ENTOMOLOGICAL Communications

Entomological Communications, 8, 2026: ec08041
doi: 10.37486/2675-1305.ec08041
e-ISSN: 2675-1305
Open Access Full Text Article

Scientific Note

Detection of *Aethina tumida* (Murray, 1867) (Coleoptera, Nitidulidae) on non-beekeeping substrate: cattle feed sacks

Erika G. M. do Nascimento[1], Victor C. R. Amorim[2], Edevaldo R. da Silva[2], Viviane M. L. de Siqueira[3], Luiz G. de Moraes[4], Marliton R. Barreto[5]

[1]Instituto de Defesa Agropecuária do Estado de Mato Grosso, Sinop, MT, Brazil. [2]Instituto de Defesa Agropecuária do Estado de Mato Grosso, Rondonópolis, MT, Brazil. [3]Instituto de Defesa Agropecuária do Estado de Mato Grosso, Alto Araguaia, MT, Brazil. [4]Instituto de Defesa Agropecuária do Estado de Mato Grosso, Alto Garças, MT, Brazil. [5]Universidade Federal de Mato Grosso, Sinop, MT, Brazil.
Corresponding author: marliton.barreto@ufmt.br

Edited by: Ivan C. F. Martins

Received: November 14, 2025. Accepted: July 02, 2026. Published: October 14, 2026.

Abstract. This study documents *Aethina tumida* (Murray, 1867) (Coleoptera, Nitidulidae) in silage bags and cattle feed. The specimens were collected in the municipality of Rondonópolis, Mato Grosso state, during June 2025. The identification was performed using qPCR conducted at LFDA-GO. This record contributes to the understanding of the species adaptability to different substrates. Furthermore, this article records the first occurrence of *A. tumida* in Alto Araguaia.

Keywords: Food substrate, invasive species, new record, pest insect, small hive beetle.

Aethina tumida (Murray, 1867) (Coleoptera, Nitidulidae) belongs to the Nitidulidae family and is known as the small hive beetle (PEC). It is a pest insect, originating from sub-Saharan Africa, that has spread throughout the world along with beekeeping and is known for its adaptation to various types of substrates such as fruits (Arbogast et al. 2010) and decaying meat (Buchholz et al. 2008). Neumann et al. (2016) reported that *A. tumida* constitutes an example of an invasive species and can have a significant impact on beekeeping.

The adult of *A. tumida* is attracted to hive products. It can multiply exponentially within the colony, where it eats bee larvae, honey, and pollen. Under certain conditions, it destroys the honeycombs, defecating in the honey and causing it to ferment. The resulting infestations can be very aggressive, often leading to the destruction of colonies and the disappearance of bees.

The first notification of its occurrence in Brazil was in the city of Piracicaba, in São Paulo state, in 1996. Regarding the central-western region, the first occurrence took place in Mato Grosso do Sul state, in 2019 (IAGRO 2019), followed by Goiás state (AGRODEFESA 2020) and, in Mato Grosso state, its first occurrence was reported in the municipality of Rondonópolis, in January/2025, in *Apis mellifera* Linnaeus, 1758 beehives (INDEA 2025).

Following a notification to INDEA (Instituto de Defesa Agropecuária do Estado de Mato Grosso) regarding several beetles present in beehives, and in accordance with IN no. 50/2013, which requires *in loco* visits to report suspected diseases requiring animal health defense measures, the Official Veterinary Service (SVO) went to the rural property in the municipality of Rondonópolis – MT state, and collected adult specimens of this beetle on May 16, 2025, directly from the beehives. On that date, it was also observed that some insects, similar adults, were present in silage and cattle feed bags, but these were not collected. On June 17, 2025, during a second visit to the rural property, it was found that adults insects remained in the bags and, this time, they were manually collected, with the aid of tweezers, from the cattle feed bags stored on the property.

In both collections, the adult specimens were stored in 70% alcohol and sent to the Federal Laboratory for Agricultural Defense in state of Goiás (LFDA-GO) for the identification via Quantitative Polymerase Chain Reaction (qPCR).

Based on the reports issued by LFDA-GO, it was possible to confirm the presence of *A. tumida* both in beehives (report no. 0023/2025-GO) and in sacks (report no. 0027/2025-GO) in the region of Rondonópolis, MT state (Fig. 1). It is worth noting that the distance between the beehives and the sacks is around 200 meters, and also that the period between the first sighting in the sacks and the collection date was 32 days. These facts lead us to consider that the sacks contain sufficient protein-rich food substrate for its survival. We would like to inform you that the insect was not processed and, therefore, no juvenile forms were collected from the site.

