

The Taxonomic History and Original Literatures Arrangements of Living *Cephalotaxus* (Cephalotaxaceae)

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ABSTRACT

Living *Cephalotaxus* (plum yews) occurs mainly in East Asia and North of Indo-China peninsula. The study of original taxonomic literatures found that, in early days, the plum yews had ever been described as plants of *Taxus* (Taxaceae). Since after the genus name *Cephalotaxus* Sieb. & Zucc. was firstly cited (from inedited and unpublished *Flora Japonica*) by Endlicher in 1842, most taxonomist thought which is the earliest time of the genus *Cephalotaxus* Sieb. & Zucc. was set. However, the genus *Cephalotaxus* Sieb. & Zucc. was formally effective and valid published by Sieb. & Zucc. in *Flora Japonica* in 1870 so that there exists some confusions in chronological order. Originally as a genus, *Cephalotaxus* was included in family Taxaceae and Neger (1907) separated *Cephalotaxus* from Taxaceae and set family Cephalotaxaceae. Later, Fu (1984) divided *Cephalotaxus* up into two sections of *Cephalotaxus* Sieb. & Zucc. sect. *Pectinatae* L. K. Fu and *Cephalotaxus* Sieb. & Zucc. sect. *Cephalotaxus* L. K. Fu on the bases of *C. oliveri* Masters differ significantly from other taxa of *Cephalotaxus* in morphological characteristics. Although the plum yews was a little genus of conifers, up to now, about 77 taxa have still been published by taxonomist in different countries or regions. Among them, *C. tardiva* Sieb. ex Endl. (1847), *C. umbraculifera* Sieb. ex Endl. (1847), *C. sumatrana* Miq. (1856) and *C. celebica* Warb. (1900) have been combined to *Taxus*, and *C. argotaenia* (Hance) Pilger (1903) has been combined to *Amentotaxus*. And at the same time, those taxa existing in *Cephalotaxus* currently which were accepted by most taxonomist in different countries were also cited in article. Lastly, the paper found presently there still exists many debates about binary classification of *Cephalotaxus* and the nomenclature of this genus still particularly confusing. Based on some controversial problems, we also point out some taxonomically researching directions at creating some order out of the chaos.

Keywords: *Cephalotaxus*, Taxonomic History, Literatures Arrangements, Controversial Problems, Researching Directions

1. Introduction

Living plants of *Cephalotaxus* (plum yews) was a little taxon of conifers which occurs mainly in East Asia and North of Indo-China peninsula—Japan (Ohwi [1]), Korea (Nakai [2]), Chinese Mainland (Fu [3]) and Taiwan (Li and Keng [4]), Northeast India (Hook. f. [5]), Burma (Fu [3]), Laos (Newman [6]; Thomas *et al.* [7]), Tailand (Phengklai [8]; Werner [9]), Malaysia (Forbes [10]), and parts of Vietnam (Hiep *et al.* [11]) (**Figure 1**). The modern natural range of *Cephalotaxus* has diminished considerably from that of its early antecedents was found in Europe and northwestern North America in the Miocene and Pliocene eras, and even during the Jurasicera its

antecedents also extended into what is now Greenland (Tripp [12]). In early days, the plum yews were described as plants of *Taxus* (Taxaceae) which can be known from Forbes [10] named a plant, growing on the Penang Range of mountains in Malaysia and was introduced to England in 1837 by Mr. Knight, as *Taxus harringtonii* Knight ex Forbes (“*harringtonia*”) (now it is a basionym of *Cephalotaxus harringtonii* (Knight ex Forbes) Koch [13]). And since two names (two nomen nudum) of *C. drupacea* Sieb. et Zucc. and *C. pedunculata* Sieb. et Zucc. were first at the same time used by Siebold and Zuccarini [14] in *Florae Japonicae Familiae Naturales* (page 108) or *Abhandlungen der Akademie der Wissenschaften in München* (page 232),

