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## Origin of angiosperms/flowers and its botanical implications

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Angiosperms are the single most important plant group simply because they are of peerless importance in the ecosystem and the well-being of human beings is out of the question without angiosperms. However, incredibly, as for the origin, history and systematics of such an important group, our understanding is very limited or simply misled. Formerly, Magnoliaceae was mistaken as the most ancestral in angiosperms and recently it was replaced by Amborellaceae, although the provenance of the latter is still mysterious. Analyzing the logic underlying these repeated mistakes, it is easy to find that many botanists were misled by a groundless misnomer in botany, megasporophyll. This is more or less related to the famous word from Goethe, "Alles ist Blatt", and the female parts of reproductive were frequently and irrationally called megasporophylls. This background made angiosperms unacceptably well-isolated from other seed plants and the homology of gynoecium in angiosperms persistently perplexing. However, recent advances in botany and palaeobotany indicate that the foliar nature formerly assumed for carpels in angiosperms is gratuitous, the ovules are borne on branches, and the ovule-enclosing part in gynoecium is mainly foliar in nature. Namely, the so-called carpel in angiosperms is a composite organ derived from formerly a leaf and a branch. Although at odds with the classical conception, this interpretation makes the carpels in angiosperms homologous and comparable with bracts and their axillary ovule-bearing branches in gymnosperms. Thus there is no gap between angiosperms and gymnosperms any more. If the ovules in gymnosperms are taken as specialized megasporangia retained on the mother plants and thus homologous with and comparable to sporangia in ferns and early land plants, then all land plants can be coherently united together into a single tree and the long-after natural systematics of angiosperms and land plants is within the reach of botanists.

### Recent Publications

1. Wang X (2018) The dawn angiosperms. Springer. ISBN 978-3-319-58325-9
2. Miao Y, Liu Z J, Wang M and Wang X (2017) Fossil and living cycads say no more megasporophylls. *Journal of Morphology and Anatomy* 1:107.
3. Han G, Liu Z J, Liu X, Mao L, Jacques F M B and Wang X (2016) A whole plant herbaceous angiosperm from the middle Jurassic of China. *Acta Geologica Sinica* 90(1):19-29.
4. Wang X (2010) *Schmeissneria*: An angiosperm from the early Jurassic. *Journal of Systematics and Evolution* 48(5):326-335.
5. Wang X, Liu Z J, Liu W, Zhang X, Guo X, Hu G, Zhang S, Wang Y and Liao W (2015) Breaking the stasis of current plant systematics. *Science & Technology Review* 33:97-105.



Conventional scheme of the automated system for control of river pollution level.

### Biography

Xin Wang is one of the few leading Palaeobotanists focusing his research interest on the origin and early evolution of angiosperms/flowers. His unifying theory for the first time united all land plants together through the shared features in the reproductive organs. His research refuted the long and widely accepted but groundless misinterpretation about the origin and homology of flowers. Through his effort the formerly hard to negotiate gap between angiosperms and gymnosperms is filled, and the evolution of all reproductive organs of land plants can be interpreted as the result of varying fate of sporangium. This achievement, especially in a background where molecular systematics dominates, is of especial importance because morphological anatomical features are largely ignored or down-played.

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