



**SESSION X**

**COMMODITY TREATMENT AND URBAN ENTOMOLOGY**

**Attacks of *Kaloterмес flavicollis* in Palermo and associated *Aspergillus* species**

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Among the termites of the Kalotermitidae family, one of the most primitive of the Isoptera and typical of damp wood, the species *Kaloterмес flavicollis* is known as the 'yellow necked dry-wood termite'. Recently, several nests of *K. flavicollis* have been found in public and private buildings and in two churches in Palermo, associated with attacks on both structural parts and artefacts. Their lucifugous behavior has made it difficult to identify the infestations early, underestimating the risk, up to the manifestation of damages. The identified colonies consisted of about 400-500 individuals, while the nuptial flights of males and females both fertile and winged were recorded in the months of October and November of the years 2019-2021.

During the survey, several dead individuals with evident fungal efflorescence were found. Therefore, a study aimed at the isolation and identification of these microorganisms was conducted. For this purpose, from the nests with infected individuals, samples of wooden material and insects were taken to be submitted to the usual laboratory analyses.

The first observations under the stereoscopic microscope have highlighted the presence of yellow-ochraceous conidic heads of *Aspergillus*, brought by long conidiophores emerging from the body of the insects. Therefore, direct and indirect isolations (serial dilutions) were carried out on the agarized nutrient substrate PDA. The grown fungal colonies were bred in purity and observed under an optical microscope for their morphological identification on the basis of macro- and microscopic features. The most recurrent colonies were subjected to DNA extraction and amplification of the ITS and  $\beta$ -tubulin genes.

Morphological and molecular analyzes allowed the identification of *Aspergillus nomius*, *A. subramanianii* and *A. tamarii*. In the literature, *A. nomius* has been reported on termites of the *Coptotermes formosanus* species, both as a saprophyte and as a facultative parasite, on insects subjected to some form of stress, while *A. tamarii* has been identified in association with those of the *Psammotermes hypostoma* species. In this study *A. subramanianii* is reported for the first time in association with termites. Further investigations will be able to provide useful indications on the possible ecological role that these fungi play, both singly and in consociation, on the vitality of *K. flavicollis* colonies, also with a view to developing targeted biocontrol strategies.

**KEY WORDS:** termites, *K. flavicollis*, *Aspergillus*.