

***Ilex* × *wandoensis* C. F. Miller & M. Kim,
a new hybrid species of *Ilex*
(Aquifoliaceae) from Korea**

Miller, C. F. and Muyeol Kim*

(Chollipo Arboretum, Uihangni, Sowonmyon, Taeangun 357-934 and
Division of Biological Sciences, Chonbuk National University,
Jeonju 561-756, Korea)

A new taxon of *Ilex* is described from Wando Island, Province Jeonnam, Korea. *Ilex* × *wandoensis* C. F. Miller & M. Kim hybrid nov. originates from the natural hybridization of the parent species, *I. cornuta* Thunb. and *I. integra* Thunb. Leaves of the new taxon have smooth, spinose margins, a condition that is intermediate between the twisted, spinose leaf margins of *I. cornuta* and the smooth, entire margins of *I. integra*. The new hybrid species shares several characters with its two parents, including evergreen leaves, dioecy, and red drupes.

Keywords : Aquifoliaceae, *Ilex*, *Ilex* × *wandoensis*

Ilex L., a largest genus of Aquifoliaceae occurs worldwide in temperate, warm temperate, subtropical, and tropical climatic zones (Galle, 1997). It consists of about 780 evergreen and 30 deciduous taxa (Galle, 1997). Five taxa grow in Korea (Lee, 1980).

Ilex × *wandoensis*, a new taxon of *Ilex* was discovered on Wando Island in Korea by C. F. Miller and described in the seed index of Chollipo Arboretum in 1982. This did not, however, constitute valid publication under the rules of the International Code of Botanical Nomenclature (Greuter *et al.* 2000). Dudley

*Corresponding author : Tel : +82-63-270-2788, Fax : +82-63-270-3362,
e-mail mykim@moak.chonbuk.ac.kr

(1988) reported the discovery of natural populations of *I. x wandoensis* during an exploration of Korea, but did not validate the name. Consequently, the hybrid has no valid botanical name at this time. The purpose of this paper is to correct this situation.

Natural populations of the hybrid are associated with populations *I. cornuta* Thunb. and *I. integra* Thunb. on Wando Island. This supports the hypothesis that it is derived from natural hybridization between these two species. Additional support comes from an artificial hybrid named *Ilex* 'Semala' between the putative parents made in the late 1970s by Joe C. McDaniel (Galle, 1997). This new hybrid has smooth spinose leaf margins, a characteristic that is intermediate between the rectangular twisted, strong spinose leaf margins of *I. cornuta* and the smooth, entire leaf margins of *I. integra*.

***Ilex x wandoensis* C. F. Miller & M. Kim, hybrid nov. Fig. 1.**

Planta arbor parva 5-8m elata, dioecia sempervirens; folia simplicia alternata, petioli 1.0-1.4cm longi, laminae oblatae, virides, 4-7cm longae, 2.8-4.4cm latae, margines spinosi, cum 2-3 dentibus; flores masculini et feminei fasciculati et axillares, florentes medio vere, sepala 4, petala 4, pallide viridi, 0.4-0.6cm longi, 0.2-0.4cm lati; flores masculini 18-24, pedicelli masculini 0.4-0.7cm longi, stamina 4, fila 0.2-0.4cm longa, alba, antherae 0.06-0.08cm longae, flavae; flores feminei 5-6, pedicelli feminei 1.0-1.5cm longi, ovarium viride, 0.45-0.55cm longi, sine stylo, stigmata quadrilobata; fructus drupae rubrae, 1.0-1.2cm longae, 0.8-1.0cm diametro, pedicello 1.2-1.7cm longo.

Plants small trees 5-8m tall, dioecious evergreen; leaves simple, alternate, petioles 1.0-1.4cm long, blades ovate, green, 4-7cm long, 2.8-4.4cm wide, margins spinose, with 2-3 teeth; male and female inflorescences fasciculate and axillary, flowers blooming in mid-April, sepals 4, petals 4, pale green, 0.4-0.6cm long, 0.2-0.4cm wide; male flowers 18-24, male pedicels 0.4-0.7cm long, stamens 4, filaments 0.2-0.4cm long, white, anthers 0.06-0.08cm long, yellow; female flowers 5-6, female pedicels 1.0-1.5cm long, ovary green, 0.45-0.55cm long, style absent, stigmas 4-lobed; fruit drupe, red, 1.0-1.2cm long, 0.8-1.0 diameter, stalk 1.2-1.7cm long.

Type Locality: Galmunri, Gunoemyeon, Wando Island, Jeonnam Province, Korea.

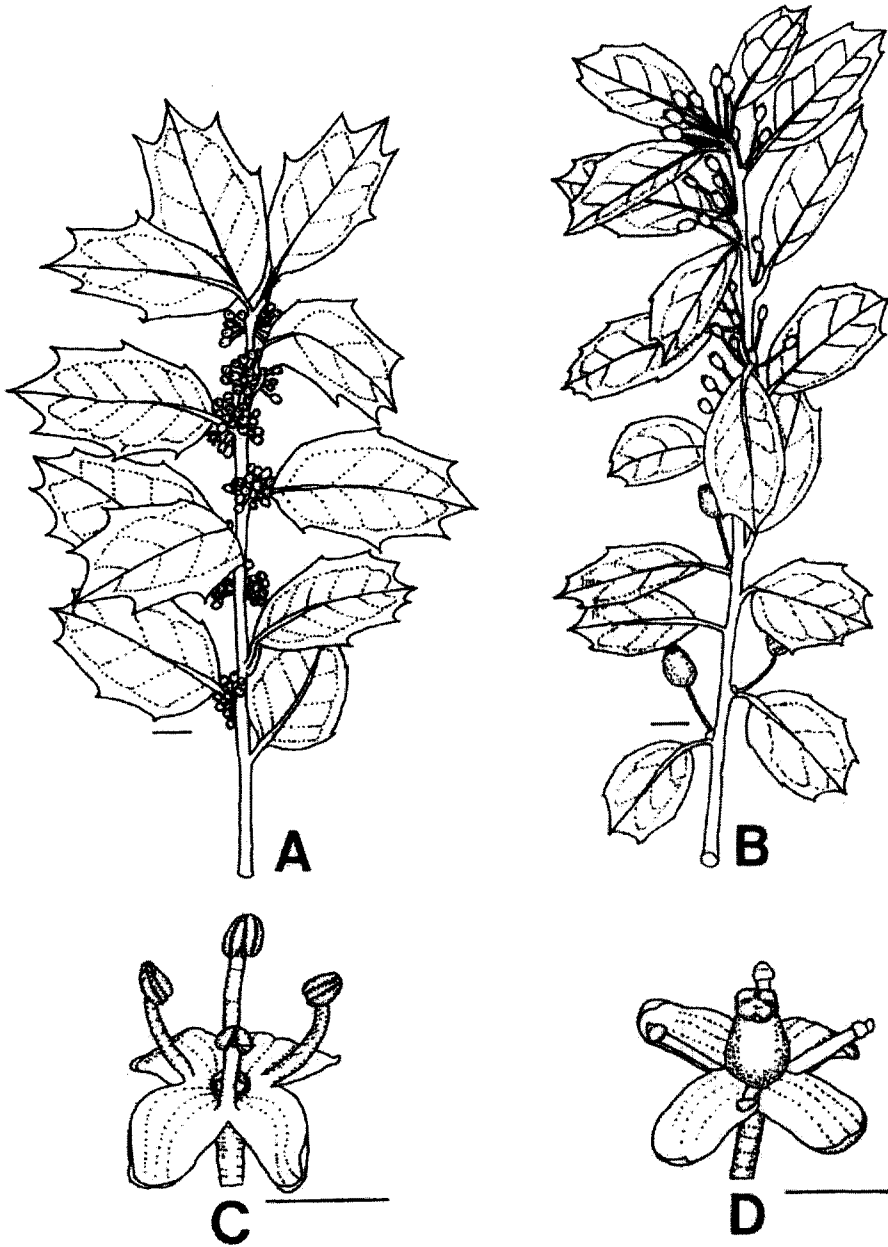


Fig. 1. *Ilex* × *wandoensis* C. F. Miller & M. Kim hybrid nov.

A. Male plant; B. Female plant; C. Male flower; D. Female flower. Scale bars 1cm for A & B, 0.5cm for C & D.

Table 1. Comparison of characters in *Ilex cornuta*, *I. × wandoensis*, and *I. integra*.

