

1. Genus:*Goodyera* R.Br.

Bentham and Hooker

Kingdom: Plantae

Division: Phanerogamia

Class: Monocotyledonae

Series: Microspermae

Ordo: Orchideae

Tribus: Neottieae

Subtribus: Spirantheae

Genus: *Goodyera* R.Br.

2. Systematic Position:

APG IV

- Kingdom: Plantae
- Clade: Angiosperms
- Clade: Monocots
- Order: Asparagales Link.
- Family: Orchidaceae Juss.
- Subfamily: Orchidoideae
- Tribe: Cranichideae
- Subtribe: Goodyerinae
- Genus: *Goodyera* R.Br.

3. Species:

Global: 95

India: 16

4. Taxonomic riddles:

5. Distribution:

Global: Alabama, Alaska, Alberta, Altay, Amur, Andaman Is., Arizona, Arkansas, Assam, Austria, Baltic States, Bangladesh, Belarus, Belize, Bismarck Archipelago, Borneo, British Columbia, Bulgaria, Buryatiya, California, Cambodia, Central European Rus, China North-Central, China South-Central,

China Southeast, Chita, Colorado, Connecticut, Costa
Czechoslovakia, Delaware, Denmark, District of Colum
Republic, East European Russia, East Himalaya, El Salvado
Florida, France, Georgia, Germany, Great Britain, Greece, Gu
Haiti, Honduras, Hungary, Idaho, Illinois, India, Indiana, Inner
Iran, Irkutsk, Italy, Japan, Jawa, Kamchatka, Kazakhsta
Kentucky, Khabarovsk, Kirgizstan, Korea, Krasnoyarsk, K
Labrador, Laos, Lesser Sunda Is., Madagascar, Madeira,
Maluku, Manchuria, Manitoba, Maryland, Massachusetts, M
Central, Mexico Gulf, Mexico Northeast, Mexico Nor
Southeast, Mexico Southwest, Michigan, Minnesota, Miss
Montana, Mozambique, Myanmar, Nansei-shoto, Ne
Netherlands, New Brunswick, New Caledonia, New Guinea, l
New Jersey, New Mexico, New York, Newfoundland, Nicarag
North Carolina, North Caucasus, North European Russi, Nor
R, Northwest Territorie, Norway, Nova Scotia, Nunavut, C
Ohio, Oklahoma, Ontario, Oregon, Pakistan, Panamá,
Philippines, Poland, Primorye, Prince Edward I., Qinghai, Quee
Rhode I., Romania, Réunion, Sakhalin, Samoa, Santa Cruz Is
Seychelles, Society Is., Solomon Is., South Carolina, South
European Russi, Spain, Sri Lanka, Sulawesi, Sumatera, Swed
Taiwan, Tennessee, Thailand, Tibet, Tonga, Transcaucasus,
Ukraine, Utah, Vanuatu, Vermont, Vietnam, Virginia, W
Himalaya, West Siberia, West Virginia, Wisconsin, Wyo
Yakutskiya, Yugoslavia, Yukon, Belgium

India: North East India

6. Habit and Habitat: Terrestrial herb

7. Economic Importance: Some species are of medicinal uses.

8. DNA content range:

2C (9.98 pg)²⁸ (Narayan et al 1989)

Methodology

Feulgen microdensitometry²⁸

9. Basic chromosome number(s): x=

15², 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 19, 20, 21, 22, 27, 29, 30, 31, 35, 36, 38, 39, 40, 41, 42, 4

16², 6, 9, 17, 18, 19, 20, 21, 24, 26, 32, 33, 34, 36, 39, 40, 42, 45,

20^{7, 34},

32², 6, 19, 20, 21, 24, 32, 34, 36, 39, 40, 42, 45 , 32+2B^{9, 17, 18, 19, 20, 45}

28-33³⁵, 40^{7, 34}, 44^{23, 39}, 60³⁵

11. Gametic chromosome number(s): n=15^{5, 9, 16, 19, 20, 22, 26, 27, 33, 36, 41, 42, 44, 45}, 15+0-1B²⁶

16^{24, 26, 33, 45} , 16+0-2B^{17, 19, 22^{23, 26, 33}}

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

13. Ploidy level Diploid ^{2,3, 4, 5, 6,7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21,22, 23, 24, 2}
^{30, 31, 32, 33, 34, 35, 36, 38, 39, 40,41, 42, 43, 45}

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

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

16. Karyograms: ^{9, 19, 20}

Meiosis: ^{9, 19, 20, 23, 26, 33, 36, 41, 42}

17. Banding pattern(s):

19. Phylogenetic relationship at Chromosomal; DNA level:

Hu C, Tian H, Li H, Hu A, Xing F, Bhattacharjee A, Hsu T, Kumar P, Chung S 2016 Phylogenetic relationship of jewel orchid genus *Goodyera* (Orchidaceae) Based on DNA sequence data from nuclear and plastid DNA. *PLoS One* 11: e0150366

Alvarez-Molina A, Cameron KM 2009 Phylogeny of Prescottiinae s.l. and their close allies (Orchidaceae: Cranichiclaeae) inferred from plastid and nuclear ribosomal DNA sequences. *American Journal of Botany* 96: 1020-1040.

20. Cytogenetic mechanism (s) underlying evolution:

21. Linkage map:

22. Any other information: