


Osmanthus Aquifolium and O. Fortunei

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Source: *Bulletin of Miscellaneous Information (Royal Botanic Gardens, Kew)*, Vol. 1911, No. 4 (1911), pp. 177-181
Published by: Springer on behalf of Royal Botanic Gardens, Kew
Stable URL: http://www.jstor.org/stable/4119484
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ROYAL BOTANIC GARDENS, KEW.

BULLETIN

OF

MISCELLANEOUS INFORMATION.

No. 4. 1911

XVIII.—OSMANTHUS AQUIFOLIUM AND O. FORTUNEI.

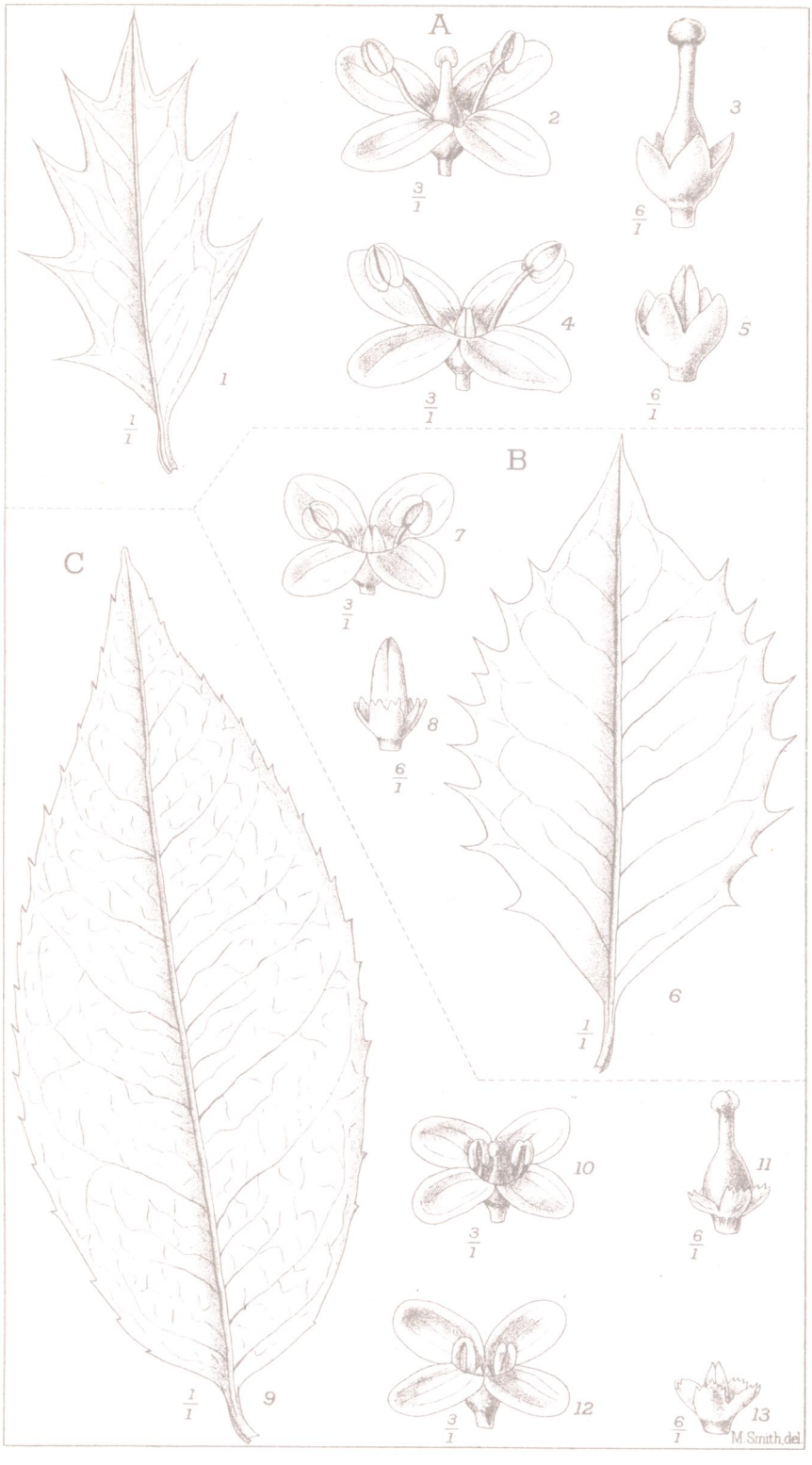
O. Stapf.

