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WHEN FLOWERS BLEED TO CHEAT – DECEPTIVE POLLINATION STRATEGIES IN SOUTH AFRICAN *Ceropegia* (APOCYNACEAE)

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ABSTRACT

The intriguing flowers in *Ceropegia* fascinate growers and botanists globally for their outstanding floral diversity and complexity including kettle-trap and non-trap flowers. Understanding the evolution and diversification of flowers in this group requires detailed insight into pollinator specificity, identification of cues for pollinator attraction, and presence of rewards. Emerging evidence suggests that multiple shifts between the two distinct flower types gave rise to diverse mimicry strategies, driven by a single, albeit functionally diverse pollinator group – flies.

Previously, studies have focussed on deceptive species with kettle-trap flowers in which floral chemistry plays a key role in attracting pollinators and mediating pollinator specificity. Many kettle-trap flowered species are pollinated by kleptoparasitic flies which suck blood from wounded or dead insects caught by predatory arthropods. The flies locate these food sources via volatiles released by the insects when attacked or wounded. Some kettle-trap flowers use these volatiles to lure kleptoparasitic flies into their rewardless flowers.

The remarkable strategy of kleptomyiophily seems widespread among *Ceropegia* kettle-trap flowers but was not known from non-trapping species (*Brachystelma* and the stapeliads) which generally use different strategies (carrion/dung mimicry) and attract different flies. We present the first case of kleptomyiophily in a non-trapping *Ceropegia* species and reveal a novel aspect of this strategy: secretion of fake haemolymph (protein and sugar containing liquid) from the corolla lobes. In deceptive kettle-trap flowers, prolonged physical confinement of pollinators promotes pollination; our novel findings suggest that in non-trapping flowers, rewards retain fly-pollinators on the flowers, replacing the function of the trap.