

A LOST CARIBBEAN MISTLETOE REDISCOVERED: NEW RECORD
FOR *ANTIDAPHNE WRIGHTII* (SANTALACEAE) IN PUERTO RICO

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ABSTRACT

The rare Caribbean mistletoe *Antidaphne wrightii* was known in Puerto Rico from a single historical collection by Paul E.E. Sintenis (5347) made on October 30, 1886 at Sierra de Naguabo on the eastern side of the island. Since then, this mistletoe has been considered extremely rare and possibly extirpated. Here we report the rediscovery of the species in Puerto Rico at the western Central Cordillera in Yauco and provide basic demographic information for the population. In addition, we summarize the known collections, illustrate the species with full color photographs, and present a distribution map for the genus *Antidaphne* in the Caribbean.

RESUMEN

La especie rara de muérdago caribeño *Antidaphne wrightii* era sólo conocida en Puerto Rico por una colecta histórica de Paul E.E. Sintenis (5347) hecha el 30 de octubre de 1886 en las montañas orientales de la Sierra de Naguabo. Desde entonces, este muérdago ha sido considerado como muy raro o posiblemente extinguido. En esta contribución, reportamos el redescubrimiento de la especie en Puerto Rico para la Cordillera Central occidental en Yauco y proveemos información demográfica básica para la población. Además, presentamos una sinopsis de los especímenes conocidos, ilustramos la especie con fotografías a color, y preparamos un mapa con la distribución del género *Antidaphne* en el Caribe.

KEY WORDS: *Antidaphne*, Antilles, Caribbean islands, Eremolepidaceae, Mistletoe, Santalaceae, West Indies

Antidaphne Poepp. & Endl. (Santalales: Eremolepidaceae or Santalaceae) is a genus of aerial hemiparasitic plants (mistletoes) comprising nine species distributed across the Neotropics (Kuijt 1988; Kuijt 1998; Nickrent et al. 2010; Kuijt and Hansen 2015; APG 2016). Members from this genus can be distinguished from other Neotropical mistletoes by having imperfect flowers and alternate leaves with a well-developed blade. Male flowers have been described as 3–4 -merous or apetalous, while female flowers have 2–4 petals which can be caducous (Kuijt 1988). In the Caribbean, the genus has a single representative, *A. wrightii* (Griseb.) Kuijt [basonym: *Eremolepis wrightii* Griseb.; synonym: *Ixidium wrightii* (Griseb.) Eichler], which is endemic to the islands of Cuba, Hispaniola, and Puerto Rico (Urban 1905; Urban 1920; Kuijt 1988; Fig. 1). This species is separated from congeners by having tetramerous flowers in monoecious—and sometimes compound—leafless inflorescences, where female flowers are clustered at tips and male flowers at the base (i.e., gynocandrous).

Antidaphne wrightii was first described from Cuba in 1860 by A.H.R. Grisebach, who named it after C. Wright, collector of the type specimen [Wright 226 (K, BM, BR, G, GH, GOET, MO, HAC, S, YU); Grisebach 1860]. In spite of being present in three of the Greater Antilles, this mistletoe seems to be uncommon at all sites. In Cuba, the species is rare and known from only a few specimens [*Flora de Cuba* 49704 (HAJB, JE); *Flora de Cuba* 49921 (HAJB, JE, UC); *Bucher s.n.* (HAC); *Ekman* 9380 (NY)], all of them from the eastern part of the island (Kuijt 1988; Leiva 1992; L. Regalado Gabancho, pers. comm. 2018). In Hispaniola, *A. wrightii* is known from ten specimens: seven from the Dominican Republic and three from Haiti. In the Dominican Republic, this mistletoe has been found in montane forests at the Central Cordillera and the Sierra de Bahoruco, and does not seem to have been recollected for the past 30 years [*Etheridge & Palowco* 123 (UC); *Fuertes* 1734 (cited in Urban 1920); *Liogier* 14720 (GH, NY, US); *Liogier* 16107 (NY); *Zanoni et al.* 27346 (JBSD); *Zanoni et al.* 34014 (JBSD, UC); *Zanoni & García* 39603 (JBSD, NY)]. In Haiti, the species is known from two historical records

from the 1920s by E.L. Ekman from near Port-au-Prince [*Ekman H-1566* (EHH, GH, US); *Ekman H-7785* (EHH, K, US)] which are presumably extirpated, and a specimen collected in 1984 from La Visite National Park at the Massif de la Selle mountains [*Judd 4414* (A, FLAS [fragments])].

