

Development of keeled flowers

25 March 2011



More information: Bello M.A., et al. (2010). Floral ontogeny in Polygalaceae and its bearing on the origin of keeled flowers in Fabales. *International Journal of Plant Sciences* 171: 482 - 498.

Provided by Royal Botanic Gardens, Kew

Scanning electron micrographs of dissected floral buds of *Polygala violacea* (left) and *P. gomesiana* (right)
Credit: M. Angélica Bello Gutierrez

A study using scanning electron microscopy has revealed that the keeled petals of Leguminosae and Polygalaceae are fundamentally different.

In keeled [flowers](#), one of the petals (or two fused petals) forms a complex hooded structure that encloses the [reproductive organs](#). The keel can facilitate pollen presentation in cases where pollen is deposited on it.

Keeled flowers are highly characteristic of some Leguminosae and Polygalaceae, two of the four families that comprise the rosoid eudicot order Fabales. Research on floral development at Kew and Reading University, conducted by former Kew PhD student Angélica Bello, shows that the characteristic crest that occurs on the keel of some Polygalaceae develops relatively late in floral ontogeny.

Despite some ontogenetic similarities, the morphologies of the two types of keeled flowers are fundamentally different, suggesting a functional convergence between these two closely related families.

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