

2. Predatory mites: Case of *Phytoseiulus persimilis*

Phytoseiidae

2.1. Morphological characteristics

- *P. persimilis* is easily recognizable and distinguishable from other phytoseiids because it has a red to orange globular body quite characteristic (Fig. 15)
- It has less than 24 pairs of setae but without any lateral silk at the level of opisthosoma
- These chelicerae are scissor-shaped



Figure 16 . *Phytoseiulus persimilis*

2.2. Biological characteristics

- has a very high reproductive rate
- development cycle (Fig. 16) lasts 4 days in favorable temperature conditions (24- 26°C)
- Under these same conditions, females lay an average of 70 eggs during their lifetime, i.e. a daily laying rate of 4 eggs
- Average duration of 1 generation: 13 d

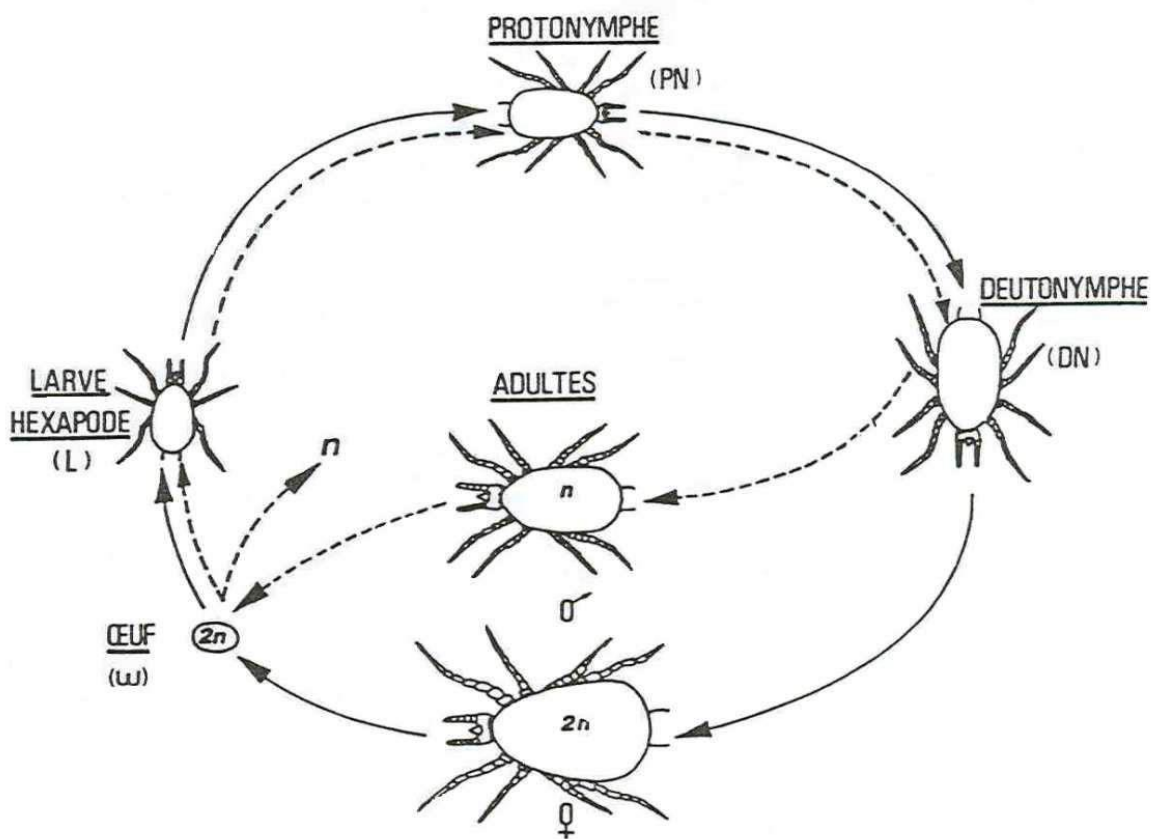


Figure 17. Cycle de développement des phytoseiides

2.3. Feed

- these predatory abilities also constitute an exception among the phytoseiid family
- Indeed, it is 1 specialized predatory species capable of to feed almost exclusively on species of Tetranychus but also of Panonychus and which is therefore strongly dependent on the presence and quality of prey
- Has 1 very high voracity where adults can consume up to 34 eggs/day

2.4. Dispersal ability and search prey

- many factors influence the colonization of new habitats by Phytoseiidae
- These disperse mainly by 3 methods
main: aerial, terrestrial and indirectly by others animals (phoresy)
- It will depend on the sp themselves or the biotic conditions or abiotics from the environment
- the dispersion of the mites is done by air, in particular through the wind
- Some studies have shown that air travel of *Galendromus occidentalis* is done under humid conditions relative, high wind speed and low temperatures well determined

- Regarding the movement of mites by land,
several studies have been carried out to characterize the
movements of Phytoseiidae in and around trees
pathway allows predatory mites to move
over short distances mainly within
cultivated plots

- females of *N. fallacis* overwinter on bad
grasses and feed on phytophagous mites
finding to then move towards the trees

- Ambulatory dispersal of Phytoseiidae can be
influenced by different parameters: prey density
on trees, ground cover, climatic conditions

- Furthermore, some studies have shown that the
food availability and high temperatures
are 2 important factors that can affect the speed
ambulatory dispersal of the species *N. californicus*