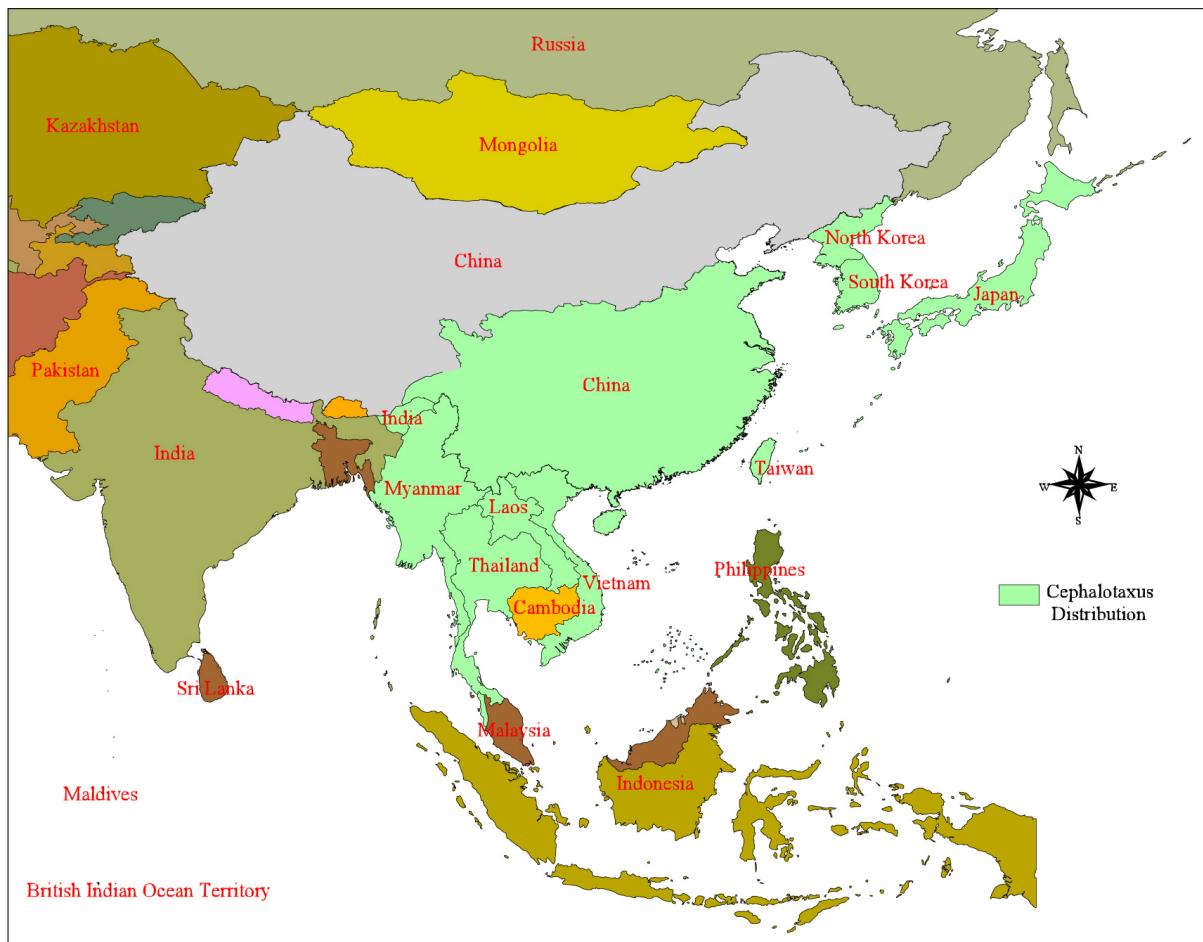


Figure 1. The distribution of *Cephalotaxus*.

and the genus name *Cephalotaxus* Sieb. & Zucc. (Endlicher cited from *Flora Japonica* II inedited at that time and published in 1870) was firstly cited by Endlicher [15] in his *Generum Plantarum Supplementum Quartum*, the name of genus *Cephalotaxus* was widely used in many literatures. However, the three names of *Cephalotaxus* Sieb. & Zucc., *C. drupacea* Sieb. et Zucc., and *C. penduliflora* Sieb. et Zucc. were formally effective and valid published in *Flora Japonica* in 1870. This has some confusions in chronological order so that it is not easy to understand the taxonomic history of *Cephalotaxus*. Originally as a genus, *Cephalotaxus* was included in family Taxaceae with other genera like *Torreya*, *Taxus*, and *Pseudotaxus* together (Pilger [16]). Then, Neger [17] separated *Cephalotaxus* from Taxaceae and set family Cephalotaxaceae based on female cones of *Cephalotaxus* have marked differences with other taxa of Taxaceae. While today *Cephalotaxus* is most often considered the single genus of the coniferous Cephalotaxaceae and the taxonomic status of *Cephalotaxus* (Cephalotaxaceae) has

already been approved by most botanist, although a few authors (e.g., Pilger [18]; Phillips [19]) also include *Amentotaxus* in the Cephalotaxaceae, resulting in occasional references in the literature to two genera in the Cephalotaxaceae (Tripp [12]). Later, Fu [3] divided *Cephalotaxus* up into two sections of *Cephalotaxus* Sieb. & Zucc. sect. *Pectinatae* L. K. Fu and *Cephalotaxus* Sieb. & Zucc. sect. *Cephalotaxus* L. K. Fu, on the bases of *C. oliveri* Masters differ significantly from other taxa of *Cephalotaxus* in morphological characteristics. *Cephalotaxus* Sieb. & Zucc. sect. *Pectinatae* L. K. Fu included only one species of *C. oliveri* Masters, and *Cephalotaxus* Sieb. & Zucc. sect. *Cephalotaxus* L. K. Fu included all other taxa of *Cephalotaxus*.

