

Floral meristem size and organ number correlation in *Eucryphia* (Cunoniaceae)

Bull-Hereñu, K., de Craene, L. R., & Pérez, F. (2018). Floral meristem size and organ number correlation in *Eucryphia* (Cunoniaceae). *Journal of plant research*, 131(3), 429-441. <<https://doi.org/10.1007/s10265-018-1030-0>> [4 de junio de 2020]

Abstract

We present a comparative flower ontogenetic study in five species of the genus *Eucryphia* with the aim of testing whether differences in the organ number observed can be explained by changes in the meristematic size of floral meristem and floral organs. Species native to Oceania, viz. *E. milliganii*, *E. lucida* and *E. moorei*, have the smallest gynoecea with ca. 6 carpels, while the Chilean *E. glutinosa* and *E. cordifolia* present more than ten carpels. *E. milliganii* has the smallest flower with the lowest stamen number (ca. 50), while the other species produce around 200 stamens and more. Standardized measurements of meristematic sectors were taken in 49 developing flowers that were classified into three well-defined ontogenetic stages. Sizes of meristems varied significantly among species within each developmental stage as revealed by ANOVA analyses. Significant regressions between organ number and corresponding meristem size were consistent with the premise that a larger meristem size prior to organ initiation could be determining for a higher organ number. Flower organogenesis in *Eucryphia* also involves relevant meristem expansion while the organs are initiated, which results in a particular androecium patterning with a chaotic stamen arrangement. Meristem expansion also appears to be slower but more extensive in species with larger initial meristematic size, suggesting that flower phenotype can be determined in ontogeny by this heterochronic interplay of space and time.

Keywords

Flower development, Androecium, Polyandry, Polycarpellate gynoeceum, Meristem size, Meristem expansión, Cunoniaceae.