For a long time two plants have been in cultivation under the name of *Osmanthus Aquifolium*. Horticulturists have been aware of it, and twice an attempt has been made to discriminate between them and to define them technically, but with so little success that no notice was taken of it in systematic and floral works. This was no doubt due to the fact that the distinctions relied upon were taken from the leaf characters which by most authors were considered as extremely variable, and therefore unsuitable. Although a considerable variability in size, shape and degree of dentation of the leaves cannot be denied, there are limits to it which allow us to recognise two types of leaves which are moreover constantly correlated with floral characters, and in this way make it possible to distinguish two well-defined units within what is commonly called *Osmanthus Aquifolium*.

The name *Osmanthus Aquifolium* appears for the first time in Siebold and Zuccarini, "Florae Japonicae Familiae Naturales," sect. alt. (1846) p. 42, as a synonym of *Olea Aquifolium*, Sieb. and Zucc., the paragraph running thus:—"*Ilex Aquifolium*, Thunb. Fl. Jap. p. 79. *Il. Aquif.* var. *heterophylla*, Ait.? Blume Bijdr. p. 1150.—Koo Kotz vulgo Firaggi, Kämpf. Amoen. p. 781.—*Olea ilicifolia* Hasskarl in Catal. hort. Bogor. p. 118.—*Osmanthus Aquifolium* Sieb. in litt." All these synonyms refer to the plant generally known in Japan as "Firagi" or "Hiragi." The excellent figure of it in Honzo Zufu (1828), vol. 88, fol. 1, leaves no doubt as to what this "Hiragi" is. It has elliptic to oblong-elliptic or lanceolate-elliptic leaves with mostly 3—or sometimes 1 or 2 or 4—large spinescent teeth on each side, and they are commonly 4–5 cm. long and 2·5 cm. wide. Occasionally the leaves are quite entire, and then frequently more lanceolate. The teeth vary from 0·5 to 1 cm. in length. The flowers measure about 8–9 mm. in diameter, the calyx segments are ovate, and subobtuse to almost acute, the petals oblong, 4–5 mm. by 2–2·5 mm., the filaments more than half the length of the petals, and distinctly

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A- Osmanthus Aquifolium.
B-O. Fortunei, C-O. fragrans.

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longer than the anthers, the whole stamens almost equalling the petals in length, and the capitate stigma, which is borne on a slender style, stands over 3 mm. from the base of the flower. Beside these hermaphrodite flowers, there occur also male flowers in which the pistil is reduced to a short conical body, shortly exserted from the calyx and terminating in a more or less bifid point, whilst the anthers are somewhat longer, so that their tips reach or protrude beyond those of the petals. The two types of flowers are found in separate individuals to judge from the herbarium material, but it is probable that this separation is actually not so absolute, and that among the apparently hermaphrodite flowers functionally female ones also occur. An imperfect diclinism of this kind is not uncommon in *Oleaceae*. A very good figure of *Osmanthus Aquifolium*, as defined here, may be found in Shirasawa's Iconographie des Essences Forestières, vol. i, tab. 82.

The plant was in cultivation in Buitenzorg in the twenties of the last century according to Blume (l.c.), but does not seem to have found its way into Europe until 1856, when T. Lobb introduced it from Japan for Messrs. Veitch & Sons, who advertised it in 1858 as *Olea ilicifolia* (Gard. Chron. 1858, p. 419, advert.; Veitch, Hort. Veitch, p. 404). This disposes of Bretschneider's statement that the plant was introduced by Fortune, in so far as the true *Osmanthus Aquifolium* and Fortune's claim to having it introduced into Europe for the first time is concerned; but Fortune no doubt saw it in Japan in 1860, and brought specimens with him to England in 1862. There is a sample of it in the Kew Herbarium, collected by him in gardens at Yedo in November, 1860, and plants of the variegated form imported by him for Standish were exhibited by that firm in the summer of 1862 (Gard. Chron. 1862, p. 240).

It appears, however, that Fortune also brought with him another *Osmanthus* which he himself had apparently not recognised as distinct from *O. Aquifolium*, and which under that name was distributed from the English nurseries. A plant of it came into Carrière's hands, and he at once pointed out that it was a new and distinct species which he named *O. Fortunei* (Rev. Hort. 1864, pp. 69–71 with fig.). Carrière said that Fortune brought it from China, and a specimen in the Hookerian collection at Kew, received from "Hort.-Veitch" and described as "e China" seems to confirm his statement. But as we now know that *O. Fortunei* is also cultivated in Japan, and Fortune took his collection of living Japanese plants home viâ China, and furthermore, as *O. Fortunei* has not since been observed in China, he may very well have got it from a garden in Japan.

The differential characters of *O. Fortunei*, which is only known in the male state, rest on the leaves as well as the flowers, and may be diagnosed as follows :—

Leaves elliptic, usually with numerous (8–12) pungent teeth on each side, occasionally entire or with a very few small teeth, and commonly 7–10 cm. long, 4–7 cm. wide; teeth 0·3–0·5 cm. long. *Flowers* about 7 mm. in diameter. *Calyx* segments rotundate, truncate, the hyaline margin minutely erosulate. *Corolla* segments obovate-oblong, 3 mm. long, 2 mm. wide. *Filaments* as long as or rather shorter than the anthers, the whole stamen distinctly

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shorter than the petal. *Rudimentary pistil* conical, slightly exceeding the calyx, the pointed apex shortly bifid. *Ovules* present, but never developing.

