

Species Datasheet

Datasheet No. A-076.007.001
(family.genus.species)

DBT- Network Programme

1. Taxon:

Species: *Cocos nucifera* L.

Subspecies

Variety

Cultivar

Hybrid

Commonly known as 'coconut palm'.

Image file

2. **Synonyms:** *Calappa nucifera* (L.) Kuntze, *Cocos indica* Royle, *C. nana* Griff., <http://www.theplantlist.org/tpl1.1/record/kew-331607C>.
nucifera var. *synphyllica* Becc., *Palma cocos* Mill.,

3. Systematic Position:

APG IV (2016)

- Kingdom: Plantae
- Clade: Angiosperm
- Clade: Monocot
- Clade: Commelinids
- Order: Arecales Bromhead
- Family: Areaceae Bercht. & J. Presl
- Subfamily: Arecoideae Burnett
- Genus: *Cocos* L.
- Species: *C. nucifera* L.

Bentham and Hooker (1862)

Kingdom: Plantae
Division: Magnoliophyta
Class: Spermatophyta
Series: Calycinae
Ordo: Palmæ Juss.
Genus: *Cocos* L.
Species: *C. nucifera* L.

4. Distribution:

Global: 1

India: 1

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

6. Threat Status:

IUCN:

BSI:

7. **Habit and Habitat:** Monoecious palm; grows mostly near sea coasts

8. **Life Form:** Phanerophyte

9. **Economic Importance:** Nut is a source of oil. Tender coconut milk is a refreshing drink, toddy is extracted from the inflorescence; apical buds of adult plants are edible. Stem is used in construction purposes.

10. Probable Progenitor of:

11. DNA

C- value

2C (5.59 pg/ 5467 Mbp^{Dolezel et al., 2003/}

2723.73 Mbp per haploid set)¹

2C (5.55 pg)¹

Methodology

Flow cytometry¹

Flow cytometry¹

2C (5.966 pg/ 5.757 Gbp)²

Flow cytometry²

4C (14.19 pg)³

Feulgen microdensitometry³

12. Basic chromosome number(s):

13. Zygotic chromosome number(s): $2n= 32$ ^{3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19}

14. Gametic chromosome number(s): $n= 16$ ^{4, 7, 9, 11}

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

Image file

16. Ploidy level: Diploid^{1, 2, 12, 18, 19}

Image file

17. Agametoploidy

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

19. Genomic formula:

20. Aberrant chromosome number(s) (aneuploidy, aneusomaty, polysomaty): Somatic cells with abnormal chromosomes number $2n= 18$ ⁹; Aneuploid cells with varying chromosome $2n= (18-24)$ ¹⁸; Dividing nuclei in endosperm showing 96, 192 chromosomes in addition to $3n= 48$ ¹²

21. Somatic chromosomes:

Karyotype Majority metacentric to submetacentric chromosomes^{9, 12}; Majority metacentric chromosomes^{10, 19}

Chromosome size Small⁹; Small to medium^{12, 19}

NOR chromosome(s) 2 NOR¹², 4 NOR^{9, 10}

Degree of asymmetry:

Image file

22. Banding pattern(s):

Image file

23. Physical mapping of chromosomes:

In situ hybridization

Image file

Fluorescent in situ hybridization

Image file

24. Genomic in situ hybridization:

Image file

25. Linkage map: Yes^{20, 21, 22}

Image file

26. Chromosome associations:

Female meiosis

Male meiosis 16II^{9, 11}

Image file

27. Chromosome distribution at anaphase I: Regular^{10, 11}; Chromosome mosaic cells, lagging chromosomes at AI and AII¹⁰

28. Genetic diversity:

Chromosomal level

Image file

DNA level ^{23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46}

29. Any other information (Apomixis; Inversion; Male sterility; Pollen grain mitosis; Pollen stainability; Translocations etc): Pollen sterility = (5%, 30%)¹⁰, Ungerminated pollens = 12%⁴⁷