In Puerto Rico, *A. wrightii* was known from a single specimen collected by P.E.E. Sintenis on October 30, 1886 at “Los Ranchones,” Sierra de Naguabo [*Sintenis 5347* (GH, K, MO, NY, US); Urban 1905; Fig. 1], and thus represents the rarest mistletoe reported for the island. Since the species was never collected again, it was considered very rare and possibly extirpated (Axelrod 2011; Gann et al. 2015–2018). The Sierra de Naguabo is on the southeastern slopes of El Yunque National Forest, a federally-protected area which encompasses over 113 km² of land with a relatively well-known flora thanks to the efforts of botanists who have explored these mountains for decades.

Here we report the rediscovery of *A. wrightii* in Puerto Rico more than 130 years after its original discovery. During a floristic survey made for a bird conservation project in a coffee plantation at the municipality of Yauco, A.L.M.P. detected an unknown species of mistletoe which was identified from photographs by M.A.C.O. as *A. wrightii* [*Morales 20* (MAPR, US); *Morales & Feliciano 21* (NY, UPRRP); Fig. 2]. The locality where the mistletoe was found is on montane wet habitat in the western Central Cordillera at an elevation of 920 m and about 115 km west from the approximate site where Sintenis originally collected the species (Fig. 1). An informal survey for the species conducted by A.L.M.P., which covered approximately 10 km² surrounding the site where *A. wrightii* was found, revealed 137 individuals, all of them parasitizing the endemic tree *Magnolia*