Although Carrière's description and figures ought to have been sufficient to keep the two plants distinct, they were sold and grown indiscriminately as *Osmanthus Aquifolium* or *O. ilicifolius*. In 1876, a good figure of *O. Fortunei* was published in the Gardeners' Chronicle of Nov. 25 (p. 689), accompanied by analyses of the flower, showing clearly the erosulate truncate calyx segments, the short filaments and the rudimentary pistil, but the name applied to it was *Osmanthus Aquifolium* with the synonyms *Osmanthus ilicifolius* and *Olea ilicifolia*. In the following year, however, the correct appellation of the plant having been challenged, the figure was reproduced in the Gardeners' Chronicle (Feb. 24, p. 239) and the synonymy was rectified in so far as *Olea ilicifolia* was retained as a synonym, whilst *Osmanthus ilicifolius* of the nurseries was proposed to stand "for garden purposes" as a name for the "more deeply cut form" which "botanists will with greater propriety call . . . *Osmanthus Aquifolium* var. *ilicifolius*." A figure was added of a leaf of the latter which makes it perfectly clear that this *O. ilicifolius* is the 'Hiragi' of Japan, that is the genuine *O. Aquifolium*. Yet the authors of the note themselves thought so little of those "forms" that they considered it doubtful whether botanists "would think it worth while to keep up such a variety," and in another passage actually say that "the so-called *O. ilicifolius* is the same as *O. Aquifolium*," adding "that in the wild plant it is easy to pick leaves of both so-called species from the same bough." There is no justification for this statement so far as herbarium specimens go, nor is there any evidence that either Lobb or Fortune, who might have supplied the information, ever collected those species of *Osmanthus* in the wild state. In fact, *O. Fortunei* is still unknown in that state, and *O. Aquifolium* is so generally cultivated in Japan, and apt to run wild, that even Japanese botanists were until recently doubtful as to its spontaneous occurrence. Further, the authors themselves admit that "in British gardens the two plants maintain their distinctive characters, and do not as yet manifest any such sporting tendency as we have mentioned." Nor have they done so since, and in so far there would seem to be no reason why *Osmanthus Aquifolium* and *O. Fortunei* should be treated otherwise than as distinct species. Subsequently the figure of *O. Fortunei* published in the Gardeners' Chronicle (sub *O. Aquifolium*) was reproduced in Regel's Gartenflora (1879), p. 276, and in Dippel's Laubholzkunde, vol. i. (1889), p. 140, under *Olea aquifolia*, but no new information was added.

Some fresh light is thrown on the origin of *O. Fortunei* by an observation by Makino concerning *O. japonicus*. Of this Makino (Bot. Mag. Tokyo, vol. xvi., 1902, p. 31) says "= ? *O. Aquifolium* × *fragrans*" and after a very full description of the plant, again on p. 32 "This may be the hybrid between *Osmanthus Aquifolium*, Sieb. and *O. fragrans*, Lour., as given above, having leaves and flowers which are just intermediate to them. It is only known in cultivation." Now this *O. japonicus* is the *O. Fortunei* of Carrière. That this is so is evident from the description

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Makino gives of *O. japonicus*, which he also says is only known in the male state, and from the fact that when in a later paper (Bot. Mag. Tokyo, vol. xxiii., 1909, p. 14) reducing *O. japonicus* to a var. of *O. Aquifolium*, he quotes the figures in Regel's Gartenflora (1879), p. 276, and Dippel's Laubholzk., vol. i. p. 140, as representing this plant. Those figures, however, are, as has already been pointed out above, actually figures of *O. Fortunei*. So far as the morphological characters of *O. Fortunei* are concerned, much may be said in favour of the hypothesis of its hybrid origin, although it cannot be considered as proved until the same plant is actually produced by crossing the two assumed parents, which should be easy enough; or until it is found growing among them in a natural state, and under conditions which are equivalent to an experimental proof.

Some support of Makino's theory might also be deduced from the Japanese names of the species involved, *O. Aquifolium* being "Hiragi," *O. fragrans* "Mokusei" and *O. Fortunei* "Hiragi-Mokusei."

