

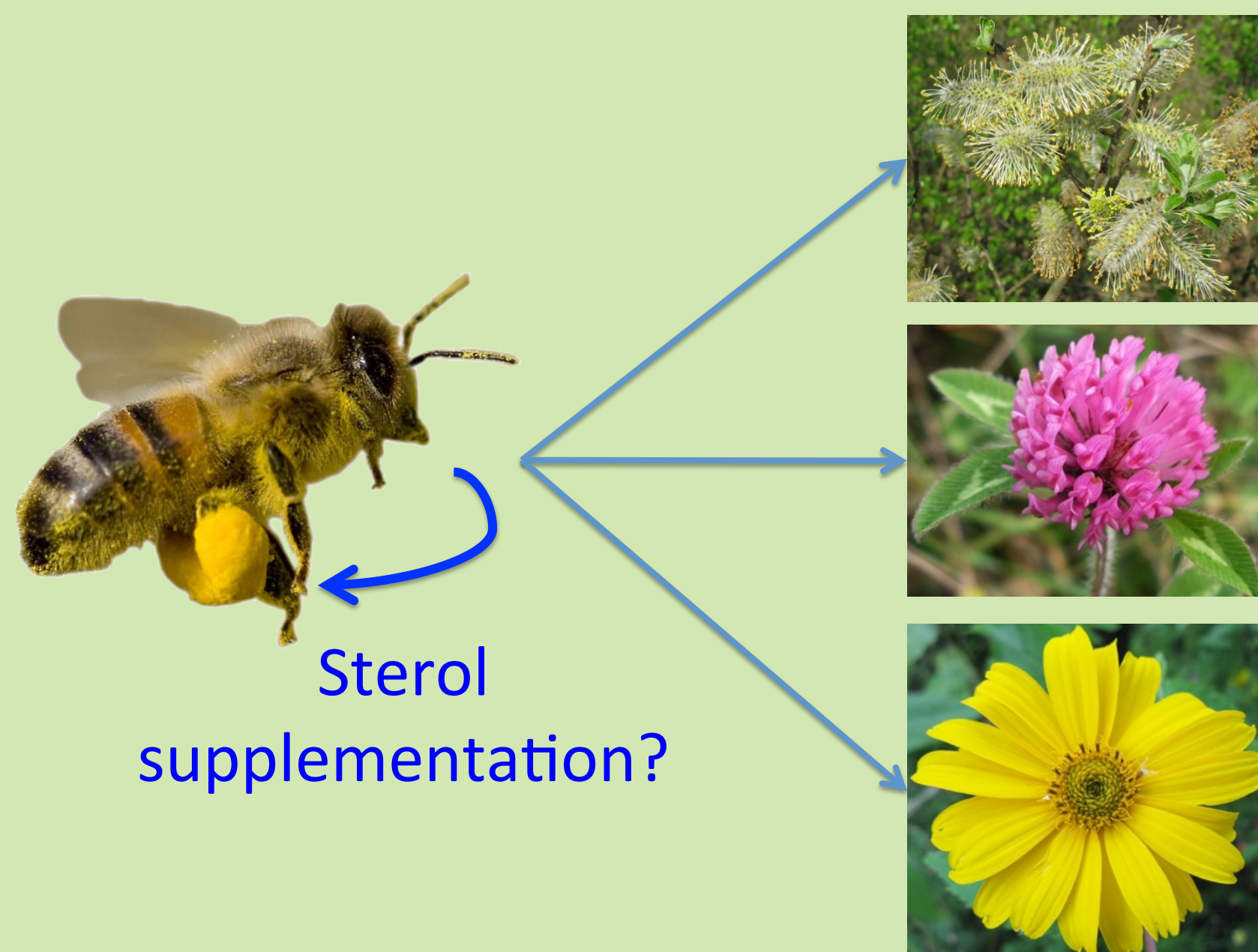
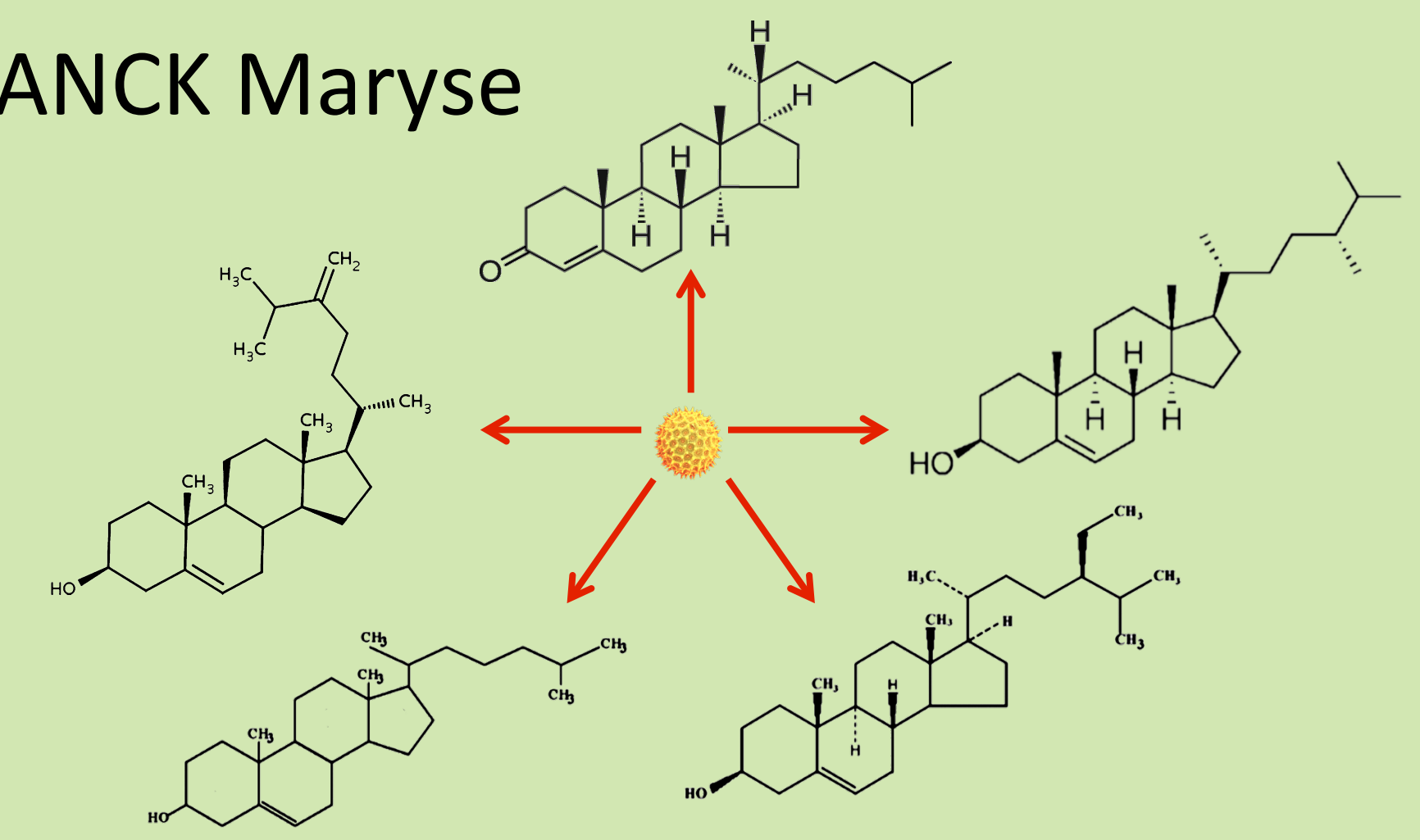
DO BEE FEMALES MODIFY STEROL COMPOSITION OF POLLEN LOADS DURING FORAGING?