2. Published Taxa of *Cephalotaxus* (Cephalotaxaceae)

After the name of *Cephalotaxus* Sieb. & Zucc. was cited and described by Endlicher [15], about more than 70 taxa of *Cephalotaxus* was published (Nakai [2,44]; Fu [3]; Koch [13]; Siebold and Zuccarini [14,21]; Endlicher [15];

Pilger [16, 38, 39, 40]; Neger [17]; IPNI [20]; Hooker [22]; Carrière [23,24]; Miquel [16,25,26]; Wiesehof [27]; Gordon *et al.* [28]; Lavallée [29]; Masters [30,31]; Hook. f. [32,33]; Beissner [34,35]; Franchet [36]; Warburg [37]; Rehder and Wilson [41]; Rehder [42,46,47]; Hayata [43]; Kudo [45]; Hatusima [48]; Dallimore *et al.* [49]; Li [50];

Hu [51]; Kitamura [52]; Feng [53]; Cheng *et al.* [53]; Silba, [54-56]; Li-Nan *et al.* [57]; Fu *et al.* [58]); Koidzumi [59]. These names and Original literatures of taxa were arranged in **Table 1** in chronological order for the purpose of understanding the taxonomic history of *Cephalotaxus* better.

Table 1. The published taxa of *Cephalotaxus* in chronological order.

No.	Time	Taxa—Original literatures
1	1839	<i>Taxus harringtonii</i> Knight ex Forbes—Pinet. Woburn. 217. t. 66. 1839. [now is a basionym of <i>C. harringtonii</i> (Knight ex Forbes) Koch (1873). (“ <i>harringtonia</i> ”)]
2	1842	<i>Cephalotaxus</i> Sieb. & Zucc.—Gen. Pl. Suppl. 2: 27. 1842. [original description from Fl. Jap. II. Tab. 130-132. 1870. (effectively and validly published in 1870)]
3	1846	<i>C. drupacea</i> Sieb. & Zucc. nom. nud.—Fl. Jap. Fam. Nat. ii. 108. 1842. (or Abh. Akad. Wiss. München. IV. Pt. III. 232. 1842.) [description from Fl. Jap. II. Tab. 130-131. 1870.]
4	1846	<i>C. pedunculata</i> Sieb. & Zucc. nom. nud.—Fl. Jap. Fam. Nat. ii. 108. 1842. (or Abh. Akad. Wiss. München. IV. Pt. III. 232. 1842. [description from Fl. Jap. II. Tab. 130-131. 1870.]
5	1847	<i>C. tardiva</i> Sieb. ex Endl.—Syn. Conif. 239. 1847.
6	1847	<i>C. umbraculifera</i> Sieb. ex Endl.—Syn. Conif. 239. 1847.
7	1850	<i>C. fortunei</i> Hook.—Bot. Mag. 76: t. 4499. 1850. (“ <i>fortuni</i> ”)
8	1855	<i>C. fortunei</i> Hook. var. <i>foemina</i> Hort. ex Carr.—Traité Conif. 509. 1855.
9	1856	<i>C. sumatrana</i> Miq.—Fl. Ned. Ind. ii. 1076. 1856.
10	1858	<i>C. kaempferi</i> Wieschof—Garten-Nachr. 1(11): 41. 1858.
11	1858	<i>C. filiformis</i> Knight & Perry ex Gordon—Pinetum 46. 1858.
12	1865	<i>C. pedunculata</i> Sieb. & Zucc. var. <i>fastigiata</i> Carr.—Prod. Fix. Var. Veget. 44. f. 1. 1865.
13	1867	<i>C. buergeri</i> Miq.—Ann. Mus. Bot. Lugduno-Batavi iii. 169. 1867.
14	1867	<i>C. drupacea</i> Sieb. & Zucc. var. β <i>pedunculata</i> Miq.—Ann. Mus. Bot. Lugduno-Batavi iii. 169. 1867.
15	1870	<i>C. drupacea</i> Sieb. & Zucc.—Fl. Jap. II. Tab. 130-131. 1870.
16	1870	<i>C. pedunculata</i> Sieb. & Zucc.—Fl. Jap. II. Tab. 132. 1870.
17	1873	<i>C. harringtonii</i> (Knight ex Forbes) Koch—Dendr. 2(2): 102. 1873. (“ <i>harringtonia</i> ”)
18	1877	<i>C. coriacea</i> Hort. ex Lavallée—Énum. Arbres 295. 1877.
19	1877	<i>C. foemina</i> Hort. ex Lavallée—Énum. Arbres 295. 1877.
20	1884	<i>C. pedunculata</i> Sieb. & Zucc. var. <i>sphaeralis</i> Masters—in Gard. Chron. n. ser. 21. 113. fig. 23. 1884.
21	1886	<i>C. mannii</i> Hook. f.—Hooker’s Icon. Pl. 16: t. 1523. 1886.
22	1888	<i>C. griffithii</i> Hook. f.—Fl. Brit. India. 5: 648. 1888.
23	1891	<i>C. koraiana</i> Hort. ex Beissn.—Handb. Nadelholzk. 181. 1891.
24	1898	<i>C. oliveri</i> Mast.—Bull. Herb. Boissier vi. 270. 1898.
25	1899	<i>C. fortunei</i> Hook. var. <i>concolor</i> Franch.—Jour. de Bot. 13: 265. 1899. (“ <i>fortuni</i> ”)
26	1900	<i>C. celebica</i> Warb.—Monsunia i. 194. 1900.
27	1901	<i>C. lanceolata</i> Hort. ex Beissner—Mitt. Deutsch. Dendr. Ges. 10: 117. 1901.
28	1903	<i>C. drupacea</i> Sieb. & Zucc. var. <i>Harringtonii</i> (Knight ex Forbes) Miq. apud Pilger—in Engler, Pflanzenr. (Heft 18) IV. 5: 102. 1903. (“ <i>harringtonia</i> ”)
29	1903	<i>C. drupacea</i> Sieb. & Zucc. var. <i>Harringtonii</i> (Knight ex Forb.) Miq. f. <i>sphaeralis</i> (Mast.) Pilger—in Engler, Pflanzenr. (Heft 18) IV. 5: 103. 1903. (“ <i>harringtonia</i> ”)
30	1903	<i>C. argotaenia</i> (Hance) Pilger—in Engler, Pflanzenr. (Heft 18) IV. 5: 104. 1903.