Makino, as has been stated above, treated *O. japonicus* in a later paper as a variety of *O. Aquifolium*, but as he does not give any reasons for doing so, it may be sufficient to refer here to what has been said above regarding the differences between *O. Aquifolium* and *O. Fortunei*, and to distinguish them under those names whether the latter should in the end prove to be a hybrid or not. The use of the name *O. Fortunei*, which is not referred to by Makino, in the place of *O. japonicus* requires some explanation. *Osmanthus japonicus* was mentioned first by Siebold in his Synopsis Plantarum Oecon. Regni Japonici [in Verh. Batav. Gen., vol. xii., 1830, p. 36]. It appears there merely as a name for some tree which is much valued in Japan on account of its wood and fragrant flowers and known there as "Hiraki-mok'sen." Then we have it again as a mere name in Hasskarl's Catalogue Pl. Hort. Bogor (1844), p. 118 in the version "*Olea japonica* Sbld. (sub *Osmanthus*) Hiraki-mok'sen, and again as "*Olea japonica*" in Siebold & Zuccarini Florae Japonicae Familiae Naturales in Abh. Akad. Münch., vol. iv. 3, p. 176 (p. 43 of the reprint). The first description of it is Makino's in 1902, who quotes Hiragi-mokusei (evidently the correct translation of the Hiraki-mok'sen of Siebold) as its vernacular name. *O. Fortunei* (1864) has therefore undoubted priority. Other names which were used in connection with *Osmanthus Aquifolium* are "*Ilex Aquifolium* v. *heterophylla Ait.*," quoted with a ? by Blume, Bijdr., p. 1150 and *Ilex heterophylla*, Don. Gen. Syst. ii. p. 17 (1832). As to the first, Aiton's var. *heterophylla* of *Ilex Aquifolium* was a true *Ilex Aquifolium*, and as to the other, it was a mere book-species formed under the impression that Blume's plant was an *Ilex* which deserved specific rank, whereas Blume actually described an *Osmanthus*, but suggested, as we now know erroneously, that it might be Aiton's *Ilex Aquifolium* var. *heterophylla*. The accompanying plate is intended to bring out the essential characters by which *O. Aquifolium* and *O. Fortunei* may be distinguished, and also the intermediate position of the latter between *O. Aquifolium* and *O. fragrans*.

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Cultural Notes.

Mr. Bean has supplied a few notes as to the culture and general habits of the plants under discussion.

Osmanthus Aquifolium is a very useful hardy evergreen, forming a rounded bush up to 8 feet in height, and as much in diameter. With the general aspect of a small-leaved holly, it is of more graceful form and, from its dwarfer habit, is better adapted for positions where space is restricted. It has produced under cultivation several variegated forms, but the best of its varieties is *atropurpureus* ; this was raised at Kew in the "seventies" of last century. The whole shrub has a purple tinge, and the quite young twigs and leaves in their black shininess have the aspect of having been dipped in tar. It is, in our experience, the hardiest of all the forms.

Dr. Stapf observes that the leaves of the species are occasionally entire. Such leaves occur on all plants that are old enough ; they are characteristic (as in the holly) of the adult condition, but they only occur on the upper part of the shrub. Twigs, taken off and rooted, remain constant and make neat bushes ; they are sold by nurserymen as *O. myrtifolius*. All the forms flower in autumn and their clustered, small, white flowers are very fragrant. Propagation is best effected by means of cuttings in late summer, giving them mild bottom heat. The practice of grafting this shrub on the oval-leaved privet is unnecessary and objectionable.

O. Fortunei, as might be inferred from the supposed parentage given above, is not quite so hardy as *O. Aquifolium*, for one of the parents (*O. fragrans*) is a cool greenhouse shrub. It has, nevertheless, survived over 30° of frost at Kew, and although the trying winter of 1908–9 denuded our plants of all their leaves, the same happened to holm oaks and other evergreens, and, as with them, the *Osmanthus* quite recovered in the following summer. It can be increased by cuttings like *O. Aquifolium*, but does not strike root so readily. All the forms like a good open loamy soil, and thrive best in a sunny sheltered position.

Explanation of Plate.

A. *Osmanthus Aquifolium*. 1, leaf ; 2, hermaphrodite flower ; 3, calyx and pistil of same ; 4, male flower ; 5, calyx and rudimentary pistil of same. B. *O. Fortunei*. 6, leaf ; 7, male flower ; 8, calyx and rudimentary pistil of same. C. *O. fragrans*. 9, leaf (dentate state) ; 10, hermaphrodite flower ; 11, calyx and pistil of same ; 12, male flower ; 13, calyx and rudimentary pistil of same.

XIX.—DIAGNOSES AFRICANAE : XLI.

1251. **Loranthus (Ischnanthus) triplinervius**, *Baker et Sprague* in Dyer, Fl. Trop. Afr. vol. vi. sect. 1, p. 385, anglice, ined. [Loranthaceae - Eulorantheae] ; affinis *L. Holstii*, Engl., a quo foliis triplinerviis, umbellis 4–6-floris recedit.

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