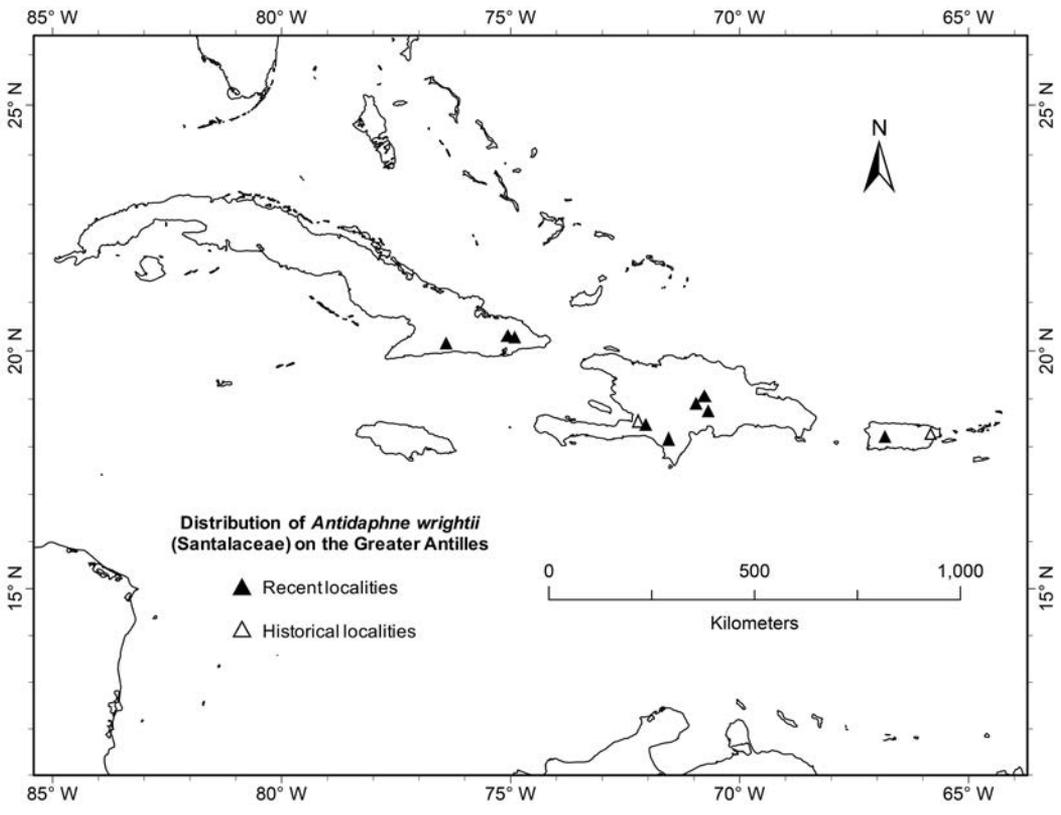


FIG. 1. Map of the Greater Antilles showing the localities (triangles) where the mistletoe *Antidaphne wrightii* (Santalaceae) has been collected. Empty symbols indicate sites where the species has not been reported for more than a century or where populations are presumably extirpated. Map credit: Natural Earth (2018).

