

# 生物策略表

類別	生物策略 (Strategy)
生物策略 STRATEGY	花朵增強花粉的運輸 (Flowers increase pollen transfer)
生物系統 LIVING SYSTEM	蜂蘭屬 <i>Ophrys</i> (Wasp orchid)
功能類別 FUNCTIONS	#分配固體 #傳遞化學訊號 (氣味、味道等) #傳遞光訊號 (可見光譜) #Distribute solids #Send chemical signals (odor, signals, etc.) #Send light signals in the visible spectrum)
作用機制標題	某些蘭花的花朵因視覺外觀或氣味擬態成雌性昆蟲，而增加花粉運輸的效率 (The flowers of some orchids increase efficiency of pollen transfer because they look or smell like female insects.)
生物系統/作用機制 示意圖	
作用機制摘要說明 (SUMMARY OF FUNCTIONING MECHANISMS)	
文獻引用 (REFERENCES)	
<p>「當大部分開花植物都以美味的花蜜獎勵傳粉者，很多蘭花物種卻是詭計多端。某些蘭花會使用所謂的食物欺騙行為 (food deception)。它們長出的花朵看起來或聞起來像是會提供食物，但卻沒任何可以食用的獎賞。另一些蘭花則使用性欺騙行為 (sexual deception)，它們長出的花朵看來或聞起來就像是雌性的蜜蜂或黃蜂類昆蟲。雄性昆蟲會被這些性感的花朵所吸引，並嘗試與其交配。如此一來，牠們偶爾會以身體帶走花粉，當再次被欺騙拜訪另一朵蘭花時完成授粉。」</p> <p>「…[研究人員] 發現使用性欺騙行為的蘭花族群比起擁有多種傳粉者的物種有較高的「花粉運輸效率」(pollen transport efficiency)。換句話說，在性欺騙行為的蘭花中有較高比例的花粉被帶走並到達另一朵相同物種的蘭花上。擁有多種傳粉者的蘭花雖有更多的花粉從花朵上被帶走，但大多數被帶走的花粉都丟失了，可能掉落到地上或是放置在錯誤物種的蘭花上。(Science Daily 2009)</p> <p>“While most flowering plants reward pollinators with tasty nectar, many orchid species turn to trickery. Some use what's called food deception. They produce flowers that look or smell like they offer food, but offer no edible reward. Other orchids use sexual deception. They</p>	

produce flowers that look or smell like female insects, usually bees or wasps. Males are drawn to the sexy flowers and attempt to mate with it. In doing so, they accidentally collect pollen on their bodies, which fertilizes the next orchid they visit.”

“...[Researchers] found that populations of sexually deceptive orchids had higher 'pollen transport efficiency' than the species with multiple pollinators. In other words, a higher percentage of the pollen that was taken from sexually deceptive orchids actually made it to another orchid of the same species. The orchids with multiple pollinators had more pollen taken from their flowers, but more of that pollen was lost -- dropped to the ground or deposited in flowers of the wrong species.” (Science Daily 2009)

#### 參考文獻清單與連結 (REFERENCE LIST)

Scopece, G., S. Cozzolino, S. D. Johnson, and F. P. Schiestl. (2009). Pollination efficiency and the evolution of specialized deceptive pollination systems. *The American Naturalist* 175: 98-105.

(<https://www.researchgate.net/deref/http%3A%2F%2Fdx.doi.org%2F10.1086%2F648555>)

Science Daily. (28 December, 2009). Orchids' sexual trickery explained: leads to more efficient pollinating system. *Science Daily*. Retrieved from:

<https://www.sciencedaily.com/releases/2009/12/091217183442.htm>

#### 延伸閱讀

#### 生物系統延伸資訊連結 (LEARN MORE ABOUT THE LIVING SYSTEM/S)

[https://en.wikipedia.org/wiki/ophrys\\_insectifera](https://en.wikipedia.org/wiki/ophrys_insectifera)

[https://www.onezoom.org/life/@ophrys\\_insectifera](https://www.onezoom.org/life/@ophrys_insectifera)

<https://eol.org/pages/1136554>

#### 撰寫/翻譯/編修者與日期

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#### AskNature 原文連結

<https://asknature.org/strategy/flowers-increase-pollen-transfer/>