ZERCK Pierre-Laurent*; MICHEZ Denis; LOGNAY Georges; VANDERPLANCK Maryse



INTRODUCTION:

Sterols are prime nutrients in pollen. They are needed for cell membranes and molting but can not be synthesized *de novo* by bees. As their contents are highly variable among floral species, they can constraint floral choices of generalist bees (i.e. polylectic).



STUDY:

Question: how do polylectic bees cope with sterol variation to ensure larvae development?

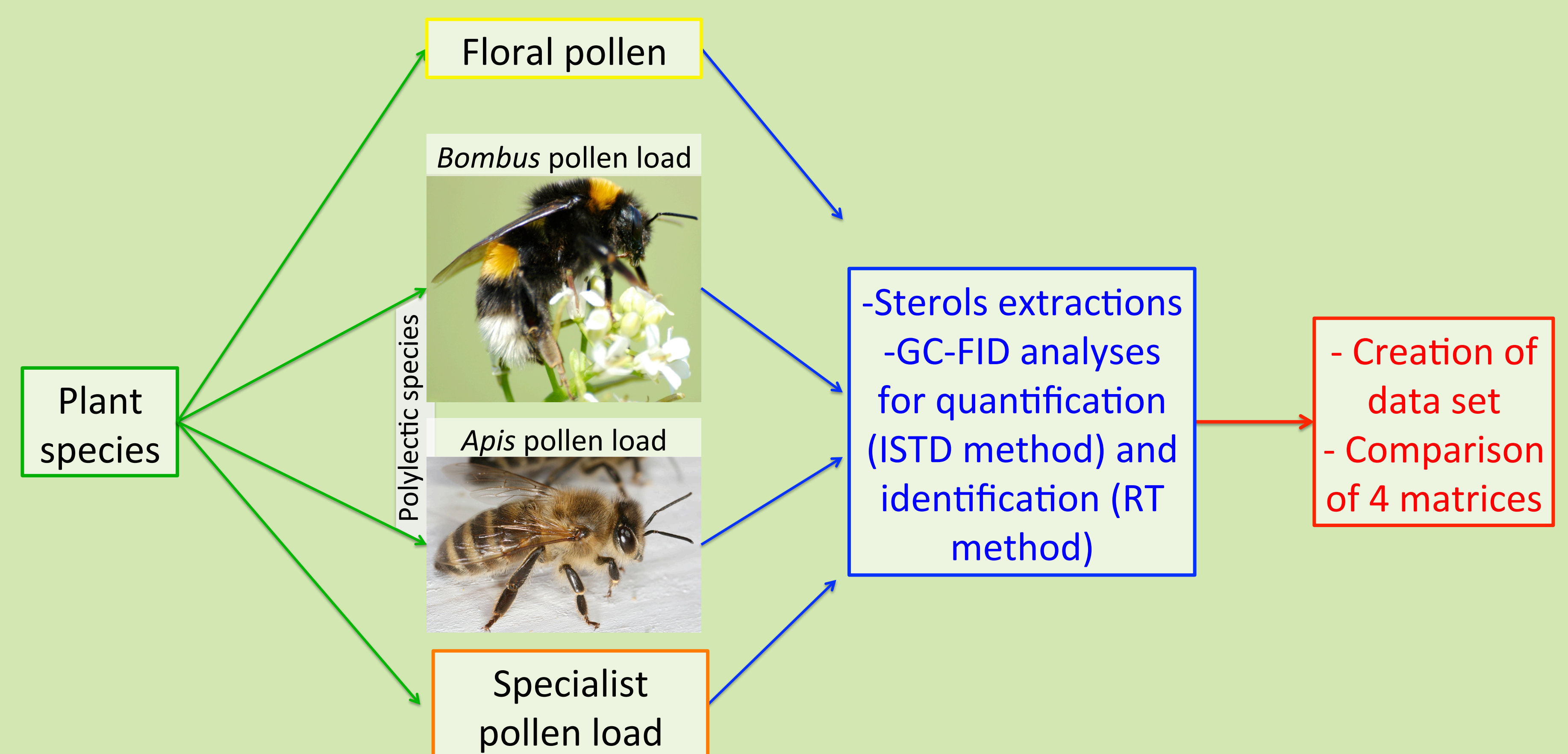
Hypothesis: Behavior of sterol supplementation in their pollen loads.

Experiment: Comparison of sterol content of generalist pollen loads, specialist pollen loads and floral pollen.

MATERIAL AND METHODS:

In order to compare floral pollen with bee collected pollen we selected:

- seven plant species from six different families;
- seven solitary wild specialist bees from three different families that forage on our target plants. All these bee species display a high degree of food specialization;
- *Bombus terrestris* and *Apis mellifera* as generalist bee species.



SPECIALIST MODELS AND THEIR HOST PLANTS



RESULTS AND DISCUSSION:

Pollen profiles:

- Highlighting of the variability of pollen sterol profiles among the different plant models.

Modification of pollen during foraging trip:

- Sterolic composition of pollen collected by three specialist bees significantly differ from their host' floral pollen;
- Two melittid bees add C27-phytosterol in their pollen loads;
- The modification of pollen by generalist bees is host-dependent.

Impact of pollen sterols on the origin of bees:

- C27-phytosterols seem to be important for Melittidae, a basal family of the bee clade, and probably played a role in wasp-bee transition.

