

Species Datasheet

Datasheet No. G-007.005.006
(family.genus.species)

1.Taxon:

Species: *Pinus densiflora* Siebold&Zucc.

Subspecies:

Variety:

Cultivar:

Hybrid:

Image file

2. Synonyms:*Pinus densiflora* var. *aurea* Mayr, *P. densiflora* f. *aurea* (Mayr) E.H.Wilson, *P. densiflora* var. *aureovariegata-pendula* Mayr, *P. densiflora* f. *brevifolia* (Liou&Q.L.Wang) Kitag., *P. densiflora* var. *brevifolia* Liou&Z.Wang, *P. densiflora* var. *densiflora*, *P. densiflora* var. *funnebris* (Kom.) T.N.Liou&Q.L.Wang ex Silba, *P. densiflora* subsp. *funnebris* (Kom.)Silba, *P. densiflora* var. *funnebris* (Kom.)Liou& Q.L. Wang, *P. densiflora* var. *globosa* Mayr, *P. densiflora* f. *globosa* (Mayr) Beissn., *P. densiflora* f. *liaotungensis* (Liou&Q.L.Wang) Kitag., *P. densiflora* var. *liaotungensis* Liou&Z.Wang, *P. densiflora* f. *nigricorticalis* Q.L.Wang, *P. densiflora* var. *oculus-draconis* Mayr, *P. densiflora* f. *oculus-draconis* (Mayr) Beissn., *P. densiflora* var. *oculus-draconis-pendula* Mayr, *P. densiflora* var. *pendula* Mayr, *P. densiflora* f. *pendula* (Mayr) Beissn., *P. densiflora* f. *sylvestriiformis* Taken., *P. densiflora* var. *sylvestriiformis* (Taken.) Q.L.Wang, *P. densiflora* var. *umbraculifera* Mayr, *P. densiflora* f. *umbraculifera* (Mayr) Beissn., *P. densiflora* var. *zhangwuensis* S.J.Zhang, C.X.Li&X.Y.Yuan, *P. densiflora* subsp. *zhangwuensis* (S.J.Zhang, C.X.Li&X.Y.Yuan) Silba, *P. funnebris* Kom., *P. japonica* Forbes, *P. scopifera* Miq., *P. sylvestris* subsp. *densiflora* (Siebold&Zucc.) Vorosch., *P. sylvestris* var. *sylvestriiformis* (Taken.) W.C.Cheng&C.D.Chu

3.Systematic Position:

Christenhusz et al. (2011)

- Class: Equisetopsida C. Agardh
- Subclass: Pinidae Cronquist
- Order: Pinales Gorozh.
- Family: Pinaceae Spreng.
- Genus: *Pinus* L.
- Species: *P. densiflora* Siebold&Zucc.

Bentham and Hooker (1862)

Kingdom: Plantae
Division: Phanerogamia
Class: Gymnospermeae
Ordo: Coniferae
Tribus: Abietineae Eichler
Genus: *Pinus* L.
Species: *P. densiflora* Siebold&Zucc.

4.Distribution:

Global:Japan, Korean Peninsula, North eastern China, and extreme South east of Russia

India:

5.Indigenous/Exotic/Endemic;Cultivated/Wild:

6.Threat Status:

IUCN:Least concern

BSI:

7.Habit and Habitat:Evergreentree (20-35 m), low mountains and hill sides upto 2500 m.*P.densiflora* occurs in extensive pure stands in many parts of its range and is one of the most dominant conifers in Japan and Korea. It grows in a variety of acidic soils, from dry sandy or rocky sites to peaty soils. In Japan it reaches from near sea level (and close to the shore) up to 2,300 m in the mountains, but on mainland Asia its altitudinal range is more restricted and extends upward to only 900 m a.s.l.

8.LifeForm:Phanerophytes

9.EconomicImportance:It is an important timber tree in North East Asia. The wood is today mainly used in the paper industry. It is also used as an Ornamental.

10. Probable Progenitor of:

11.DNA

C-value

2C (42.96pg) ⁶³

2C (43.60pg) ³²

2C (50.10pg) ⁹⁶

Methodology

Feulgen microdensitometry⁶³

Flow cytometry³²

Flow cytometry⁹⁶

12.Basic chromosome number(s): $x=12$ ^{3, 7, 8, 21, 23,24, 25, 27, 35, 52, 53, 86}

13. Zygotic chromosome number(s): $2n=24$ ^{3, 7, 8, 21, 23, 24, 25, 27, 52, 53, 86}, 48 ⁹⁴

14. Gametic chromosome number(s): $n=12$ ⁹⁷

15.Specialized chromosomes (B chromosomes/Sex chromosomes/Polytene chromosomes/Neocentric chromosomes):

Image file

16.Ploidylevel:Diploid^{3, 7, 8, 21, 23, 24, 25, 27, 52, 53, 86, 97},

Tetraploid (sporadic) ⁹⁴

Image file

17.Agametoploidy:

18.Nature of polyploidy (auto, segmental, allo, autoallo):

19.Genomic formula:

20.Aberrant chromosome number(s)(aneuploidy, aneusomaty, polysomaty):

21.Somatic chromosomes:^{23, 24, 25}

KaryotypeMedian shortest pair submedian^{23, 24, 25, 28}

Chromosome sizeLarge^{23, 24, 25, 28}

NOR chromosome(s)12²³

Degree of asymmetrySymmetrical^{23, 24, 25, 28}

Image file

22. Banding pattern(s):CMA+, DAPI+ bands^{25, 28}, C-bands⁸⁰

Image file

23.Physical mapping of chromosomes:

In situ hybridization

Image file

Fluorescent in situ hybridization:

45SrDNA, 5S rDNA, telomere repeat sequences, centromeric repeat (PCSR) ^{24, 26}, Centromeric Cot-1 DNA clones²⁸, telomere sequence repeat ²⁷

Image file

24.Genomic in situ hybridization:

Image file

25. Linkage map:³⁹

Image file

26.Chromosome associations:

Female meiosis

Male meiosis12II⁹⁷

Image file

27.Chromosome distribution at anaphase I:

28. Genetic diversity:

Chromosomal level

Image file

DNA level

29.Any other information (Apomixis; Inversion; Male sterility;Pollen grain mitosis; Pollen stainability;Translocationsetc.):