion of microsporangiate cone, $\times 1$.

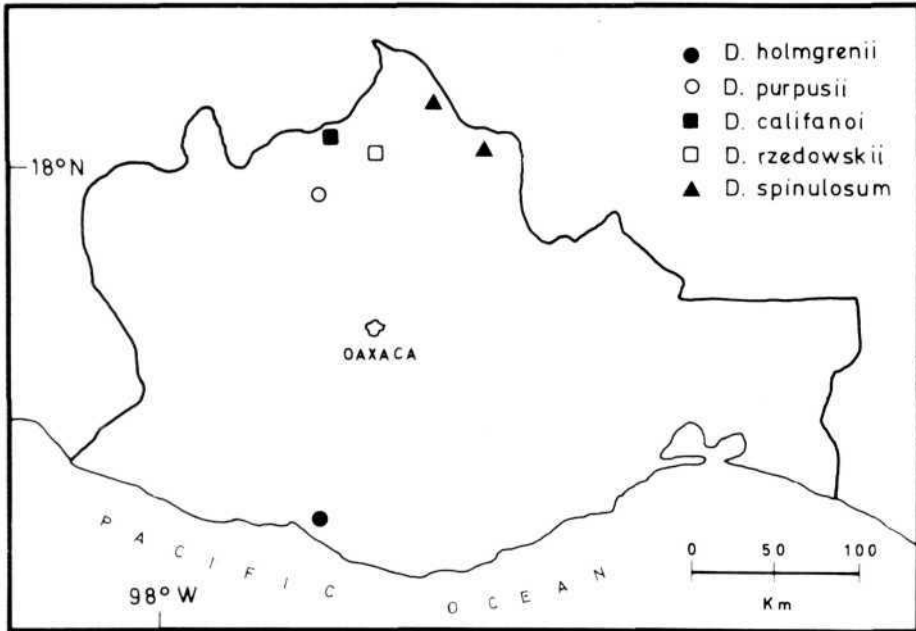


FIG. 3. Map showing distribution of *Dioon holmgrenii* in relation to known stations of *D. purpusii*, *D. califanoi*, *D. rzedowskii* and *D. spinulosum*.

Acknowledgments

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