

WOAH Reference Laboratory Reports Activities 2025

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LABORATORY INFORMATION

*Name of disease (or topic) for which you are a designated WOA Reference Laboratory:	Small hive beetle
*Address of laboratory:	Anses (French Agency for Food, Environmental and Occupational Health and Safety) - Laboratoire de Sophia Antipolis, Unité Pathologie de l'Abeille, Les Templiers 105 route des Chappes CS 20111 06902 Sophia Antipolis FRANCE
*Tel:	+33 (0)4 92 94 37 00
*E-mail address:	stephanie.franco@anses.fr
Website:	http://www.anses.fr/
*Name (including Title) of Head of Laboratory (Responsible Official):	Marie-Pierre RIVIERE (Head of the Anses Sophia Antipolis Laboratory)
*Name (including Title and Position) of WOA Reference Expert:	Stéphanie FRANCO (Head of the National Reference Laboratory for Honey Bee Health; Scientific Project Manager in charge of macroscopic and microscopic diagnostics at the Anses laboratories in Sophia Antipolis)
*Which of the following defines your laboratory? Check all that apply:	Governmental Research agency

TOR1: DIAGNOSTIC METHODS

1. Did your laboratory perform diagnostic tests for the specified disease/topic for purposes such as disease diagnosis, screening of animals for export, surveillance, etc.? (Not for quality control, proficiency testing or staff training)

Yes

Diagnostic Test	Indicated in WOA Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests			
Not applicable	No		
Direct diagnostic tests			
Identification of Aethina tumida by morphological examination	Yes	10	0
Identification of Aethina tumida by real time PCR	Yes	2	0
Identification of Aethina tumida by sequencing	No	2	0

TOR2: REFERENCE MATERIAL

2. Did your laboratory produce or supply imported standard reference reagents officially recognised by WOA?

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOA Members?

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient WOA Member Countries	Country of recipients
Entomological	Morphological	Aethina tumida				

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reference specimens	identification	specimens (adults)	0	4 specimens	2	IRELAND, POLAND,
Entomological reference specimens	Morphological identification	Aethina tumida specimens (larvae)	0	4 specimens	2	IRELAND, POLAND,

4. Did your laboratory produce vaccines?

Not applicable

5. Did your laboratory supply vaccines to WOAHA Members?

TOR3: NEW PROCEDURES

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

No

7. Did your laboratory validate diagnostic methods according to WOAHA Standards for the designated pathogen or disease?

Yes

Name of the new test or diagnostic method developed	Description and References (Publication, website, etc.)
Identification of Aethina tumida by morphological examination	The method underwent a minor revision in 2025 : – Figures were improved and added; – Certain morphological criteria were clarified (abdominal coverage by the elytra and pronotum shape) to improve reproducibility; – Clarifications were added on the interpretation of the adult size criterion. The method was published on the website of the European Union Reference Laboratory for Honey Bee Health (https://eurl-bee.anses.fr/en/minisite/abeilles/eu-rl-methods-forms) and will be implemented in the WOAHA Manual at the next revision.
Identification of Aethina tumida by real time PCR	Validation data were supplemented with new data obtained from different coleoptera species (DNA): Aethina tumida from Burkina faso, Tanzania, Philippines (to test the sensitivity of the method), and Aethina concolor and Aethina flavicollis (to test the specificity of the the method)? The validation report is an internal document of the Anses laboratory in Sophia Antipolis and is not published. For any request for information, please contact the laboratory at the following email address: eurl.bee@anses.fr

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

9. Did your laboratory validate vaccines according to WOAHA Standards for the designated pathogen or disease?

TOR4: DIAGNOSTIC TESTING FACILITIES

10. Did your laboratory carry out diagnostic testing for other WOAHA Members?

No

11. Did your laboratory provide expert advice in technical consultancies on the request of an WOAHA Member?

Yes

Name of the WOAHA Member Country receiving a technical consultancy	Purpose	How the advice was provided
FRANCE	Scientific and technical support for implementing the morphological method for small hive beetle identification in a laboratory in Reunion island.	Video conference meetings Hosting of a visiting scientist Emails

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAHA Members other than the own?

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	WOAHA Member Countries involved other than your country
		Propose a molecular method for the surveillance of the small hive beetle, based on the detection of	French Agency for Food, Environmental and Occupational Health and Safety (Anses, laboratoire de Sophia Antipolis), Istituto Zooprofilattico Sperimentale delle Venezie,	

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Detection of <i>Aethina tumida</i> in beehive debris	5 years	<i>A. tumida</i> in hive debris. The project aims to evaluate the robustness of the method under field conditions (sensitivity), in an enzootic context.	Istituto Zooprofilattico Sperimentale del Mezzogiorno. This project was funded by the European Union (EU) within the framework of Anses' mandate as the EU Reference Laboratory (EURL) for honey bee health.	ITALY
Phylogeny of <i>A. tumida</i> specimens introduced to Mauritius and Reunion Island	3 years	Study the phylogeny of the small hive beetle and its spread on Réunion Island. In 2025, the results were reported in a scientific manuscript and submitted for publication.	French Agency for Food, Environmental and Occupational Health and Safety (Anses, laboratoire de Sophia Antipolis), Ministry of Agro Industry and Food Security of Mauritius (Entomology Division, Agricultural Services)	MAURITIUS