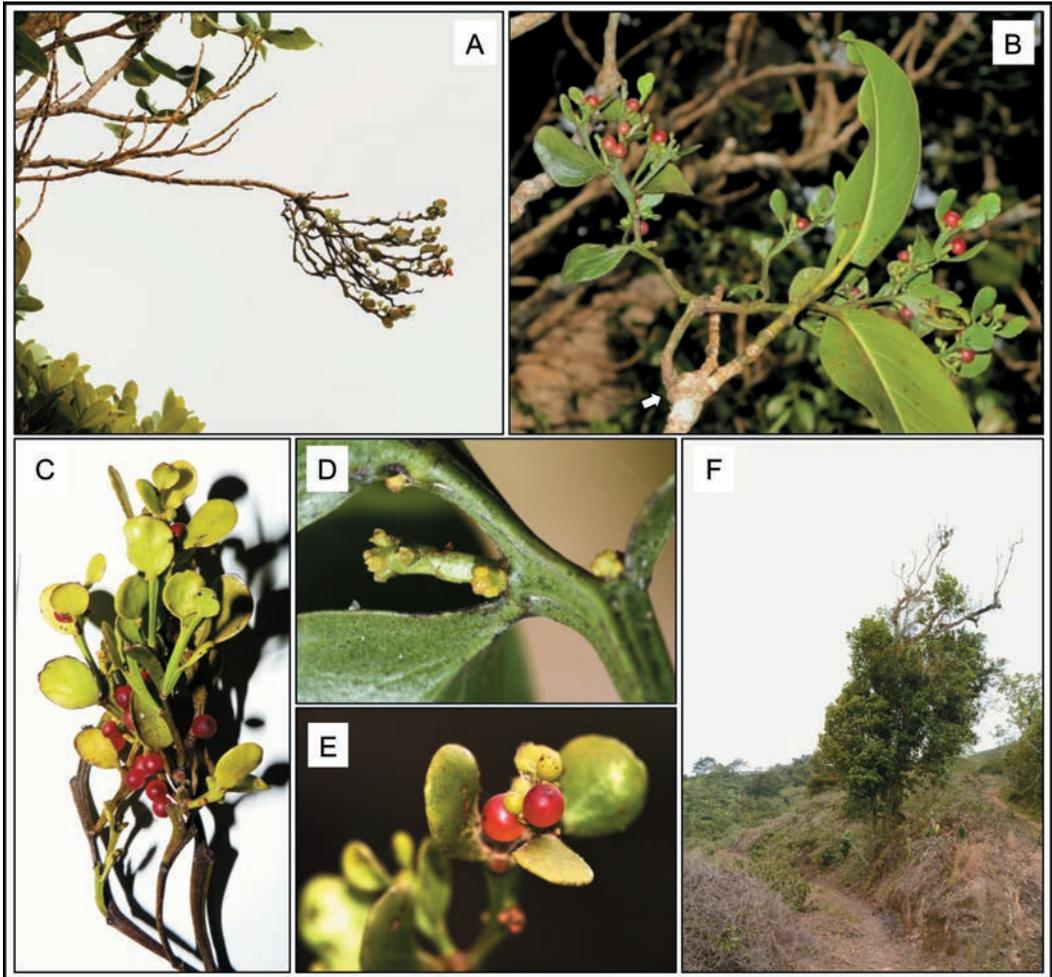


FIG. 2. *Antidaphne wrightii* (Santalaceae) mistletoe growing on *Magnolia portoricensis* (Magnoliaceae) in Yauco, Puerto Rico. **A.** Overview of the aerial hemiparasitic habit of the mistletoe. **B.** Fruiting individual. The arrow indicates the attachment point of mistletoe's haustoria, which is close to the tip of host's branch. **C.** Closer view of *A. wrightii* branches bearing multiple translucent red-crimson ripe fruits. **D.** Flowers at anthesis. Note the inconspicuous tetramerous greenish petals of female (distal portion of inflorescence) and male (base of inflorescence) flowers. **E.** Immature (greenish) and mature (reddish) fruits. **F.** One of the four *M. portoricensis* trees where *A. wrightii* mistletoes were discovered. Photos by A.L.M.P.

portoricensis Bello (Magnoliaceae; Table 1). Remarkably, all these mistletoes were found on only four trees within 1 km². Another 26 trees of *M. portoricensis* at the site were also visually inspected, but no additional individuals of *A. wrightii* were observed.

As the generic name suggests, *Antidaphne* mistletoes are often found parasitizing members of the Lauraceae family (Mari Mutt 2017). In the Caribbean, most of the tree species reported as hosts for *A. wrightii* belong to the basal angiosperm families Lauraceae and Magnoliaceae. However, this mistletoe has been also reported parasitizing trees from other families such as Celastraceae (*Torrallbasia cuneifolia*), Dichapetalaceae (*Tapura cubensis*), Moraceae (*Ficus americana*), and Rubiaceae (*Neolaugeria apiculata*) (Leiva 1992). It is remarkable that in Cuba most species of trees recorded as hosts are from the Lauraceae family with no report so far from Magnoliaceae. This contrast with the situation in Hispaniola, where most hosts records are from

TABLE 1. Number of *Antidaphne wrightii* (Santalaceae) mistletoes recorded in each of the four *Magnolia portoricensis* (Magnoliaceae) trees in Yauco, Puerto Rico. Diameter at breast height (DBH) and height are provided for every *M. portoricensis* tree. Percentages in parenthesis indicate the number of *A. wrightii* mistletoes observed bearing reproductive structures (i.e., flowers and/or fruits).

Trees of <i>Magnolia portoricensis</i> with <i>Antidaphne wrightii</i>	DBH (cm)	Height (m)	Number of <i>Antidaphne wrightii</i> (percent of reproductive individuals)
Tree 1	36.4	30	20 (45%)
Tree 2	25.5	35	37 (41%)
Tree 3	37.4	60	39 (33%)
Tree 4	39.8	50	41 (27%)
Total			137 (35%)

Magnoliaceae, and in Puerto Rico, where all hosts recorded so far are from Magnoliaceae. Populations of other species of mistletoes have been shown to develop local specialization to hosts (Clay et al. 1985; Overton 1997), and it would be interesting to test if populations of *A. wrightii* in Puerto Rico have developed specificity to *Magnolia* trees.

The recent rediscovery of *A. wrightii* in Puerto Rico demonstrates that, even in islands with a well-known flora, new findings are still possible. Future efforts to locate additional individuals should include surveys at Yauco and nearby areas, such the Guilarte and Maricao State Forests, where trees of *M. portoricensis* are locally abundant. Since *Antidaphne* mistletoes can be inconspicuous (Kuijt 1988), it is possible that botanists have overlooked them and new records are yet to be discovered. Mistletoe surveys should also include the populations of *Magnolia splendens* Urb. at El Yunque National Forest, as it is possible that *A. wrightii* still survives there.

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