2.5. Other predatory mites

- The species of the Typhlodrominae s/ fam whose

Typhlodromus pyri (Fig. 17 a) is encountered

naturally in vineyards or orchards and whose

prey are other mites, especially

Panonychus ulmi or the thrips of the

Drepanothrips reuteri vine

- Mites belonging to the Tydeidae family

Fig. 17 b) including Tydeus eriophyes

- are small, have a soft body and move quickly

- often yellow, creamy white or orange in color and the

- most have 1 white stripe along the back

- Found in leaf litter, bark, plants often near

- leaf veins

- often mealybug predators

- Anystis baccharum Anystidae** (Fig.17 c)

- sp of large size (3 mm), reddish in color, very

- mobile, very voracious, feeds on mites and

- leafhoppers

- present on fruit trees

- Trombidium holosericeum Trombidiidae** (Fig.17d):

- is remarkable for its bright red color and its large

- size (4mm)

- The adult feeds on insect eggs and larvae, it is

frequently observed on infested fruit trees and vines

by mealybugs

–The larva attaches itself to spiders or locusts whose
it sucks body fluid without harm to the host

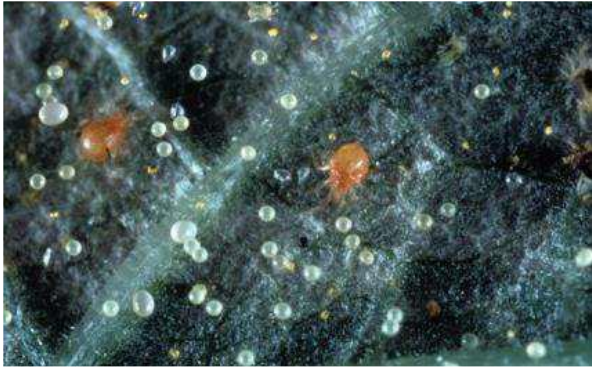


Figure18 . Other predatory mites: a- *Hyphlodromus pyri* (Egg and adult); b- *Tydeus eriophyes*; c- *Anystis baccarum*; d- *Trombidium holosericeum*

3. Food mites Stored

3.1. Morphological characteristics of Acaridida

- Pedipalps small, bisegmented and usually pressed against the sides of the infracapitulum (Fig. 18)
- ambulacrum of the legs including 1 median claw with 1 protruding pre tarsus or 1 membranous paddle associated, or 1 organ similar to 1 sucker stalked
- chelicerae still in claws
- never trichobothria on the idiosoma
- never stigmata or windpipes
- idiosoma never covered with scaly sclerites and never vermiform

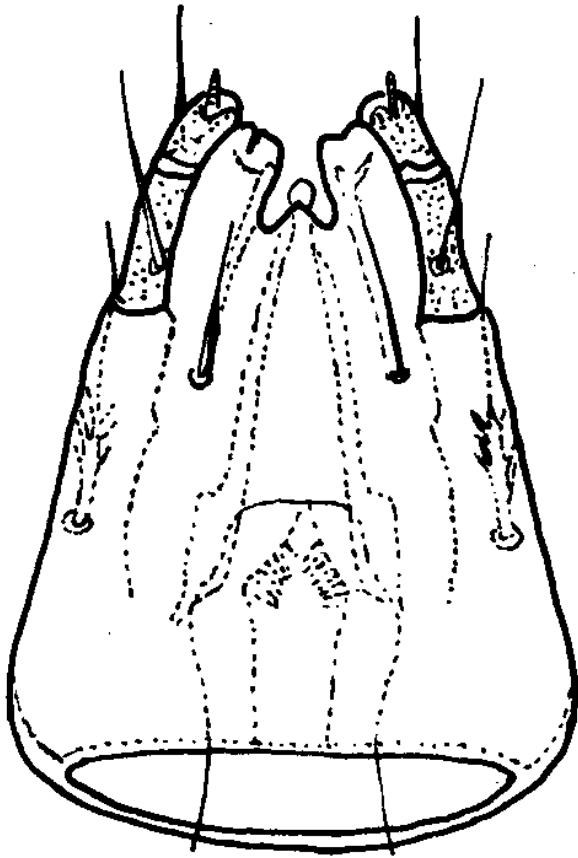


Figure 19 . Head of *Acarus siro* in ventral view

- Some storage mites can be visible to the naked eye
- A. Siro reddish legs and when they are together, they form by moving a teeming mass of copper color, which becomes related
- in food warehouses, storage mites come in the form of aggregates that make them look like a living dust

3.2. Biological characteristics

- no characteristic odor and do not make noise
- reproduce at an accelerated rate and their fertility is significantly higher than that of pyroglyphid mites
- lay 3 to 7 eggs/d
- 1 female of *Tyrophagus putrescentiae* lays more than 350 eggs in his life
- lifespan similar to dust mites pyroglyphids, from 3 weeks to 1 month and a half
- To become adults, they usually need 3 weeks
- T. putrescentiae* becomes adult in 14 d

3.3. Damage

- Found in a wide variety of places: thatched roofs, canework, packets of flour, dog food, walls damp and moldy
- From these sites where they find their food: molds and food, they can spread in habitats and may be present in kitchens, closets, bathrooms bathrooms, damp carpets, armchairs and sofas padded
- they were sometimes collected on mattresses and pillows
- in addition to their damage to stored foodstuffs, dust mites

storage often have adverse consequences on the human health:

- asthma and allergic rhinitis

- occupational contact dermatitis:

- baker's dermatitis caused by *A. siro*, "scabies" of grocers due to *Glycyphagus domesticus* or fruit dermatitis dried produced by *Carpoglyphus lactis*