Regarding the distance from collection point 7 to the first record (INDEA 2025) in state of Mato Grosso, it was 23.4 km. In the other two *focus i*n the municipality (points 3 and 4), attended in February, the respective distances recorded were 0.9 km and 0.6 km, in relation to point 7. Regarding the distance, the data obtained corroborate Teixeira et al. (2016), who reported that the wide displacement capacity, associated with food diversity and survival in different climates, are the main factors that allow these beetles adaptive success and dispersal in diverse environments.

Furthermore, regarding the occurrence of *A. tumida* in state of Mato Grosso, the new registration in Alto Araguaia is added, according to reports no. 0006/2025-GO and 0009/2025-GO, with a collection record on 02/17th/2025 (Fig. 1).

Nitidulid beetles can reproduce on a wide variety of different foods, feeding on *fungi* (Park et al. 2014), but most of them are associated with a variety of decaying substrates of plant origin (Kirejtshuk & Lawrence 1999). Their presence in sacks is possibly associated with the plasticity of this pest. Arbogast et al. (2010) reported the need to search for evidence of these insects feeding on materials other than bee products.

This record contributes to the expanding knowledge of the insect epidemiology in the region and reinforces the importance of continuous studies to verify other substrates to which the beetle can adapt.

© The Author(s) 2026. Published by Sociedade Entomológica do Brasil.

This article is published by Sociedade Entomológica do Brasil and licensed under Creative Commons Licence 4.0, CC-BY. Share — copy and redistribute the material in any medium or format. Adapt — remix, transform, and build upon the material for any purpose, even commercially.

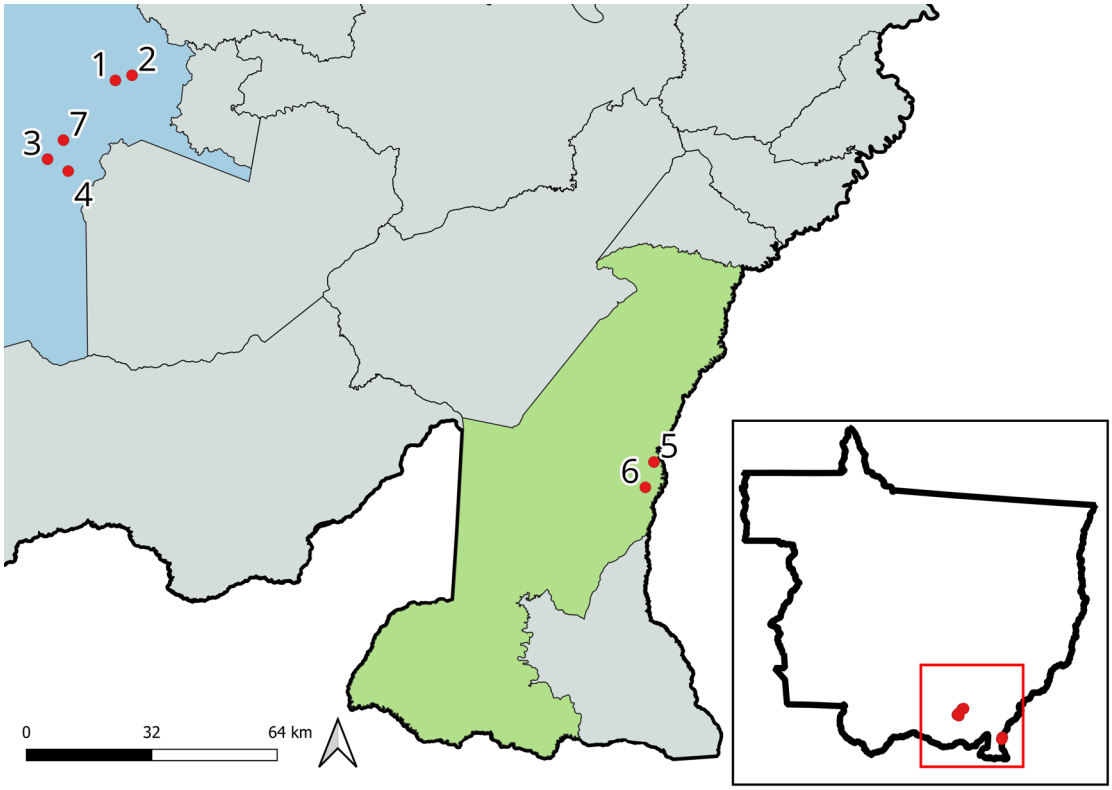


Figure 1. Locations where *Aethina tumida* (Murray, 1867) (Coleoptera, Nitidulidae) occurs in Mato Grosso. Points 1, 2, 3, 4 and 7 – in Rondonópolis; points 5 and 6 in Alto Araguaia (Figure author: M. R. Barreto).