- 31 1907 *Cephalotaxaceae Neger*—Die Nadelhölzer (koniferen) und übrigen gymnospermen. 23. 1907.
- 32 1914 *C. drupacea* Sieb. & Zucc. var. *sinensis* Rehder & Wilson—in Sargent, Pl. Wilson. 2(1): 3. 1914.
- 33 1914 *C. drupacea* Sieb. & Zucc. var. *sinensis* (Rehder & Wilson) f. *globosa* Rehder & Wilson.—in Sargent, Pl. Wilson. 2(1): 3. 1914.
- 34 1914 *C. Harringtonii* (Knight ex Forbes) Koch var. *sphaeralis* (Mast.) Rehder—in Bailey, Standard Cycl. Hort. II. 716. 1914. (“*harringtonia*”)
- 35 1914 *C. wilsoniana* Hayata—Icon. Pl. Formosan. iv. 22. 1914.
- 36 1916 *C. lanceolata* Hort. ex Pilger—Mitt. Deutsch. Dendr. Ges. (25): 23. 1916.
- 37 1916 *C. drupacea* Sieb. & Zucc. var. *sphaeralis* (Mast.) Pilger—Mitt. Deutsch. Dendr. Ges. (25): 22. 1916.
- 38 1919 *C. nana* Nakai—Bot. Mag. (Tokyo) 33: 193. 1919.
- 39 1919 *C. nana* Nakai var. *adstringens* Nakai—Bot. Mag. (Tokyo) 33: 193. 1919.
- 40 1922 *C. drupacea* Sieb. & Zucc. var. *nana* Kudo. nom. nud. (Nihon yuuyou Jumoku Bunshu-gaku). 9. 1922.
- 41 1923 *C. drupacea* Sieb. & Zucc. var. *nana* (Nakai) Rehder—Jour. Arnold Arb. 4: 107. 1923.
- 42 1930 *C. koreana* Nakai—Bot. Mag. (Tokyo). 44: 508. 1930.
- 43 1930 *C. harringtonii* (Knight ex Forbes) Koch var. *drupacea* (Sieb. & Zucc.) Koidzumi—Bot. Mag. Tokyo 44: 98. 1930. (“*harringtonia*”)
- 44 1934 *C. drupacea* Sieb. & Zucc. var. *koreana* (Nakai) Hatus.—Exp. Forest. Kyushu Imp. Univ. 5: 38. 1934.
- 45 1941 *C. harringtonii* (Knight ex Forbes) Koch var. *nana* (Nakai) Rehder—Jour. Arnold Arb. 22: 569. 1941. (“*harringtonia*”)
- 46 1941 *C. harringtonii* (Knight ex Forbes) Koch var. *koreana* (Nakai) Rehder—Jour. Arnold Arb. 22: 569. 1941. (“*harringtonia*”)
- 47 1941 *C. harringtonii* (Knight ex Forbes) Koch var. *sinensis* (Rehd. & Wils.) Rehder—Jour. Arnold Arb. 22: 569. 1941. (“*harringtonia*”)
- 48 1948 *C. fortunei* Hook. var. *longifolia* hort. ex Dallimore and Jackson—Handb. Conif. ed. 3. 42. 1948. (“*fortuni*”)
- 49 1948 *C. fortunei* Hook. var. *brevifolia* hort. ex Dallimore and Jackson—Handb. Conif. ed. 3. 42. 1948. (“*fortuni*”)
- 50 1949 *C. harringtonii* (Knight ex Forbes) Koch f. *fastigiata* (Carr.) Rehd.—Bibliogr. Cult. Trees and Shrubs. 5. 1949. (“*harringtonia*”)
- 51 1953 *C. fortunei* Hook. var. *alpina* H. L. Li—Lloydia 16(3): 164. 1953. (“*fortuni*”)
- 52 1953 *C. hainanensis* H. L. Li—Lloydia 16: 164. 1953.
- 53 1953 *C. sinensis* (Rehder & Wilson) H. L. Li—Lloydia 16: 162. 1953.
- 54 1953 *C. sinensis* (Rehder & Wilson) H. L. Li f. *globosa* (Rehder & Jackson) H. L. Li—Lloydia 16: 163. 1953.
- 55 1964 *C. fortunei* Hook. var. *globosa* S. Y. Hu—Taiwania 10: 28. 1964. (“*fortuni*”)
- 56 1965 *C. harringtonii* (Knight ex Forbes) Koch cv. Fastigiata.—Flora of Japan, 111. 1965.
- 57 1974 *C. harringtonii* (Knight ex Forbes) Koch f. *drupacea* (Sieb. & Zucc.) Kitam.—Acta Phytotax. Geobot. 26(1-2): 9. 1974. (“*harringtonia*”)
- 58 1974 *C. harringtonii* (Knight ex Forbes) Koch var. *wilsoniana* (Hayata) Kitam.—Acta Phytotax. Geobot. 26(1-2): 9. 1974. (“*harringtonia*”)
- 59 1975 *C. lanceolata* K. M. Feng apud W. C. Cheng *et al.*—Acta Phytotax. Sin. 13(4): 86. 1975.
- 60 1975 *C. sinensis* (Rehder & Wilson) H. L. Li var. *latifolia* W. C. Cheng & L. K. Fu.—Acta Phytotax. Sin. 13(4): 86. 1975. [nom. inval.]
- 61 1984 *C. alpina* (Li) L. K. Fu.—Acta Phytotax. Sin. 22(4): 282. 1984.
- 62 1984 *C. latifolia* (Cheng & L. K. Fu) L. K. Fu.—Acta Phytotax. Sin. 22(4): 280. 1984. [nom. inval.]
- 63 1984 *Cephalotaxus* Sieb. & Zucc. sect. *Pectinatae* L. K. Fu.—Acta Phytotax. Sin. 22(4): 279. 1984.
- 64 1984 *Cephalotaxus* Sieb. & Zucc. sect. *Cephalotaxus* L. K. Fu.—Acta Phytotax. Sin. 22 (4): 280. 1984.
- 65 1990 *C. fortunei* Hook. var. *lanceolata* (Feng) Silba—Phytologia 68(1): 27. 1990. (“*fortuni*”)
- 66 1997 *C. sinensis* (Rehder & Wilson) H. L. Li var. *wilsoniana* (Hayata) L. K. Fu & Nan Li—Novon 7(3): 263. 1997.
- 67 1999 *C. latifolia* W. C. Cheng & L. K. Fu ex L. K. Fu & R. R. Mill—Novon 9(2): 185. 1999.
- 68 2000 *C. harringtonii* (Knight ex Forbes) Koch var. *latifolia* (W. C. Cheng & L. K. Fu) Silba—J. Int. Conifer Preserv. Soc. 7(1): 22. 2000. (“*harringtonia*”)
- 69 2000 *C. harringtonii* (Knight ex Forbes) Koch var. *thailandensis* Silba—J. Int. Conifer Preserv. Soc. 7(1): 22. 2000. (“*harringtonia*”)
- 70 2007 *C. fortunei* Hook. subsp. *alpina* (H. L. Li) Silba—J. Int. Conifer Preserv. Soc. 14(1): 4. 2007. (“*fortuni*”)

