PERIANTH EVOLUTION IN RANUNCULACEAE: ARE PETALS ANCESTRAL IN THE FAMILY?

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Progress has been made recently towards the elucidation of phylogenetic relationships among subfamilies and tribes of the Ranunculaceae – the most recent hypothesis was published in 2016 by our team. Although relationships among the 10 tribes of the subfamily Ranunculoideae remain incompletely supported, this hypothesis provides an interesting framework to address the key issue of the ancestral vs. derived nature of a differentiated perianth within the family, and at the level of Ranunculales as a whole. Here, we present ancestral state reconstructions for several perianth characters, such as differentiation into sepals and petals, shape of petals, presence/absence of nectaries, and petaloid or sepaloid aspect of sepals. Characters were scored using the PROTEUS database and optimized on the most recent phylogeny of Ranunculaceae using parsimony and maximum likelihood methods. The results are discussed with regard to recent evo-devo studies focused on identifying genes involved in floral organs identity (the so-called ABC model) in Ranunculales.