

生物策略表

類別	生物策略 (Strategy)	
生物策略 STRATEGY	蠟質外層保護免受熱力及乾旱危害 (Waxy coating protects from heat and drought)	
生物系統 LIVING SYSTEM	大戟屬 <i>Euphorbia</i> (Spurge)	
功能類別 FUNCTIONS	#保護免受液體流失危害 #保護免受溫度危害 #Protect from loss of liquids #Protect from temperature	
作用機制標題	大戟屬植物的莖幹透過堅硬的蠟質表面保護其免受熱力及乾旱危害 (The stems of euphorbias protect from heat and drought via their hard waxy surface.)	
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>「當任何非植物學家周圍的地上生長著許多肥大、多刺而缺乏葉片的植物時，他們可能會毫不猶豫地稱它們為仙人掌，甚至還會對自己的專業程度有一點自豪，但即使叫錯了，他們也會被原諒的。只有當這些植物開花的時候，你才可能會懷疑它們不是仙人掌。然後，植物學家會發現這些植物的花瓣和雄蕊的數量都與仙人掌有很大的差別。它們是大戟屬 (<i>Euphorbia</i>) 植物，大戟科是開花植物中最大的科之一，物種數超過七千。在歐洲，最普遍的代表性物種是宿根山黧 (dog's mercury) 以及大戟 (spurge)。在南美洲，這些大戟屬植物可以長成喬木和灌木，其中包含橡膠樹 (rubber tree) 與木薯 (manioc plant)。在非洲森林中，成員包括了蓖麻 (castor oil bush)。而在非洲沙漠中，它們的外觀則變得像仙人掌…事實上，仙人掌科只分佈在美洲，從加拿大到智利生長著數百個不同的物種。這兩個科的成員會長得與對方如此相似，是因為類似的炎熱乾旱環境刺激它們作出相同的物理性反應。這兩類植物都在生長早期捨棄了它們的葉片，因為無可避免的，葉片會失去大量的水分，它們的莖因為具有葉綠素而呈現綠色，而光合作用都在位於堅硬蠟質下的莖幹表面進行。它們都會將水分儲存在膨大的柱狀莖幹之中。而它們都在莖幹上武裝有銳利的尖刺，以保護自己儲存的水分不被搶走。」 (Attenborough 1995: 272-275)</p> <p>“On the ground around them grow numerous fat, spiny leafless plants that any non-botanist</p>		

could be forgiven for calling — without and even perhaps a certain amount of pride in his expertise — cacti. Only if they are in flower might you suspect that they are not. Then a botanist would notice that the numbers of petals and anthers are quite different from those of cacti. These are euphorbias, members of one of the largest of all families of flowering plants with over seven thousand species. In Europe, its common representatives are dog's mercury and spurge. In South America, euphorbias grow into trees and shrubs, among them the rubber tree and the manioc plant. In African forests, its members include the castor oil bush. And in African deserts they become cacti look-alikes...The cactus family is, in fact, exclusively American, with hundreds of different species growing in deserts from Canada to Chile. The reason that members of these two families resemble one another so closely is that similar conditions of heat and drought have stimulated the same physical response. Both abandon their leaves at an early stage, since these inevitably lose a great deal of water, and both carry out their photosynthesis under the hard waxy surface of their stems which are green with chlorophyll. Both store water in a bloated pillar-like trunk. And both defend that water from robbers by armouring their trunks with sharp spines.” (Attenborough 1995: 272-275)

參考文獻清單與連結 (REFERENCE LIST)

Attenborough, D. (1995). *The private life of plants*. Princeton University Press.

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/euphorbia>
<https://www.onezoom.org/life/@euphorbia>
<https://eol.org/pages/66083>

撰寫/翻譯/編修者與日期

譚國銓翻譯 (2021/03/22)；洪麗分編修 (2021/04/10)

AskNature 原文連結

<https://asknature.org/strategy/waxy-coating-protects-from-heat-and-drought/>