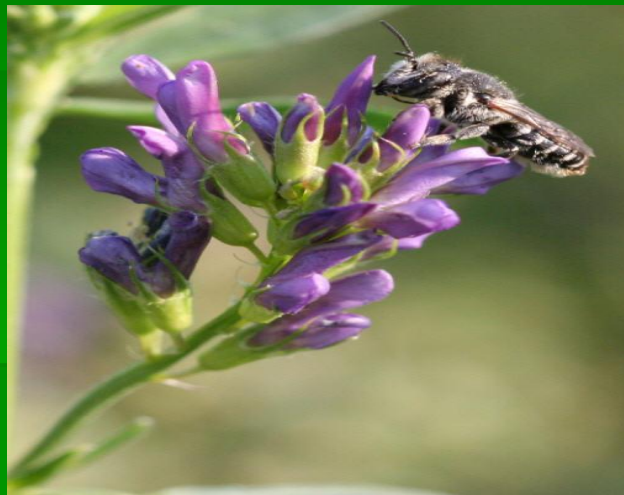


Course Pollination Biology  
**Crop Pollination by Megachilid  
Bees**

Arif Rajab Single  
Graduate Student ( M.Sc.)

**Instructor:**  
**Dr. M. Abdul Hannan**



***Megachile rotundata***

## Megachilid bees

- These bees are under the Family Megachilidae
- They are solitary bees and don't make colonies, instead, individual bee do all the work of rearing.
- Examples: *Megachile rotundata*, *Osmia cornifrons*, *Chalicodoma*, etc.



***Osmia cornifrons***

## What is Pollination?

- Pollination is process of transferring pollen from anther to stigma either in same flower or in different flower, in the same plant or in different plant.

## Plants Pollinated by Megachilid bees

They are good pollinators of Leguminous plant. *Megachile rotundata* remarkable for the alfalfa pollination. *Osmia cornifrons* is excellent pollinator for apple pollination.



Megachilid bee  
pollinating a flower



Megachilid bee  
pollinating citrus flower

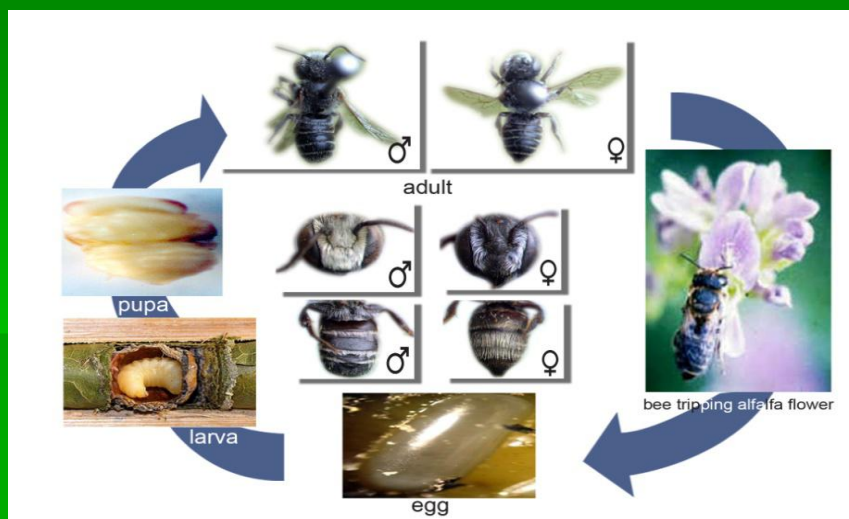
## Megachilid bees in Saudi Arabia

- *Chalicodoma rubripes* Morton
- *Coelioxys afrab* Lepelitier
- *Icteranthidium ferrugineum* Fabricium
- *Megachile maxillosa* Guerin
- *Megachile submucida* Alfafken
- *Megachile* sp.
- *Osmia laterillei* (Spind)

## Economic Benefits of Bee Pollination

- The pollination of plants by insects is an important ecological service in natural and agricultural ecosystems. The majority of angiosperm plants rely on animals for pollination. Bees are most important for achieving success of pollination and maximum yields of many crop plants.
- Increases crop yield (Quality and Quantity).
- Increases financial gain.

## Biology of Megachilid Bees





**Egg of Megachilid bee in the pollen lump**

## **Management of Megachilid Bees**

- Alfalfa leaf cutter bee (*Megachile rotundata*) managed for alfalfa pollination.
- Horn-Faced Bee (*Osmia cornifrons*) managed for apple pollination.

## Conclusion

- The megachilid bees especially the alfalfa leafcutter bee *Megachile rotundata* and *Osmia cornifrons*, are widely used for crop pollination. They are very effective pollinators for many other plants too. We have to look for same type of bees for crop pollination to improve agriculture in Saudi Arabia and for countries of the Arabian Peninsula.

## Acknowledgement

I thank my supervisor Dr. Abdulaziz Al-Qarni to advice me to take this course . I am grateful to Dr. M. Abdul Hannan to teach me pollination biology throughout this course. I am indebted to the Researchers of the Insect Museum to provide me with the information of Megachilid bees found in Saudi Arabia . My cordial thanks to all doctors and friends in Bee Research Unit to help me for this presentation .