Genus Datasheet

Datasheet No. A-140.001 (Family.Genus)

DBT- Network Programme

1. Genus:*Arachis* L.

Bentham and Hooker
Kingdom: Plantae
Division:Phanerogamia
Class: Dicotyledons
Subclass:Polypetalae
Series: Calyciflorae
Cohors: RosalesBercht. & J. Presl
Ordo: Leguminosae Juss.
Subordo:PapilionaceaeGiseke
Genus: *Arachis*L.

2. Systematic Position:

APG IV

- Kingdom: Plantae
- Clade: Angiosperms
- Clade: Eudicots
- Clade: Rosids
- Order: FabalesBromhead
- Family: Fabaceae Lindl.
- Subfamily: Faboideae Rudd
- Genus: *Arachis* L.

3. Species:

Global: ~ 81

India: *A.hypogaea*cultivated; the remaining taxa in section *Arachis* considered to be primary, secondary and tertiary gene pool resources for *A.hypogaea* grown in experimental stations.

4. Taxonomic riddles: Yes [7, 14, 18, 57,87,106, 120, 122, 124]

5. Distribution:

taxa in South America from northeast Brazil to northwest Argentina, and from the south coast of Uruguay to northwest MatoGrosso south of Amazon, and from the eastern slopes of the Andes to the Atlantic.*A. hypogaea* cultivated in Asia, Africa, Americas

India: *A.hypogaea*cultivated.Wild taxa in section *Arachis*in experimental stations.

6. Habit and Habitat: Herbaceous, annual, biennial or perennial plants; erect, decumbent or procumbent; sometimes rhizomatous or stoloniferous.Grows in throughout Temperate and Tropical regions of the world.

7.Economic Importance:*A.hypogaea*is a major crop for high quality vegetable oil, human food, feedstock and of ground cover value.

8. DNA content range: **Methodology**

2C (2.49 - 5.91 pg)[1, 2,108]Flow cytometry

2C (4.21 -11.82 pg)[3,4,87]Feulgenmicrodensitometry

2C (3.26 - 11.33 pg)[12 ,88]Feulgencytophotodensitometry

9. Basic chromosome number(s):x = 9 [5, 88, 116, 117, 118, 119]

x= 10 [2, 5 - 12, 88, 89, 96, 119]

10. Zygotic chromosome number(s):2n= 18[5, 26 ,28 ,88 ,116 ,117 ,118]

2n=20 [2 ,5,6 ,7,11, 14,15,17,18,19, 20,22,23,26,27,28, 37 , 87,88, 96 ,97,98,101,112 , 113 ,115,116,119,120,121]

2n=40[2 ,5 - 29 , 35 ,87, 88 , 89]

2n= 42 [35]

2n=44 [35]

11. Gametic chromosome number(s):n=10[7, 96,109,112],n=20[7,9,10]

12. Specialized chromosomes (B chromosomes/Sex chromosomes/Polytene Chromosomes/ Neocentric chromosomes):

Tetraploid[2 , 5 ,7, 8,9,10, 11 ,14,18, 19, 20, 22, 23 , 26 – 33 , 87,88, 89]

14. Nature of polyploidy (auto, segmental, allo, autoallo): Allotetraploid[8, 13 ,17 ,19 ,20, 22 , 23,

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

16. Karyograms: [2 ,6, 7, 8, 11, 14, 15, 19, 37, 89, 97 ,100, 101, 106 ,110, 115, 116 ,117, 118, 1

Meiosis:[7,9,10,29,88,96,101,109,112]

17. Banding pattern(s):C - banding[6], DAPI [+]bands [2, 14, 17,19, 100, 106, 120,117], CMA / DAPI bands [121]

18. Physical mapping of chromosomes:[13,14, 19, 100, 106, 117, 120]

GISH:[17, 22, 99]

19.Phylogenetic relationship at:

Chromosomal level[5, 6, 7, 8, 14, 15, 17, 19, 22, 29, 30, 31, 89, 93, 96, 97, 98, 100, 101, 103, 1(
120]

DNA level [18 , 23 , 26, 32 , 33 ,34 , 39 , 44, 46, 48, 51 ,57, 63 ,70 ,102 ,105 ,122 ,123,124 ,125 ,

20. Cytogenetic mechanism (s) underlying evolution: The evolution of genetic complexity in, and divergence between, taxa of the genus *Arachis* in general and taxa in section *Arachis* in particular was accompanied by large scale variation in chromosome number, 2C nuclear

taxa. Polyploidy is not particularly common in genus *Arachis*, although in one case it has been important in the origin and evolution of a distinct allotetraploid species, *A.hypogaea*, in association with characteristics of tremendous economic value.

21. Linkage map:[74 - 86 , 111]

22. Any other information: