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Those strange black matters with embedded armoured scales

ABSTRACT

While studying *Septobasidium* interaction with Diaspididae off *Laurus nobilis* L., *Phillyrea latifolia* L. and *angustifolia* L. in Apulia we found small - 1 to 3 millimetre - brown/black particles on plant bark. Each particle embeds or lays one or more dead armoured scales belonging to *Aonidia lauri* (Bouche) or *Lepidosaphes flava* (Signoret), depending on the host plant. The brown-black bodies were irregularly hemispheric, lobated and dull in appearance. We report the results of observations by light microscopy, SEM and X-rays microanalysis of foamy black matters that constitute most of the particles and embed the scale. Findings of hyphae (?) inside the dead insect bodies in connection to Diaspidid scale phenology at the time of death suggest that the particles result from an entomopathogenic or saprophytic interaction.

Acknowledgement: we recognise the help and competence of Pasquale Trotti, SELGE UR3. laboratory responsible, for the SEM pictures & microanalysis and Prof Claudio Ciccarone (SAFE-UNIFG) for the tentative identification of the hyphae found associated with *Aonidia lauri.* We also recognize the support of Applied Ecology.

Aonidia lauri (Bouche) is a common Diaspididae often found on Laurel where it infests trunk and twigs but leaves also. *Septobasidium* grows to great epiphytic thalli on the plant bark and often infects the scale (Porcelli, 2013).

On the same *Septobasidium*-inhabited Laurel as on *Pistacia lentiscus* L. or *Phillyrea latifolia* and *angustifolia* there are numerous black-dull masses embedding one or more *A. lauri* or *Lepidosaphes flava* and often sheltering several more individuals under the margin of the masses themselves.

Not sheltered scales are comparatively less than those that, possibly following a tygmotactic stimulus, prefer to fix near or under the masses. Moreover, scrutinising the masses one can easily find several or many scales almost entirely embedded in the black matter or still partially exposed. Even those masses that do not show scales embedded reveal one or more individuals inside the matter once purposely dissected.

SEM study reveals the presence of stromatic and possibly penetrative hyphae associate with moniliform *Nostoc*-like chains glued by a foamy gelatinous sheath. Hyphae, *Nostoc*-like chains and jelly strongly resemble a species of *Collema* (Fungi) often symbiotically associates with *Nostoc* (Cyanobacteria) to form Lichen that in the case fills the scale body. Chemical elementary semiquantitative microanalysis supports the organic origin of the black matter.

Next studies will confirm the nature of the actors involved in this intriguing phenomenon.

REFERENCES

PORCELLI, F (2013) Distribuzione e significato della simbiosi fra Diaspididae (Rhynchota Coccoidea) e *Septobasidium* (Fungi). *Atti Accademia Nazionale Italiana di Entomologia*, LXI: 105–111.

Porcelli F., Roberto R., Pellizzari G. (2016); Those strange black matters with embedded armoured scales. *Poster presented at the XIV International Symposium on Scale Insect Studies - ISSIS June, 13th - 16th, 2016 - Catania - Italy*; *Entomologica*, Bari, 47 : 17-18; doi: dx. doi. org/10. 15162/0425-1016/445

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Those strange black matters with embedded armoured scales

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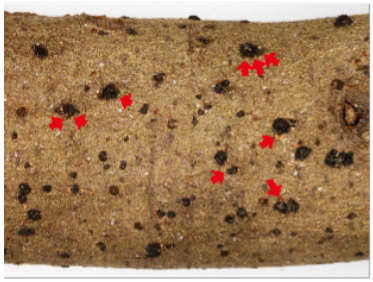

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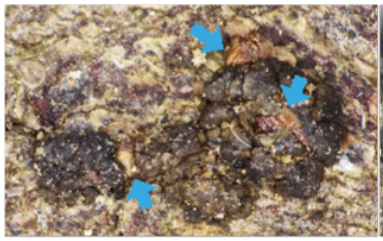
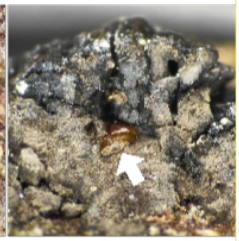
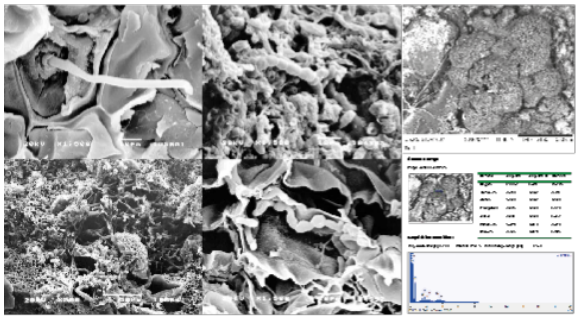
Not sheltered scales are comparatively less than those that, possibly following a tygmotactic stimulus, prefer to fix near or under the masses. Moreover, scrutinising the masses one can easily find several or many scales almost entirely embedded in the black matter or still partially exposed (blue arrows). Even those masses that do not show scales embedded reveal one or more individuals inside the matter. Once purposely dissected (white arrow).







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