ISSN 0425-1016

ENTOMOLOGICA

Open access, DOI-indexed, full digital Juornal on Entomology
Department of Soil, Plant and Food Sciences - University of Bari Aldo Moro
www.entomologicabari.org – www.entbari.org

Vol. 47 – 2016

BARI

Department of Soil, Plant and Food Sciences - UNIBA Aldo Moro DiSSPA - Entomology and Zoology Section, Via Amendola, 165/A - 70126 BARI - ITALY
http://www. uniba. it/ricerca/dipartimenti/disspa
Tel. +39/0805442874 - +39/0805442880
E-mail: entomol@uniba. it
www. entomologicabari. org – www. entbari. org
Authorization of the Court of Bari n. 306, 19 April 1966

ENTOMOLOGICA

Open access, DOI-indexed, full digital Journal on Entomology
edited by Department of Soil, Plant and Food Sciences
University of Bari Aldo Moro
www. entomologicabari. org – www. entbari. org

R. ROBERTO[1-3], V. RUSSO[4], F. PORCELLI[1-3-4-5], G. PELLIZZARI[2]

[1]DiSSPA - UNIBA Via Amendola 165/A, 70126 Bari, Italy francesco. porcelli@uniba. it; [2]DAFNAE - UNIPD, viale dell'Università 16, 35020 Legnaro, Italy, giuseppina. pellizzari@unipd. it; [3]Selge Network, University of Bari Aldo Moro Via Amendola 165/A, 70126 Bari, Italy, [4]CIHEAM - MAIB OAD, via Ceglie, 9 70010 Valenzano (BA), Italy, vrbio@libero. it; [5]CNR-IPSP s. s. Bari Via Amendola 122/D, 70126 Bari - Italy.

Nidularia pulvinata (Planchon, 1864) (Hemiptera Kermesidae) gall-inducing attitude

ABSTRACT

Recurrent *Nidularia pulvinata* outbreaks off *Quercus ilex* L. (Fagaceae) led us to scrutinize large amount of infested and damaged trunks, branches and twigs. A long series of detailed observations suggested studying the attitude of the Kermesidae to induce phloem/xylem disorganization by saliva injection, possibly. Evidence show that woody plants tissues near or under the scale insects swell considerably giving the organs a prominent and rising appearance. Infested bark and other plant surfaces are prone to produce crevices and other possible shelters for future crawlers that will find a nice living site nearby. In vivo transverse section, accurate observations corroborated with polarized light microscopy and Scanning Electron Microscopy suggests that the scale stylets strongly disturb the explored plant tissues. Plant tissues reply to the injury with considerable overgrowing and necrosis. By observations and evidenced we discuss the opportunity to consider *Nidularia pulvinata* a gall-making species, also comparing its attitude with that of other Kermesidae and Asterolecaniidae.

Nidularia pulvinata infestation starts from crawlers that set into natural bark crevices. Scales feeding elicits the plant reaction that results in progressive widening of infested crevices. That, in consequence, offers more room for the subsequent broods of the Kermesidae.

To evaluate the action of Nidularia feeding on host plant wood, we fell down two small *Quercus ilex* infested to death. We chose and mark several points before to cut the infested trunks and branches transversally.

The action of Nidularia pulvinata feeding on host plant wood is clear in the left and central figure in comparison to right picture of a not infested trunk. Each log was pictured from the transversal section and the corresponding side. Red dashed lines connect corresponding points of the wood. The red arrow points to wood overgrowths for Nidularia infestation, while a blue arrow target a lateral branch bud. Red lines encircle wood overgrowths due to hyperplasia/hypertrophy stimulated by the Kermesidae.

On twigs the *Nidularia pulvinata* feeding results in wood swelling, depression/overgrowth and necrosis.

ACKNOWLEDGEMENT

We recognize the support and the effective collaboration offered by Dr. Erminia Traversa, Head of the "Settore Giardini" in City Office of Bari, Italy; we also recognize the oerative help of Applied Ecology.

Roberto R., Russo V., Porcelli F., Pellizzari G. (2016); *Nidularia pulvinata* (Planchon, 1864) (Hemiptera Kermesidae) gall-inducing attitude. *Poster presented at the XIV International Symposium on Scale Insect Studies - ISSIS June, 13th - 16th, 2016 - Catania - Italy; Entomologica*, Bari, 47 : 19-20; doi: dx. doi. org/10. 15162/0425-1016/446
Poster, accepted: September, 2016; ISSN 0425-1016
Part of this study was presented during the ISSIS XIV 13-16 June 2016, Catania - Italy

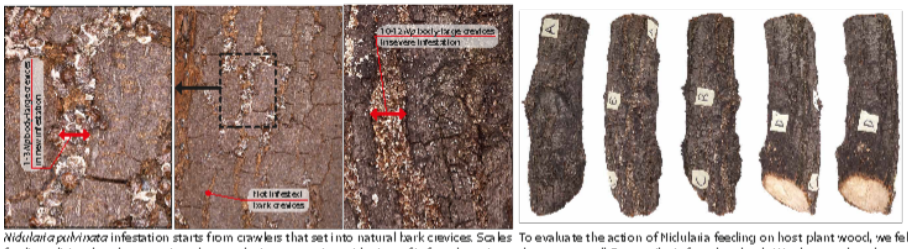
Nidularia pulvinata (Planchon, 1864) (Hemiptera Kermesidae) gall-inducing attitude