71	2007	<i>C. harringtonii</i> (Knight ex Forbes) Koch subsp. <i>drupacea</i> (Sieb. & Zucc.) Silba—J. Int. Conifer Preserv. Soc. 14(1): 7. 2007. (“ <i>harringtonia</i> ”)
72	2007	<i>C. harringtonii</i> (Knight ex Forbes) Koch subsp. <i>hokkaidoensis</i> Silba—J. Int. Conifer Preserv. Soc. 14(1): 9. 2007. (“ <i>harringtonia</i> ”)
73	2007	<i>C. harringtonii</i> (Knight ex Forbes) Koch subsp. <i>koreana</i> (Nakai) Silba—J. Int. Conifer Preserv. Soc. 14(1): 8. 2007. (“ <i>harringtonia</i> ”)
74	2007	<i>C. mannii</i> Hook. f. subsp. <i>thailandensis</i> (Silba) Silba—J. Int. Conifer Preserv. Soc. 14(1): 13. 2007.
75	2007	<i>C. sinensis</i> (Rehder & Wilson) H. L. Li subsp. <i>hainanensis</i> (H. L. Li) Silba—J. Int. Conifer Preserv. Soc. 14(1): 17. 2007.
76	2007	<i>C. sinensis</i> (Rehder & Wilson) H. L. Li subsp. <i>latifolia</i> (L. K. Fu & R. R. Mill) Silba—J. Int. Conifer Preserv. Soc. 14(1): 16. 2007.
77	2007	<i>C. sinensis</i> (Rehder & Wilson) H. L. Li subsp. <i>wilsoniana</i> (Hayata) Silba—J. Int. Conifer Preserv. Soc. 14(1): 18. 2007.

