

The behavior, developmental rate and life span of the queens and workers heterozygous for vestigial wing were not examined. However, the weight gains of the colonies were recorded. The results showed that there were no differences in average weight gain between the wild type homozygous and heterozygous colonies. Therefore, the clear heterosis of the heterozygous for vestigial wing was not demonstrated. Thus, recessive vestigial wing allele cannot be maintained in the honey bee population. The vestigial wing allele in the Queen Meilin may be a new mutation occurred in one of the gametes which developed into Queen Meilin.

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蜜蜂之隱性短翅對偶基因如何在天擇過程中被保留下來

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摘 要

在蜜蜂 (*Apis mellifera* L.) 之蜂巢中，短期的雄蜂是無法飛翔的，由遺傳學上的實驗發現，短翅的特性是由隱性的基因所控制。

此實驗的目的，即研究這短翅的隱性基因如何在天擇的過程中，被保留下來。通常一對隱性致死的基因，在天擇的過程中，是很快的會被淘汰掉，除非是基因結合子 (heterozygote) 之選擇益處 (selective advantage) 要大於 (>1.0) 野生型之同基因結合子 (homozygote)。理論上，在異基因結合子上的基因，不管它有多大的天擇益處 (selective advantage)，它的出現頻率是不會大於 0.5。在觀察各蜂巢的過程中，由蜂巢之平均重量所得，並沒有明顯的顯示出雜交優勢 (heterosis) 的現象。