13. In exercising your activities, have you identified any regulatory research needs* relevant for WOA?H?

Yes

Research need : 1

Please type the Research need: The use of indirect diagnostic methods for *A. tumida* (based, for example, on the collection of hive debris, hive swabs, or honey, followed by PCR analysis) could represent a promising approach for monitoring this pest. These approaches could serve as complementary tools to visual inspection of colonies or trapping. Scientific teams are currently working on the development and validation of these methods, which could eventually be included in the terrestrial section of the WOA?H Manual. Validation of these methods is crucial to assess their performance under field conditions for potential use in official surveillance programs.

Relevance for WOA?H Disease Control,

Relevance for the Code or Manual Manual,

Field Diagnostics,

Animal Category Terrestrial,

Disease:

Infestation of honey bees with *Aethina tumida* (small hive beetle)

Kind of disease (Zoonosis, Transboundary diseases) Transboundary diseases,

If any, please specify relevance for Codes or Manual, chapter and title

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

Answer:

Notes:

Answer:

TOR6: EPIZOOLOGICAL DATA

14. Did your Laboratory collect epidemiological data relevant to international disease control?

Yes

If the answer is yes, please provide details of the data collected:

The laboratory has continued to monitor the spread of *A. tumida* on Reunion Island (France), since its first detection of *A. tumida* in 2022. By 2025, the beetle had expanded to multiple areas across the island.

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

Yes

If the answer is yes, please provide details of the data collected:

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In 2025, the laboratory presented the first results of the phylogenetic study on Réunion Island specimens at the Apimondia Congress in Denmark:
Del Cont, A., Franco S., Koustovoulos G., Tison A., and V. Duquesne. 2025. "First Outbreak of Small Hive Beetle on Réunion Island: A New Haplotype Identified in Clade C."
Apimondia 2025, 23–27 September 2025, Scandinavia (Copenhagen, Denmark), Poster presentation.

16. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category and list the details in the box)

a) Articles published in peer-reviewed journals:

0

b) International conferences:

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* *The laboratory shares information on the small hive beetle infestation during the annual meeting of the European Union Reference Laboratory (EURL) for Honey Bee Health. This year, the meeting was held on 15 October 2025 in Sophia Antipolis, France (<https://sitesv2.anses.fr/en/minisite/abeilles/workshops>).*

* *Presentations at the Apimondia congress:*

Del Cont, A., Franco S., Koustovoulos G., Tison A., and V. Duquesne. 2025. "First Outbreak of Small Hive Beetle on Réunion Island: A New Haplotype Identified in Clade C." Apimondia 2025, 23–27 September 2025, Scandinavia (Copenhagen, Denmark), Poster presentation.

Laurent, M., Duquesne, V., Franco, S., Sidi-Boumedine, K., Rivière, M.P., M.-P. Chauzat. 2025. "The European Union National Reference Laboratories Are Ready to Diagnose Diseases and Protect Beekeeping." Apimondia 2025, 23–27 September 2025, Scandinavia (Copenhagen, Denmark), Oral presentation. The presentation summarized the activities and readiness of the EU national reference laboratories to diagnose bee diseases, notably small hive beetle.

c) National conferences:

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*Franco, S. 2025. « Règlements pour les importations et échanges d'abeilles et de bourdons, exemples de risques sanitaires ». Diplôme inter écoles Diagnostic et gestion sanitaire d'une exploitation apicole, pathologie apicole. Oniris, Nantes, France. 6 February 2025. Oral conference. The presentation addressed, among other topics, the risk of *Aethina tumida* spread through international trade.*

Franco, S. 2025. « Point de situation sur le petit coléoptère des ruches en Europe ». Diplôme inter écoles Diagnostic et gestion sanitaire d'une exploitation apicole, pathologie apicole. Oniris, Nantes, France. 6 February 2025. Oral conference.

*Franco, S. 2025. « Bonnes pratiques de prélèvement en vue d'analyses dans le domaine apicole ». Diplôme inter écoles Diagnostic et gestion sanitaire d'une exploitation apicole, pathologie apicole. Oniris, Nantes, France. 7 February 2025. Oral conference. The presentation covered, among other topics, available diagnostic methods for *Aethina tumida* and recommended sampling practices for proper sample handling.*

L'Hostis, M. and S. Franco. 2025. « Évolution des maladies et des dangers exotiques en apiculture, comment protéger l'apiculture bretonne ? » Journée sanitaire bretonne, Rennes, France. 3 February 2025. Oral conference. The presentation focused on the spread of exotic diseases, notably the small hive beetle.

d) Other (Provide website address or link to appropriate information):

2

*The laboratory publishes information on the epidemiological situation of *A. tumida* on:*

- *The EURL website: <https://sitesv2.anses.fr/en/minisite/abeilles/liste-actualites/news>*

- *The Animal Health Epidemiological Surveillance Platform website: <https://www.platforme-esa.fr>. The laboratory contributes to a weekly international monitoring bulletin on honey bee health.*

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOA Members?

