

Sexual competition and kin recognition co-shape traits of neighboring dioecious seedlings

Yulin He¹, han xu², Hanlun Liu¹, Meiling Luo¹, Chengjin Chu¹, and suqin fang¹

¹Sun Yat-Sen University

²Chinese Academy of Forestry

September 1, 2020

Abstract

Plants respond differently to neighbor identity showing plasticity in traits. However, solid experiment evidence on the functional traits of dioecious trees shaped by the recognition of neighbors with different gender and kinship is scarce. Here we examined the sexual and kinship interactions in a dioecious tree species, *Diospyros morrisiana*, by monoculturing and pair-culturing seedlings in a transparent gel system. Our results showed that sex-specific competition and kin recognition interacted and co-shaped the functional traits of *D. morrisiana* seedlings, especially root traits, while intra-sexual and non-kin neighbors facilitated the growth of seedlings. This implies kin- and gender-interactions depend on different mechanisms, kin selection and niche partitioning respectively, which is critical to understand how species coexist and traits are shaped in the nature.

Hosted file

manuscript V1HYL 20200831.pdf available at <https://authorea.com/users/355441/articles/478666-sexual-competition-and-kin-recognition-co-shape-traits-of-neighboring-dioecious-seedlings>