

# 山桐子雌雄及两性花分化的形态学研究

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**摘要:** 【目的】对山桐子雌、雄及两性花发育过程进行外部形态和内部微观构造进行观察和分析, 为丰富山桐子成花基础理论和人工调控山桐子的开花结实等提供依据。【方法】在山桐子雌、雄及两性花发育过程期间, 观察并拍照记录雌、雄花芽和雌、雄以及两性花的花序和小花的外部形态变化; 采用普通石蜡切片技术对雌、雄以及两性花的内部组织进行观察分析。【结果】1) 山桐子 3 种不同性别的花在花器官发育初期都有雌蕊和雄蕊, 三者发育初期都处于“两性花”时期, 但是在“两性花”时期之后, 雄花和雌花中的异性性器官(雌蕊或雄蕊)会发生败育, 并最终形成单性的雄花和雌花, 两性花的雌、雄蕊均能正常生长发育。2) 雌、雄花属于□型单性花, 雄花的子房在发育形成胚珠原基后开始停止发育并退化, 属于□型单性花不育的阶段 1; 雌花的雄蕊在四分体阶段前停止发育, 即□型单性花不育的阶段 2。3) 雌花和雄花的萼片绝大多数为 4-6 片, 3 者总和在雌、雄花中的比例分别为 98%、97%, 雌、雄花的萼片均以 5 片最多, 其在雌、雄花中的比例分别为 54%、53%。4) 雌、雄株的 4 个不同开花位置: 长枝顶芽、长枝侧芽、短枝顶芽、短枝侧芽的开花比例均以短枝顶芽最多, 雌、雄株中短枝顶芽开花比例分别为 68.6%、76.3%。【结论】山桐子花芽分化始于 7 月下旬, 3 种不同性别的花在分化初期内部组织结构相同, 在雌、雄蕊分化期开始出现差异, 两性花和雄花的外部形态较为相似, 其雌、雄蕊正常分化发育并能结实。

**关键词:** 山桐子; 两性花; □型单性花; 花芽分化; 形态学

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## A Study on Floral Organ Morphogenesis in Male, Female and Hermaphroditic Flowers of *Idesia Polycarpa*

**Abstract:** 【Objective】Combing with the observed inner microscopic structure and morphological characteristics of male, female and hermaphroditic flowers in *Idesia Polycarpa*, the different floral parts of them were analyzed, which provided theoretical basis for increases fruit number, and the mechanism of sex determination in *I. Polycarpa*.

【Method】During the inflorescence and floret stage of the female, male and hermaphrodite flowers, the external morphology of these flowers were observed and photographed; technology of routine paraffin section was adopted to observe the internal structure of these flowers. 【Result】1, comparing their morphologic and anatomical characteristics, carpel and stamens were all found in the early stage of floral organ development of female, male and hermaphrodite flowers, all of them were in the “bisexual stage”, but after the “bisexual stage”, the heterosexual organs (carpel or stamens) were into the abortion stage of male and female flowers respectively, but the hermaphrodite flowers with functional stamens and carpel. 2, the female and male flowers of *I. Polycarpa* Maxim are type I flower, the ovules abortion of male flowers occurs at its early development stage, i.e. stage 1 of organ abortion; the stamens abortion of female flowers occurs before the tetrad formation, i.e. stage 2 of organ

abortion. 3, the number of sepals were mostly 4-6 pieces, the total proportion of the three sex types was 98% and 97% in the female and male flowers, the most numerous sepals were 5 pieces among the three sepals both in female and male flowers, with the proportion 54% and 53%, respectively. 4, the highest floral bud differentiation position was short branch terminal bud among long branch terminal bud, long branch lateral bud, short branch terminal bud, and short branch lateral bud, both in female and male plants, and the proportion was 68.6% and 76.3%, respectively.

**【Conclusion】**The flower initiation began in late July, the three different sexes had the same internal tissue structure at the initial differentiation period, but differences began to appear in the differentiation stage of the gynoecium and androecium, the morphology of bisexual and male flowers were similar, the stamens and pistils of bisexual flowers could development normally and bear fruits.

**Key words:** *I. Polycarpa*; hermaphrodite flower; Type I flowers; flower bud differentiation; morphology