



# FIRST RECORD OF A NASAL MYIASIS BY *MEGASELIA SCALARIS* (DIPTERA: PHORIDAE) IN ITALY

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## INTRODUCTION

- In the family Phoridae, the cosmopolitan genus *Megaselia* includes over 1,400 species showing a wide variety of eco-biological characteristics including diet. Often involved in corpse decay, *Megaselia* species have been reported worldwide as responsible of accidental myiasis in humans and animals (Disney, 2008).
- In Italy, *Megaselia rufipes* has been recently identified as responsible of human nasal myiasis (Giangaspero *et al.*, 2021) while *Megaselia scalaris* has been described as agent of myiasis only in an Indian caged python (Vanin *et al.*, 2013).

## MATERIAL AND METHODS

- In September 2023, a 70-year-old female patient was admitted to the intensive care Unit at Ravenna hospital and ventilated by a tracheal gold tube for a severe comatose state. Four days after the admission, during the objective examination, a dozen of whitish 1 mm-long live larvae from the left nasal coana, along the nasogastric tube, were noticed.
- The larvae were individually collected, sent to the Centro Agricoltura Ambiente (Crevalcore, Bologna) where the larvae were reared into adults and sent for identification to the Parasitology Unit of the University of Foggia. Here they were first observed under a stereomicroscope and then subjected to confirmatory molecular identification. Genomic DNA was extracted from 5 adults and 5 puparia using the Nucleospin Tissue kit (Macherey-Nagel).
- A conventional PCR assay was performed to amplify a 710-bp gene fragment of the *cox1* gene-based DNA barcode using the primers LCO1490 and HCO2198 (Folmer *et al.*, 2004).
- Purification and sequencing of the PCR products were performed. The sequences generated were compared with the ones available in GenBank using Nucleotide BLAST.



## RESULTS & CONCLUSIONS

- The specimens were identified morphologically as *Megaselia scalaris* (Diptera: Phoridae) and the sequences matched with *M. scalaris* with a 100% homology. The *cox1* gene is a robust diagnostic marker for the identification of Phoridae flies in the field of forensic entomology (Boehme *et al.*, 2010).
- *Megaselia scalaris* has been recorded in cases of urogenital, intestinal, nasopharyngeal and ocular myiasis [Giangaspero *et al.*, 2021, cited above]. This is the first report of accidental myiasis in humans due to *Megaselia scalaris* in Italy. The flies were attracted to foul-smelling nasal discharge and crawled along the nasogastric tube.
- Correct identification of the myiasis agent provides more detailed information on the responsibility that health units (hospitals, geriatric homes, etc.) must have towards patients. In this view, hygiene, protection from flies by physical barriers, efficient waste disposal measures to reduce the smell of decomposition, and insecticide sprays are basic prevention measures that hospitals should take.

Figure 1 – Puparium (a) and adults (b) of *Megaselia scalaris* reared in laboratory.

REFERENCES – Disney 2008, Annu. Rev. Entomol. 53: 39–60; Boehme *et al.* 2010 Int. J. Legal Med. 124: 577–581. Folmer *et al.*, 2004 Mol. Mar. Biol. Biotechnol. 3: 294–299; Giangaspero *et al.*, 2021, J Med Entomol. 2021 58:121-124; Vanin *et al.*, 2013, J Med Entomol. 2013, 50:209-11.