In table, the taxa underlined time was higher than ranks of species, and the named authors containing “hort” or “cv” means cultivated origin taxa.

3. The Taxa have been Combined to *Taxus* or *Amentotaxus*

Among all the taxa of *Cephalotaxus* published in the above **Table 1**, *C. argotaenia* (Hance) Pilger (1916) has been combined to *Amentotaxus* (Pilger [40]). *C. tardiva* Sieb. ex Endl. (1847), *C. umbraculifera* Sieb. ex Endl. (1847), *C. sumatrana* Miq. (1856) and *C. celebica* Warb. (1900) have been combined to *Taxus* (Li and Keng [4]; Spjut [59]). They are cited as follow:

***Taxus canadensis* Marshall var. *adpressa* (Hort. ex Carriere) Spjut.** comb. nov. in J. Bot. Res. Inst. Texas 1(1): 203-289. 2007.—*Taxus adpressa* Hort. ex Carriere. in Journ. Hort. Soc. v. 229. 1850—*C. tardiva* Sieb. ex Endl. Syn. Conif. 239. 1847.

***Taxus cuspidata* Siebold & Zucc. var. *umbraculifera* (Siebold ex Endl.) Makino.** in Makino & Nemoto, Cat. Jap. pl. 407. 1914.—*Taxus umbraculifera* (Siebold ex Endl.) C. Lawson. Abietineae—List Pl. Fir Tribe 10: 80. 1851.—*C. umbraculifera* Sieb. ex Endl. Syn. Conif. 239. 1847.

***Taxus sumatrana* (Miq.) de Laub.** Kalikasan, in Philipp. J. Biol. 7: 151. 1978. (Kalikasan, The Philippine Journal of Biology)—*Taxus celebica* (Warb.) Li. Woody Fl. Taiwan. 34. f. 2. 1963.—*C. sumatrana* Miq. Fl. Ned. Ind. ii. 1076. 1856—*C. celebica* Warb. Monsunia i. 194. 1900.

***Amentotaxus argotaenia* (Hance) Pilger.** In Enger, Bot. Jahrb. Syst. 54: 41. 1916.—*C. argotaenia* (Hance) Pilger. Pflanzenr. Taxac. 104. 1903.

4. The Taxa Existing in *Cephalotaxus* Currently

Presently, there is no agreement or monographon *Cephalotaxus* available about how many species *Cephalotaxus* should contain is more appropriate. Except for *C. oliveri* Masters, some controversial problems exist in almost all taxa. This is mainly because the key taxonomic charac-