Character	<i>I. cornuta</i>	<i>I. × wandoensis</i>	<i>I. integra</i>
Habit	shrub	small tree	tall tree
Petiole length	0.4-0.6cm	1.0-1.4cm	1.0-2.0cm
Blade length	5-9cm	4-7cm	5-8cm
Blade width	3.5-6.0cm	2.8-4.4cm	2.5-3.5cm
Leaves margins	spinose, twisted	spinose, smooth	entire, smooth
Teeth numbers	2-3	2-3	0
Leaf surfaces	convex	flat	flat
Flowering period	mid-Apr.	mid-Apr.	mid-Apr.
Sepal numbers	4	4	4
Petal color	pale green	pale green	pale green
Petal number	4	4	4
Petal length	0.4-0.6cm	0.4-0.6cm	0.4-0.6cm
Petal width	0.2-0.3cm	0.2-0.4cm	0.3-0.4cm
Male flower numbers	50-60	18-24	18-25
Male pedicel length	0.3-0.6cm	0.4-0.7cm	0.4-0.7cm
Stamen numbers	4	4	4
Filament color	white	white	white
Anther color	yellow	yellow	yellow
Female flower numbers	7-10	5-6	3-5
Female pedicel length	1.0-1.3cm	1.0-1.5cm	0.4-0.7cm
Ovary	green	green	green
Style	absent	absent	absent
Stigma lobe	4	4	4
Fruit stalk length	1.0-1.2cm	1.2-1.7cm	1.3-1.5cm
Fruit diameter	0.8-1.0cm	0.8-1.0cm	0.9-1.2cm

Holotype: M. Kim 4655. April 15. 2000. Herbarium of Chonbuk National University (JNU). Island Wando in Korea.

Korean name: Wan-do-ho-rang-ga-si-na-mu (완도호랑가시나무)

This new hybrid species, *Ilex x wandoensis* C. F. Miller & M. Kim, is distinctly different from its parent species, *I. cornuta* and *I. integra* in leaf margin,

habit, and petiole length (Table 1). *Ilex cornuta* has leaves with rectangular shape, strong spinose margins and convex surfaces (Lee, 1996), but this new hybrid species has leaves with smooth, spinose margins and flat surfaces. Also, the hybrid has 18-24 male flowers, less than the former which has 50-60 male flowers. The new hybrid also shares some similarities with both *I. cornuta* and *I. integra*, including the evergreen woody habit, dioecy, 4 sepals, 4 petals, 4 stamens, and reddish drupes (Galle, 1997). The authors therefore treat the hybrid as a new taxon of *Ilex*. Its possession of 5-6 female flowers and small tree habit also distinguishes it from *I. cornuta*, which has 7-10 female flowers and shrubby growth habit. The new hybrid species is also distinct from *I. integra*, which has 3-5 female flowers and is a tall tree (Lee, 1980).

Key to *Ilex x wandoensis* and its closely related taxa.

1. Shrubs or trees 1-8m tall; leaf margins spinose.
 2. Shrub 1-3m tall; leaf margins spinose, twisted like rectangular shape, leaf surfaces convex, petioles 0.4-0.6cm long; female flower numbers 7-10, male flower numbers 50-60.*Ilex cornuta*
 2. Small trees 5-8m tall; leaf margins spinose, smooth, leaf surfaces flat, petioles 1.0-1.4cm long; female flower numbers 5-6, male flower numbers 18-24. ...
.....*I. x wandoensis*
1. Large trees 15-20m tall; leaf margins entire, leaf surfaces flat, petioles 1.5-2.0cm long; female flower numbers 3-5, male flower numbers 18-25.*I. integra*

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감탕나무속(*Ilex*)의 신잡종, 완도호랑가시나무
(*I. × wandoensis* C. F. Miller & M. Kim)

민병갈 · 김무열*

(충남 태안군 천리포수목원 · 전북대학교 자연과학대학 생물과학부)

적 요

새로이 명명된 완도호랑가시나무(*Ilex × wandoensis* C. F. Miller & M. Kim hybrid nov.)는 전남 완도군 완도에서 채집하였다. 완도호랑가시나무는 호랑가시나무(*I. cornuta* Thunb.)와 감탕나무(*I. integra* Thunb.)의 자연교잡을 통해 형성된 분류군이다. 따라서 가시형 엽연과 평평한 표면을 가진 신분류군은 사각형으로 뒤틀린 엽연에 강한 가시형 거치와 볼록한 표면을 가진 호랑가시나무와 전연이며 평평한 표면을 가진 감탕나무의 중간형질을 가지고 있다. 또한 완도호랑가시나무는 소교목이고 1.0-1.4cm의 엽병을 가진 점에서 관목이고 0.4-0.6cm의 엽병을 가진 호랑가시나무와 키가 큰 교목이고 1.5-2.0cm의 엽병을 가진 감탕나무와 뚜렷이 구별이 된다.

주요어 : 감탕나무과, 감탕나무속, 완도호랑가시나무

*교신저자 : 전화 (063) 270-2788, 전송 (063) 270-3362,

전자우편 : mykim@moak.chonbuk.ac.kr