Floral Nectary Development and Structure in Glycine max L. Merr. (C07-palmer153503-Poster)

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Abstract:

Glycine floral nectaries develop as circular mounds at gynoecium bases. The nectary, above the flower pedicel, is innervated by vascular tissue. Pedicel non-vascular cells contain crystals. The nectary consists of a mass of cells bounded by an epidermis with guard cells that are covered by cuticle. Guard cells have thick walls, dense cytoplasm and starch-filled plastids. As the nectary enlarges, the mass of cells differentiates into three cell types: phloem fingers; isodiametric dense cells; and larger vacuolated cells. The latter two cell types contain mitochondria, Golgi and ER. As the nectary reaches its maximum size at pollen maturity vacuolated cells loose their cytoplasm and become filled with flocculate material. Spaces below the guard cells fill with visible materials that appear as spheres on the nectary surface. During secretory phase, these cells collapse and purge their contents (holocrine) as the nectary shrinks and looses its robustness. Sugars are lost during processing so the remaining flocculate materials possibly consist of proteins, lipids and other materials known to be present in nectar. Gynoecium secretory trichomes may contribute substances to the nectar.

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