R. Roberto[1-3], V. Russo[4], F. Porcelli[1-3-4-5], G. Pellizzari[2]

1 DISSPA - UNIBA Via Amendola 165/A, 70126 Bari, Italy f.rancesco.porcelli@uniba.it; 2 DAFNAE - UNIPD, viale dell'Università 16, 35020 Legnaro, Italy, giuseppina.pellizzari@unipd.it; 3 Selge Network, University of Bari Aldo Moro Via Amendola 165/A, 70126 Bari, Italy, 4 CIHEAM - IAMB OAD, via Ceglie, 9 70010 Valenzano (BA), Italy, vibloe@libero.it; 5 CNR IPSP s.s. Bari Via Amendola 122/D, 70126 Bari - Italy.

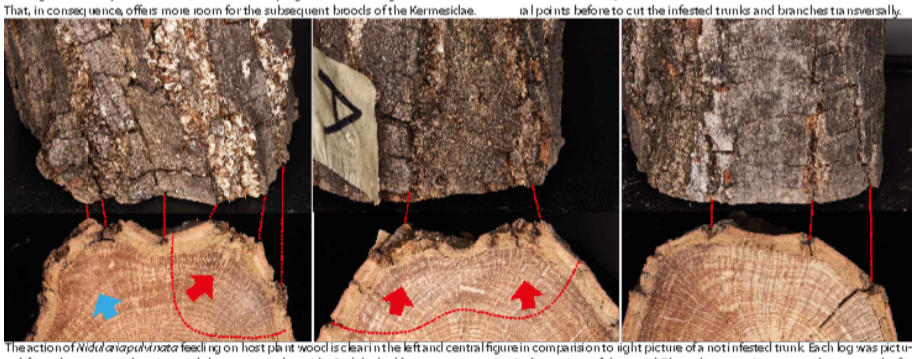
ABSTRACT. Recurrent *Nidularia pulvinata* outbreaks off *Quercus ilex* L. (Fagaceae) led us to scrutinize large amount of infested and damaged trunks, branches and twigs. A long series of detailed observations suggested studying the attitude of the Kermesidae to induce phloem/xylem disorganization by saliva injection, possibly. Evidence show that woody plants tissues near or under the scale insects swell considerably, giving the organs a prominent and oblong appearance. Infested bark and other plant surfaces are prone to produce crevices and other possible shelters for future crawlers that will find a nice living site nearby. In vivo transverse section, accurate observations corroborated with polarized light microscopy and Scanning Electron Microscopy suggests that the scale stylets strongly disturb the explored plant tissues. Plant tissues reply to the injury with considerable overgrowing and necrosis. By observations and evidenced we discuss the opportunity to consider *Nidularia pulvinata* a gall-making species, also comparing its attitude with that of other Kermesidae and Asterolecaniidae.

Acknowledgements: we recognize the support and the effective collaboration offered by Dr Eminia Travers, Head of the "Settore Giardini" in City Office of Bari, Italy; we also recognize the creative help of Applied Ecology

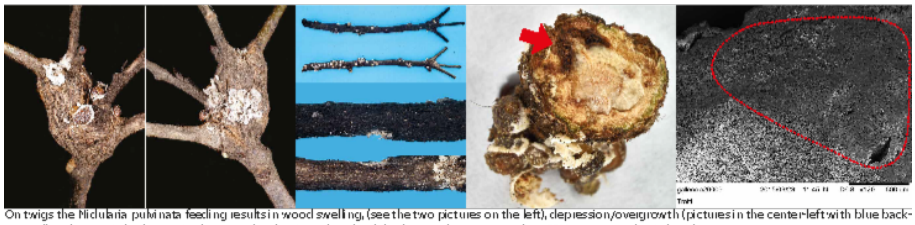


Nidularia pulvinata infestation starts from crawlers that set into natural bark crevices. Scales feeding elicits the plant reaction that results in progressive widening of infested crevices. That, in consequence, offers more room for the subsequent broods of the Kermesidae.

To evaluate the action of Nidularia feeding on host plant wood, we fell down two small *Quercus ilex* infested to death. We chose and mark several points before to cut the infested trunks and branches transversally.



The action of *Nidularia pulvinata* feeding on host plant wood is clear in the left and central figure in comparision to right picture of a not infested trunk. Each log was pictured from the transversal section and the corresponding side. Red dashed lines connect corresponding points of the wood. The red arrow points to wood overgrowths for *Nidularia* infestation, while a blue arrow target a lateral branch bud. Red lines encircle wood overgrowths due to hyperplasia/hypertrophy stimulated by the Kermesidae.



On twigs the Nidularia pulvinata feeding results in wood swelling, (see the two pictures on the left), depression/overgrowth (pictures in the center-left with blue background) and necrosis (red arrow in the central-right picture) and red dot line on the corresponding SEM image, on the right side.