Authors' Contributions

EGMN: Methodology, Investigation; VCRA: Methodology, Investigation; ERS: Conceptualization, Methodology, Investigation; VMLS: Methodology, Investigation; LGM: Methodology, Investigation; MRB: Conceptualization, Formal Analysis; Resources; Writing - review and editing.

Conflict of Interest Statement

The authors declare no competing interests.

Ethical Approval

Not applicable.

Data Availability

The data that support the findings of this study are available on request from the corresponding author.

Generative AI Statement

The authors declare that no generative artificial intelligence tools were used in the preparation of this manuscript.

References

Arbogast, R. T.; Torto, B.; Teal, P. E. (2010) Potential for population growth of the small hive beetle *Aethina tumida* (Coleoptera: Nitidulidae) on diets of pollen dough and oranges. *Florida Entomologist*, 93(2): 224–230. doi: 10.1653/024.093.0212

AGRODEFESA - Agência Goiana de Defesa Agropecuária (2020) Primeiro registro de ocorrência do Pequeno Besouro das Colmeias (PBC), *Aethina tumida*, no Estado de Goiás. Nota Técnica nº: 3/2020 - GESAN- 06233. https://goias.gov.br/agrodefesa/wp-content/uploads/sites/49/2014/09/notatecnica-296.pdf. Access on: 02.vi.2025.

Buchholz, S.; Schäfer, M. O.; Spiewok, S.; Pettis, J. S.; Duncan, M.; Ritter, W.; Spooner-Hart, R.; Neumann, P. (2008) Alternative food sources of *Aethina tumida* (Coleoptera: Nitidulidae). *Journal of Apicultural Research*, 47(3): 201–208. doi: 10.1080/00218839.2008.11101460

IAGRO - Agência Estadual de Defesa Sanitária Animal e Vegetal de Mato Grosso do Sul (2019) Ocorrência de mais 4 (quatro) casos de *Aethina tumida* em Mato Grosso do Sul e medidas adotadas. Nota Técnica. https://www.iagro.ms.gov.br/wp-content/uploads/2019/07/Nota-T%C3%A9cnica-Abelhas.pdf. Access on: 17.vii.2025.

INDEA - Instituto de Defesa Agropecuária do Estado de Mato Grosso (2025) Primeiro registro de ocorrência do Pequeno Besouro das Colmeias (PBC), *Aethina tumida*, no Estado de Mato Grosso. NOTA TÉCNICA Nº 01/2025 - CUIABÁ-MT. https://www.indea.mt.gov.br/documents/d/indea/nota-tecnicafinal-aethina-tumida-pdf. Access on: 13.vii.2025.

Kirejtshuk, A. G.; Lawrence, J. F. (1999) Notes on the *Aethina complex* (Coleoptera: Nitidulidae: Nitidulinae), with a review of *Aethina* (*Cleidorura*) subgen. nov. and *Aethina* (*Idaethina*) Gemminger et Harold. *Annales Zoologici*, 49(3): 233–254.

Neumann, P.; Pettis, J. S.; Marc, O. S. (2016) Quo vadis *Aethina tumida*? Biology and control of small hive beetles. *Apidologie*, 47: 427–466. doi: 10.1007/s13592-016-0426-x

Park, M. S.; Fong, J. J.; Lee, H.; Shin, S.; Lee, S.; Lee, N.; Lima, Y. W. (2014) Determination of coleopteran insects associated with spore dispersal of *Cryptoporus volvatus* (Polyporaceae: Basidiomycota) in Korea. *Journal of Asia-Pacific Entomology*, 17(4): 647–651. doi: 10.1016/j.aspen.2014.06.005

Teixeira, É. W.; De Jong, D.; Sattler, A.; Message, D. (2016) *Aethina tumida* Murray (Coleoptera, Nitidulidae), o pequeno besouro das colmeias chega ao Brasil. Mensagem Doce (Associação Paulista de Apicultores, Criadores de Abelhas Melíficas Européias), 136: 2-10. https://apacame.org.br/site/revista/mensagem-doce-n-136-maio-de-2016/nota-tecnica/