Aroonrat MEEKIJJAROENROJ 2004 ; Palm (Arecaceae) / pollinator interactions: case study of two palm species, ***Calamus castaneus*, *Phoenix canariensis*** and floral fragrance chemistry. Doctoral desertation : Biologie Intégrative. University Montpellier II. Thesis adviser: Doyle McKey , Marie–Charlotte Anstett.

Palm (Arecaceae)/pollinator interactions: case study of two palm species, *Calamus castaneus*, *Phoenix canariensis* and floral fragrance chemistry

---

SUMMARY—The palm family (Arecaceae) is extremely diverse, particularly with regard to pollination systems. They thus represent an excellent model for the study of plant reproductive biology. I studied the strongly contrasting pollination systems of two palm species on one hand, the strategy of pollinator-attractant floral scents within the family on the other hand. I showed that 1) the rattan *Calamus castaneus*, the pollination of which was supposed hitherto to be a generalist system, with many different pollinators, is in fact pollinated mainly only by two species of *Trigona* bees, even though the plant is visited by a great diversity of insects; 2) *Phoenix canariensis*, though described as anemophilous, is probably pollinated, at least in part, by the weevil *Neoderelomus piriformis*, and their interaction is specific. In plant-pollinator interactions, long-distance attraction is primordial. This is usually achieved by scents emitted from flowers. In the dwarf palm *Chamaerops humilis*, the scents attracting the pollinator are emitted by leaves and not by flowers (Dufaÿ et al. 2003). I showed that 3) volatile compounds are produced and emitted by all leaf parts. However, the composition of scents emitted by the sinus most closely resembles that found in total odours emitted by the leaf. Moreover, the epidermal cells of the sinus are very similar to the conical epidermal cells of petals that emit floral scents. Finally, 4) the floral bouquets of 47 palm species studied are dominated by terpenoid compounds (principally by sesquiterpenes). Surprisingly, the composition of these scents seems not related either to the phylogeny or to the identity of the potential pollinators.
