

Pollinator shifts, contingent evolution, and evolutionary constraint drive floral disparity in *Salvia*(Lamiaceae): Evidence from morphometrics and phylogenetic comparative methods

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Description :

Switches in pollinators have been argued to be key drivers of floral evolution in angiosperms. However, few studies have tested the relationship between floral shape evolution and switches in pollination in large clades. In concert with a dated phylogeny, we present a morphometric analysis of corolla, anther connective, and style shape across 44% of nearly 1,000 species of *Salvia* (Lamiaceae) and test four hypotheses of floral evolution. We demonstrate that floral morphospace of New World (NW) *Salvia* is largely distinct from that of Old World (OW) *Salvia* and that these differences are pollinator driven; that shifts in floral morphology sometimes mirror shifts in pollinators; that anther connectives (key constituents of the *Salvia* staminal lever) and styles co- evolved from curved to linear shapes following shifts from bee to bird pollination; and that morphological differences between NW and OW bee flowers are partly the ...

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