

THE CRADLE OF THE FLOWERING PLANTS

Vijai Malik*

Department of Botany, CCS University, Meerut
 Email: gathwalajai@gmail.com

Received-04.12.2019, Revised-26.12.2019

Abstracts: Angiosperms (Magnoliophyta or Anthophyta), Cycads (Cycadophyta), Conifers (Coniferophyta), Gnetophytes or Gnetales (Gnetophyta) and Ginkgo (Ginkgophyta) are the five major lineages of the extant seed plant. Of these Angiosperms are the most species rich and include more than 13000 genera and 300000 species. The Conifers are second largest group of seed plants with ca. 70 genera and 600 species. The cycads include ca. 9 genera and 129 species. Gnetales include only 3 genera (*Gnetum*, *Ephedra* and *Welwitschia*) with 90 species. There is single species of *Ginkgo biloba*. Caytoniales, Bennettiales, *Pentoxylon*, Corystosperms and Glossopterids, are the extinct lineages of seed plants. These have been proposed as putative relative and possible progenitors of the Angiosperms (Soltis et al., 2005).

Keywords: Angiosperms, Cradle, Flowering plants, Seed

REFERENCES

- Axelrod, D.L.** (1961). How old are the angiosperm? *Science* 259 447-459.
- Axelrod, D.L.** (1952). A theory of angiosperm evolution. *Evolution* 6 29-60.
- Axelrod, D.L.** (1959). Poleward migration of early angiosperm flora. *Science* 130 277-319.
- Brenner, G.L.** (1996). Flowering Plants Origin Evolution and Phylogeny. Chapman and Hill New York.
- Burger, D.** (1990). Early Cretaceous angiosperm from Queensland, Australia. Review of Palaeobotany and Palynology. 65, 153-163.
- Christenhusz, M. J. M., Chase, M. W. and Michael, F. F.** (2017). Plants of the World: An Illustrated Encyclopedia of Vascular Plants. University of Chicago Press.
- Croizat, L.** (1952). Manuals of Phytogeography. The Hague.
- Darwin, C.** (1859). On the Origin of Species by Means of the Natural Selection or Preservation of Favoured Races in the Struggle for Life. 6th ed. John Murray, London.
- Dilcher, D.L., Sun, G., Ji, Q. and Li, H.Q.** (2007). An early angiosperm *Hyracantha decussata* (com. nov.) from northeastern China. Proceedings of the National Academy of Sciences of the United States of America. 104, 9370-9374.
- Dobby, E. H.** (1950). South East Asia London.
- Edwards, W. N.** (1955). The geographical distribution of past floras. *Advmt. Sci., Lond.*, 46, 1-12.
- Friis, E.M., Crane, P.R. and Pedersen, K.R.** (2011). Early flowers and angiosperm evolution. Cambridge: Cambridge University Press.
- Hughes N. F.** (1994). *The Enigma of Angiosperm Origins*. Cambridge Palcobiology Series Volume 1. xii + 303 pp. Cambridge, New York, Port Chester, Melbourne, Sydney: Cambridge University Press.
- Hutchison, J.** (1969). Evolution and Phylogeny of flowering plants (London and Newyork: Academic Press).
- Ji, Q., Li, H., Bowe, L.M., Liu, Y. and Taylor, D.W.** (2004). Early Cretaceous *Archaeofructus eoflora* sp. nov., with bisexual flowers from Beipiao, Western Liaoning, China. *Acta Geologica Sinica*, 78, 883-896.
- Rao, R. R.** (1997). Diversity of Indian Flora. Proc. Indian natn. Sci. Acad. B63 No.3pp 127-138.
- Seward, A.C.** (1926). The Cretaceous plant-bearing rocks of Western Greenland. *Phil Trans Roy Soc London B* 215 57-175.
- Seward, A.C.** (1933). Plant life through the ages. Univ Press Cambridge.
- Scott, R.A. Barghoom and Leopold, E. B.** (1960). How old are the Angiosperms? *Am J Sci A* 258 284-299.
- Soltis, D. E., Soltis, P. S., Endress, P. K. and Chase, M. W.** (2005). Phylogeny and evolution of the angiosperms. Sinauer, Sunderland, Massachusetts, USA.
- Sui, Ge, Dilcher, D.L. Zheng, S.L. and Zhou, Z.K.** (1998). In search of first flower. A Jurassic angiosperm. *Archaeofructus*, from North-East China. *Science* 282 1692-1695.
- Sun, G.** (1998). Eastern Asian centre of angiosperm origin. Proceedings of 1st International Symposium on Geoenvironmental Changes and Biodiversity in NE Asia, Seoul, pp. 245-253.
- Sun, G., Ji, Q., Dilcher, D.L., Zheng, S., Nixon, K.C. and Wang, X.** (2002). Archaeofructaceae, a New Basal Angiosperm Family. *Science*, 296: 899-904.
- Sun, G., Zheng, S.L., Dilcher, D.L., Wang, Y.D. and Mei, S.W.** (2001). Early Angiosperms and Their Associated Plants from Western Liaoning, China. Shanghai Scientific and Technological. Education Publishing House, Shang-hai, 227 pp.
- Takhtajan, A.** (1969). Flowering Plants, Origin and Dispersal. Tr. Jeffery, Edinburgh.

*Corresponding Author

Takhtajan, A. (1987). Flowering Plants, Origin and Dispersal: the cradle of the Angiosperms revisited. pp. 26-31 in Whitmore, T.C. Biogeographical Evolution of the Malay Archipelago. Clarendon Press, Oxford.

Terada, K., Nishida, H. and Sun, G. (2005). 3D models of two species of *Archaeofructus*, one of the earliest angiosperms, reconstructed taking account of

their ecological strategies. Memoir of the Fukui Prefectural Dinosaur Museum 4, 35-44.

Vakhrameev, V.A. (1991). Jurassic and Cretaceous Floras and Climates of the Earth Cambridge Univ. Press London 318 pp.

Vakhrameev, V.A. (1978). The climate of the northern Hemisphere in the Cretaceous in the light of Palaeobotanical data. Palaeontol J 2 3-17.