


生物策略表

類別	生物策略 (Strategy)
生物策略 STRATEGY	乾枯的枝條散播種子 (Dead branches release seeds)
生物系統 LIVING SYSTEM	含生草/耶利哥薔薇 <i>Anastatica hierochuntica</i> (Jericho rose)
功能類別 FUNCTIONS	#散佈種子 #分配固體 #Disperse seeds #Distribute solids
作用機制標題	含生草/耶利哥薔薇的乾枯枝條透過濕裂運動改變細胞的膨脹及萎縮來散播種子 (Dead branches of the Jericho rose disperse seeds by alternating swelling and shrinkage of cells by a hygrochastic movement.)
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>濕裂 (hygrochasy) 是最有效的雨水散播機制 (ombrohydrochoric mechanisms) 之一，限制種子只能在下雨時散播…濕裂對於沙漠物種的好處，包括避免受到掠食者危害、分散傳播及發芽的風險長達數年、調控發芽的時機，以及讓種子保存於適合的地方…對於含生草 (<i>Anastatica hierochuntica</i>) 來說，保留在乾燥骨架中的種子，能受到乾枯植株上包圍果序 (infructescences, 帶果實的枝條) 的卷曲枝條保護。濕裂作用導致乾枯枝條解開盤繞，隨後雨水的力量讓果瓣打開以釋放種子，完成種子的散播。(Ahmad 2006: 47)</p> <p>枝條上側較薄的皮層 (cortical layer)，在降低造成老化後第一次骨架卷曲的阻力上發揮有限的作用，但在隨後數年間重複卷曲及解開的現象中，會因為樹皮脫落 (decortication) 而喪失作用。枝條下側較厚的輸導組織層，因為具有高密度較寬的木質導管，在骨架打開過程 (解開盤繞) 中發揮更有效的作用，因為它們可以容許快速的水分運送，隨後這些水分透過側壁壁孔擴散到枝條上側的輸導組織中。枝條上側較薄的輸導組織層則在骨架收合過程 (卷曲) 中發揮較有效的作用，該處的木質導管數量少、管徑狹窄而且局限在輸導組織周邊靠近髓的位置。(Ahmad 2006: 54)</p>	

“Hygrochasy is one of the most efficient dispersal ombrohydrochoric mechanisms restricting seed dispersal to rain events...The advantages of hygrochasy for desert species, including protection from predators, spreading the risk of dispersal and germination over several years, regulating the timing of germination and deposition of seeds in a suitable place...For *Anastatica hierochuntica*, the seed remains on the dry skeletons protected by the curled branches of dead plants around the infructescences (fruiting branches). Seed dispersal is performed by the hygrochastic uncurling of the dead branches, then by the force of rain causing the opening of the fruit valves and the release of seeds” (Ahmad 2006: 47)

“The thinner cortical layer in the upper side of the stem plays a limited role in decreasing the resistance of the first skeleton curling after senescence but for repeated curling and uncurling over years, such a role is lost due to decortication. The thick layer of conducting tissue in the lower side of the stem, associated with the high density of wide xylem vessels, is more effective in the opening process (uncurling) of skeletons by permitting rapid movement of water, which diffuses thereafter through lateral pits to the conducting tissues in the upper side of the stem. The thin layer of conducting tissue in the upper side of the stem is more effective in the closing process (curling) of skeletons, where xylem vessels are few, narrow and restricted to the periphery of the conducting tissue towards the pith.” (Ahmad 2006: 54)

參考文獻清單與連結 (REFERENCE LIST)

Ahmad, K. H., H. N. Barakat, and H. F. Kabiell. (2006). Anatomical significance of the hygrochastic movement in *Anastatica hierochuntica*. *Ann. Bot.* 97: 47–55.
(<https://dx.doi.org/10.1093%2Faob%2Fmcj011>)

延伸閱讀

(譚國銜提供)

<https://www.youtube.com/watch?v=XsgHYfulv2g>

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

<https://en.wikipedia.org/wiki/Anastatica>

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AskNature 原文連結

<https://asknature.org/strategy/dead-branches-release-seeds/>