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POLLINATOR-MEDIATED SELECTION ON NECTARY DEPTH IN *UROPHYSA* (RANUNCULACEAE)

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Pollinator-mediated selection has been considered to be one of major factors that shapes the evolution of flowers by matching flowers to their pollinators on traits associated with attraction of pollinators or mechanical fit. The match between nectary depth, which means the length of the tubular structure formed in many plant species to hide the nectary and store nectar, and the mouthparts length of its major nectar-foraging pollinators has been repeatedly demonstrated as an example, because this trait have shown a positive relationship with pollen removal and deposition in experimental manipulations in many synpetalous plants and orchid family. However, it remains unclear how pollinator-mediated selection affects the evolution of nectary depth in choripetalous and actinomorphic flowers, such as most flowers in Ranunculaceae. Here we investigated floral characteristics and pollinators in *Urophysa rockii* Ulbr. and *U. henryi* (Oliv.) Ulbr., as they are quite the same in habitat, anthesis and morphological characteristics except for nectary depth. Both of these species have flat white sepals and yellow petals each has a spatial structure at the base that contains nectar, but the nectary depth of *U. rockii* is deeper than that of *U. henryi*, for the former petals are shortly spurred about 3-4mm in length while the latter are saccate. Meanwhile, the flowers of both species are most frequently visited by *Apis cerana*, the Chinese honey bee, and one or two species of hover fly, Syrphidae, but only *A. cerana* was able to forage nectar in *U. rockii* while all visitors can forage nectar in *U. henryi*. *A. cerana* always lands on the center of a flower and projects its proboscis into each petal when its thorax touches anthers and stigmas. The difference between two species is that *U. rockii* was visited by *A. cerana* with a higher frequency, longer visiting time per flower and more activities on flowers than *U. henryi*. Besides, the petal width and its nectary depth of *U. rockii* closely match the width of the labrum and the effective mouthparts length of *A. cerana*, respectively. Therefore, we concluded that pollinator-mediated selection played a vital role in the evolution of nectary depth in *Urophysa*, with deeper nectaries favoured through reproductive fitness, because this trait affects flower-pollinator interaction and therefore pollen deposition. We also detected deeper nectaries favoured because this trait also affects nectar accumulation as well as deeper nectaries can prevent inefficiency visitors from foraging nectar effectively.