

基部被子植物雪香兰(金粟兰科)单性花的形态发生和发育

崔永坤¹, 徐启江^{1,2*}, 孙永华¹, 孟征^{1*}

¹中国科学院植物研究所信号转导与代谢组学研究中心, 北京 100093

²东北林业大学生命科学学院, 哈尔滨 150040

Characterization of Unisexual Flower Development in the Basal Angiosperm *Hedyosmum orientale* (Chloranthaceae)

Yongkun Cui¹, Qijiang Xu^{1,2*}, Yonghua Sun¹, Zheng Meng^{1*}

¹Center for Signal Transduction and Metabolomics, Institute of Botany, Chinese Academy of Sciences, Beijing 100093, China

²College of Life Science, Northeast Forestry University, Harbin 150040, China

摘要

参考文献

相关文章

Download: [PDF](#) (511KB) [HTML](#) 1KB Export: [BibTeX](#) or [EndNote](#) (RIS) [Supporting Info](#)

摘要 基部被子植物金粟兰科(Chloranthaceae)的单性花或两性花结构十分简单, 雪香兰(*Hedyosmum orientale*)花单性、雌雄异株, 花的形态及结构与其它属物种具有显著的差异, 对于研究被子植物花特别是花被的起源和系统进化具有重要意义。该研究采用电子显微镜和光学显微镜观察了雪香兰单性花的器官发生及发育过程。结果表明, 雌、雄花均为顶生和腋生, 多个小花呈聚伞圆锥状排列。雄花外侧是苞片, 每朵雄花上着生150-200个雄蕊, 花轴基部着生少数退化的叶原体。苞片原基及其腋生的花原基最初呈圆丘状, 随后伸长。在雄花发育过程中, 苞片原基比雄蕊原基生长快, 雄花原基纵向伸长, 叶原体原基在基部发生, 雄蕊原基自下而上发生。每2朵雌花底部合生形成小聚伞花序, 每朵雌花被一苞叶包裹, 由单心皮和三棱型子房构成, 外覆三裂叶状花被。在雌花发育过程中, 雌花原基比苞片原基生长快, 花被原基首先于花顶端发生, 随后花顶端中心凹陷, 进一步发育成具有单心皮的子房原基。雪香兰的单性花发育不经过两性同体阶段, 花分生组织只起始雄蕊器官或雌蕊器官的发育。研究结果支持雪香兰单性花是原始性状的观点, 雄花叶原体与雌花三裂叶状花被同源, 可能是花被(萼片与花瓣)的起源。

关键词: 金粟兰科 花器官发生 雪香兰 单性花

Abstract: Chloranthaceae are a family of basal angiosperms with very simple unisexual or bisexual flowers. *Hedyosmum orientale* Merr. et Chun is a dioecious species with unisexual flowers. The floral morphology and structure of *H. orientale* conspicuously differ from that of other species and are important in the study of floral origin and phylogeny, especially of the perianth, in angiosperms. We investigated the organogenic processes and anatomical characters related to unisexual flower development in *H. orientale* Merr. et Chun by scanning electron and light microscopy. Male and female flowers are in the axil of bracts and are usually formed in a thyrse. The staminate flower is subtended by two leaf-like bracts. 150 - 200 stamens spirally arranged along the spike axis and the phyllome are located at the base of the spike axis. The bract primordium with its axillant flower primordia is dome-shaped in the beginning and then elongates. The bract primordium grows faster than the floral primordium during male flower development. The male floral primordium expands longitudinally and the phyllome primordia are established around the base. Stamen primordia are formed and further develop at the axis from bottom to top. Two female flowers, composed of trifold perianth and inferior ovary, cluster into a cymule with the adjacent floral bracts. The floral primordium grows faster than the bract primordium during the female floral development process. Three perianth primordia are initiated along the sides of the trilateral floral apex. Simultaneously, a concave floral apex appears, which differentiates into an ovary primordium. The floral development of *H. orientale* Merr. et Chun is unisexual from inception. The floral meristem initiates only androecial or gynoecial organs and does not go through a hermaphroditic stage. Our studies support the view that the flower of *H. orientale* Merr. et Chun is a primitive character. The trifold perianth of the female flower is homologous to the phyllomes at the bottom of the male flower. They may be the origin of the perianth (sepal and petal).

Keywords: Chloranthaceae floral organogenesis *Hedyosmum orientale* unisexual flower

Received 2011-04-20; published 2011-09-01

Corresponding Authors: 徐启江 Email: qijiangxu@ibcas.ac.cn

引用本文:

崔永坤, 徐启江, 孙永华等. 基部被子植物雪香兰(金粟兰科)单性花的形态发生和发育[J] 植物学报, 2011, V46(5): 489-497

Yongkun Cui, Qijiang Xu, Yonghua Sun etc. Characterization of Unisexual Flower Development in the Basal Angiosperm *Hedyosmum orientale* (Chloranthaceae)[J], 2011, V46(5): 489-497

Service

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [Email Alert](#)
- ▶ [RSS](#)

作者相关文章

- ▶ [崔永坤](#)
- ▶ [徐启江](#)
- ▶ [孟征](#)

链接本文:

<http://www.chinbullbotany.com//CN/10.3724/SP.J.1259.2011.00489>

或

<http://www.chinbullbotany.com//CN/Y2011/V46/I5/489>

Copyright 2010 by 植物学报