Changes in potassium distribution with the maturity of barley(Hordeum vulgar L.) pollen

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An important function of pollen aperture is believed to be regulating the water balance of the pollen when subjected to changes in humidity (Shukla, et al. 1998).

It has been reported that mature barley pollen rapidly swells upon hydration and pollen tube emerges in a few minutes of germination (Anthony and Harlan, 1920).

Although, there could be other factors responsible for rapid hydration of pollen. However, K is widely known for its rapid action as an osmotic regulator (Heslop-Harrison and Heslop-Harrison, 1996).

In the present study, changes in K distrbution were traced during different stages of pollen maturation in barley. The existence of K at the aperture area of matured pollen may possibly play other import physiological roles. For example, K is reported to be an essential constituent of pollen germination and even required in higher concentration for pollen tube growth(Fan et al., 2001).

These results suggest that there could be a possible relationship between K, located at the aperture area and rapid uptake of water by pollen.