ters, such as stomatal band whiteness, length and shape of needle, and bark color and so on, are mostly morphological intergrades so that there has some difficulties when we identify individual plants, which chiefly depending on decisions of taxonomist in different countries. Generally thinking, *C. harringtonii* (Knight ex Forbes) Koch., *C. harringtonii* (Knight ex Forbes) Koch var. *nana* (Nakai) Rehder., *C. koreana* Nakai, and *C. harringtonii* (Knight ex Forbes) Koch cv. “Fastigiata” occurs in Japan and South Korea were accepted by taxonomist of Japan and South Korea (Ohwi [1]; KPNI [60]); *C. wilsoniana* Hayata is endemic to Taiwan (Li and Keng [4]); Chinese mainland taxonomist (Fu [3]) argue that *C. mannii* Hook. f., *C. griffithii* Hook. f. and *C. hainanensis* H. L. Li was the same species, and *C. fortunei* Hook. var. *concolor* Franch. (“*fortunei*”) was a synonym of *C. fortunei* Hook., and accepted that *C. fortunei* Hook. (“*fortunei*”), *C. alpina* (Li) L. K. Fu, *C. lanceolata* K. M. Feng apud W. C. Cheng *et al.*, *C. sinensis* (Rehder & Wilson) H. L. Li, *C. latifolia* W. C. Cheng & L. K. Fu ex L. K. Fu & R. R. Mill., *C. mannii* Hook. f., and *C. oliveri* Masters distribute in China; *C. mannii* Hook. f. and *C. griffithii* Hook. f. was considerably grown in India, Burma, Laos, Tailand and Vietnam (Fu [3]; Newman [6]; Thomas *et al.* [7]); Werner [9]; Phengklai [61]. Furthermore, Silba [56] published two taxa, grown in Japan and Tailand, of *C. harringtonii* (Knight ex Forbes) Koch subsp. *hokkaidoensis* Silba and *C. mannii* Hook. f. subsp. *thailandensis* (Silba) Silba; And another two taxa *C. Harringtonii* (Knight ex Forbes) Koch var. *sphaeralis* (Mast.) Rehder (1914) and *C. sinensis* (Rehder & Wilson) H. L. Li f. *globosa* (Rehder & Jackson) H. L. Li (1953) was rarely cited by taxonomist after published. Here these taxa was wrote as follow:

***C. Harringtonii* (Knight ex Forbes) Koch.** Dendr. 2(2): 102. 1873. (“*harringtonia*”) (Harrington’s plum yew, Japanese plum yew, Inugaya)—*Taxus harringtonii*

Knight ex Forbes. Pinet. Woburn. 217. t. 66. 1839.—*C. drupacea* Sieb. & Zucc. Fl. Jap. Fam. Nat. ii. 108. 1842. (or Abh. Akad. Wiss. Münch. IV. Pt. III. 232. 1842.) nom. nod., descr. Sieb. & Zucc. Fl. Jap. II. Tab. 130-131. 1870.—*C. pedunculata* Sieb. & Zucc. Fl. Jap. Fam. Nat. ii. 108. 1842. (or Abh. Akad. Wiss. Münch. IV. Pt. III. 232. 1842.) nom. nod., descr. Sieb. & Zucc. Fl. Jap. II. Tab. 132. 1870.—*C. fortunei* Hook. var. *foemina* Hort. ex Carr. Traité. Conif. 509. 1855. (“*fortuni*”)—*C. drupacea* Sieb. & Zucc. var. β *pedunculata* Miq. Ann. Mus. Bot. Lugduno-Batavi iii. 169. 1867.—*C. coriacea* Hort. ex Lavallée. Énum. Arbres. 295. 1877.—*C. foemina* Hort. ex Lavallée. Énum. Arbres. 295. 1877.—*C. drupacea* Sieb. & Zucc. var. *Harringtonii* (Knight ex Forbes) Miq. in Engler, Pflanzenr. (Heft 18) IV. 5: 102. 1903.—*C. harringtonii* (Knight ex Forbes) var. *drupacea* (Sieb. & Zucc.) Koidzumi. in Bot. Mag. Tokyo 44: 98. 1930.—*C. harringtonii* (Knight ex Forbes) f. *drupacea* (Sieb. & Zucc.) Kitam. in Acta Phytotax. Geobot. 26(1-2): 9. 1974.—*C. harringtonii* (Knight ex Forbes) Koch subsp. *drupacea* (Sieb. & Zucc.) Silba. in J. Int. Conifer Preserv. Soc. 14(1): 7. 2007.

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5. Controversial Problems and Researching Directions

Today, there still exists many debates about binary classification of *Cephalotaxus*. most taxonomist agreed with the view of that *C. drupacea* Sieb. & Zucc. and *C. pendulata* Sieb. & Zucc. was merged into *C. harringtonii* (Knight ex Forbes) Koch (Fu [3]; Rehder [42]); *C. drupacea* Sieb. & Zucc. and *C. harringtonii* (Knight ex Forbes) Koch had considerably been distributed in China (Gordon [28]; Masters *et al.* [31]; Pilger [39]; Hu [51]; Kitamura, [52]); Hu [51] thought that perhaps *C. hainanensis* H. L. Li, *C. griffithii* Hook. f., and *C. harringtonii* (Knight ex Forbes) Koch. was the same taxon; Silba [56] claimed *C. koreana* Nakai was a subspecies of *C. harringtonii* (Knight ex Forbes) K. Koch and there was this plant in Northeast China.

