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Colour and shape preferences of *Apis cerana* (Java genotype) in Australia

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Abstract

The biology of *Apis cerana* F., the Asian honey bee, is far less known than that of its sister species *Apis mellifera* L. The arrival of *A. cerana* in North Queensland has prompted the need to better understand the ecology and biology of this species in an invasive context. We evaluated the colour, shape and spontaneous landing preferences of free flying *A. cerana* using artificial shape of equal surface. *A. cerana* displayed a stable and marked preference toward yellow regardless of the season (wet or dry). However, for other colours, different preference patterns were observed depending on the season suggesting a learned preference. Bees had a strong preference for star shaped U.V. nectar guides regardless of the season. Conversely to *A. mellifera*, *A. cerana* appeared to minimise the perimeter surface ratio in its landing choice choosing circular over jagged surfaces. However, when tested using polygons and circle of same area and thus very similar perimeters the choice pattern showed no minimisation of perimeter/surface ratio. Surprisingly, bees had a clear preference towards odd number apex shapes and 3/4 of landings occurring on the heptagon, despite the rarity of such 7-lobed flowers in nature.

Key words: Asian honey bee, *Tetragonula* sp., bilateral symmetry, radial symmetry, flower traits.

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