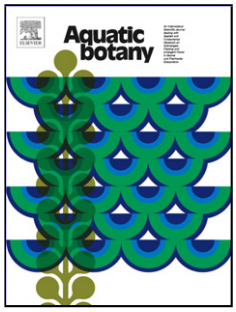

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Original article

Nectary ultrastructure of *Cabomba caroliniana* Gray (Cabombaceae)

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Highlights

- The nectary is active during the two days of the anthesis.
- Nectar is released mainly by four-celled trichomes
- The sugar content is equivalent in both anthesis days
- Cycles of contraction-expansion of the trichome cells protoplast are present
- Nectar is released through the cell wall and the cuticle of the trichome apical cell

Cabomba Aubl. is a genus considered as a potential genetic model for studies of early angiosperm evolution, accordingly, it is important to expand the knowledge of it. This paper reports the study of the anatomy and the ultrastructure of the nectary of *Cabomba caroliniana* Gray using bright-field microscope, scanning and transmission electron microscope in order to understand its secretion mechanism. *C. caroliniana* has protoginous flowers and the anthesis lasts two days. Nectaries of *C. caroliniana* are located in two basal lobes or yellow auricles of each white petal. Most nectar is observed in the area above the pronounced auricles. The secretion is released mainly by the four-cellular trichomes or hydropotens present in both nectary epidermis. The cellular ultrastructure indicates that the nectary is active during the two days of the anthesis. This agrees with the fact that in both anthesis days the fertile structures of the flower (first the stigmata and then the anthers) are disposed above the nectaries. The nectar secretion mechanism is discussed in relation to the present knowledge. The results of this study are related to what has been described for other basal angiosperms.

Keywords: *Cabomba*; nectary; hydropotens; ultrastructure

1. Introduction

Nectaries are organs or parts of them that secrete nectar. Nectar is an aqueous solution that contains sugars (sucrose, glucose, and fructose), carbohydrates in small amounts, amino acids, proteins and many other compounds, such as inorganic ions, organic acids, vitamins, antioxidants, phenolics, alkaloids, lipids, and terpenoids in minor concentrations (Lüttge, 1961, 1962; Baker and Baker, 1983; Nicolson and Thornburg, 2007). This solution is a