From the above discussions, we can see that although the plum yews was a little genus of conifers, up to now, about 77 taxa have still been published by taxonomist in different areas. Perhaps, which is principally because botanist in different countries or regions seldom communicated with each other in the past owing to information hindrance. However, so many taxa and their indistinct boundaries existed in between majorities of taxa made presently the nomenclature of this genus still particularly confusing. Hence, one must simply dive in and make a first attempt at creating some order out of the chaos. We tend to agree that it is probably proper to treat *C. fortunei* Hook., *C. alpina* (Li) L. K. Fu, *C. lanceolata* K. M. Feng apud W. C. Cheng *et al.*, *C. oliveri* Mast. and *C. koreana* Nakai as the ranks of species, but we think that the following problems are still worthy of studying further:

- 1) Perhaps *C. sinensis* (Rehder & Wilson) H. L. Li and *C. wilsoniana* Hayata was the same taxon.
- 2) Whether or not *C. mannii* Hook. f., *C. griffithii* Hook. f. and *C. hainanensis* H. L. Li were the same species still needs to look for more evidence.
- 3) It seems that *C. latifolia* W. C. Cheng & L. K. Fu ex L. K. Fu & R. R. Mill. distribute in China and *C. harringtonii* (Knight ex Forbes) Koch var. *nana* (Nakai) Rehder grown in Japan and South Korea was the same taxon.
- 4) The relationship between *C. sinensis* (Rehder & Wilson) H. L. Li and *C. harringtonii* (Knight ex Forbes) Koch is also an issue to deserve research.
- 5) The specimen typus of *C. harringtonii* (Knight ex Forbes) Koch occurs currently in Japan and Korea was firstly found on the Penang Range of mountains in Malaysia, however, why does not this plant distribute in China and other areas located in the same continuous floral region with Japan and Korea?
- 6) The taxonomic status of *C. Harringtonii* (Knight ex Forbes) Koch var. *sphaeralis* (Mast.) Rehder and *C. sinensis* (Rehder & Wilson) H. L. Li f. *globosa* (Rehder & Jackson) H. L. Li (1953) is also a problem need to study. According to Li [45], Possibly *C. sinensis* (Rehder & Wilson) H. L. Li f. *globosa* (Rehder & Jackson) H. L. Li may prove to be identical with *C. Harringtonii* (Knight ex Forbes) Koch var. *sphaeralis* (Mast.) Rehder, but no further comment can be made.

- 7) Whether *C. harringtonii* (Knight ex Forbes) Koch subsp. *hokkaidoensis* Silba and *C. mannii* Hook. f. subsp. *thailandensis* (Silba) Silba published by Silba [60] should be treated as a subspecies or should be merged into other taxa also needs to more discuss.

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Appendix: Plant pictures of *Cephalotaxus*.

C. fortunei Hook. ("fortuni")
(from Honghe County, Yunnan, China)



C. lanceolata K. M. Feng apud W. C. Cheng et al.
(from Gongshan County, Yunnan, China)



C. alpina (Li) L. K. Fu.
(from Luquan County, Yunnan, China)



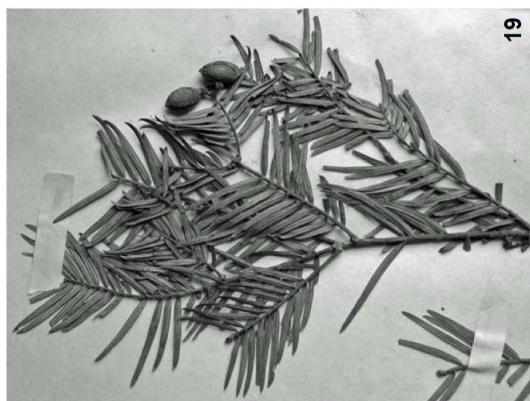
C. fortunei Hook. var. *concolor* Franch
(from Zhenxiong County, Yunnan, China)



C. oliveri Mast.
(from Xinping County, Yunnan, China)



C. sinensis (Rehder & Wilson) H. L. Li.
(from Jingdong County, Yunnan, China)



A part of the holotype of *C. wilsoniana* Hayata
(from Taiwania, 54(1): 22, 2009)



C. wilsoniana Hayata
(from SWFC)



C. harringtonii (Knight ex Forbes) Koch
(from Japan)



C. mannii Hook. f.
(from Mengla County, Yunnan, China)



C. hainanensis H. L. Li.
(from Bawanglin, Hainan, China)



C. hainanensis H. L. Li.
(from XZE)