No

TOR8: QUALITY ASSURANCE

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18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO 17025	COFRAC certificate (n° 1-2249 rév. 16)	Attest-COFRAC_Anses_1-2249_Rev16.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Identification of <i>Aethina tumida</i> by morphological examination	French Committee for Accreditation (Cofrac)
Identification of <i>Aethina tumida</i> by real time PCR	French Committee for Accreditation (Cofrac)

20. Does your laboratory maintain a "biorisk management system" for the pathogen and the disease concerned?

Yes

The biological risk posed by *Aethina tumida* is low, as specimens usually arrive dead at the laboratory (see instructions provided for sending diagnostic samples). If they arrive alive, specific procedures are implemented upon sample reception, including opening the package in a contained environment and freezing the samples to quickly kill the specimens. These specific procedures complement the general biosafety and biosecurity measures in place to manage biological risks in the laboratory, such as waste management, cleaning and disinfection, access control to facilities and IT systems, technical procedures for sample reception and analyses, and staff training. All these procedures and measures are included in the laboratory's quality management system.

TOR9: SCIENTIFIC MEETINGS

21. Did your laboratory organise scientific meetings related to the pathogen in question on behalf of WOAHP?

No

22. Did your laboratory participate in scientific meetings related to the pathogen in question on behalf of WOAHP?

Yes

Title of event	Date	location	Role (speaker, presenting poster, short communications)	Title of the work presented
Apimondia congress	2025-09-23	Copenhagen, Denmark	Poster presentation	First Outbreak of Small Hive Beetle on Réunion Island: A New Haplotype Identified in Clade C.

TOR10: NETWORK WITH WOAHP REFERENCE LABORATORIES

23. Did your laboratory exchange information with other WOAHP Reference Laboratories designated for the same pathogen or disease?

Yes

24. Are you a member of a network of WOAHP Reference Laboratories designated for the same pathogen?

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAHP REF. LABS
<i>Aethina tumida</i>	Participant and organiser	2	Friedrich-Loeffler-Institut (FLI, Germany) Anses Sophia Antipolis Laboratory (Sophia Antipolis, France)

25. Did you organise or participate in inter-laboratory proficiency tests with WOAHP Reference Laboratories designated for the same pathogen during the past 2 years?

Yes

Purpose of the proficiency test:	Role of your Reference Laboratory (organiser/ participant)	No. participating Laboratories	Participating WOAHP Ref. Labs/ organising WOAHP Ref Lab
Identification of <i>Aethina tumida</i> by morphological examination (ILPT in progress)	Participant	2	Friedrich-Loeffler-Institut (FLI, Germany) (organiser) Anses Sophia Antipolis Laboratory (Sophia Antipolis, France) (participant)

26. Did your laboratory collaborate with other WOAHP Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the

pathogen of interest?

No

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOAH Reference Laboratories for the same pathogen during the past 2 years?

Yes

Purpose for inter-laboratory test comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the test	WOAH Member Countries
Assess the competence of a laboratory for the morphological identification method	Organiser and participant (bilateral comparison)	2	Identification of <i>Aethina tumida</i> by morphological examination	FRANCE,

TOR12: EXPERT CONSULTANTS

28. Did your laboratory place expert consultants at the disposal of WOAH?

Yes

Kind of consultancy	Location	Subject (facultative)
Revision of the terrestrial chapter of the WOAH Manual on <i>Aethina tumida</i>	Not applicable (emails exchanges)	The revision was conducted in collaboration with the Friedrich-Loeffler-Institut (Germany), the other WOAH Reference Laboratory designated for <i>A. tumida</i> .
Advice on the development of WOAH projects on honey bee health	Not applicable (emails exchanges)	Different topics.

29. Additional comments regarding your report:

Yes

*The Anses laboratory in Sophia Antipolis has been working for several years on the development and validation of high-quality diagnostic methods for the detection and identification of *Aethina tumida*. These methods have been disseminated to WOAH Member States through the Diagnostic Tests and Vaccines Manual, enabling them to use the methods independently. Consequently, the laboratory receives very few international requests for diagnostics, reference materials, or expertise. Nevertheless, the laboratory continues its efforts to expand its reference collections, improve WOAH diagnostic tools, and enhance its expertise. In 2025, the laboratory maintained its involvement following the introduction of the small hive beetle on the French island of Réunion as part of its mandate as the National Reference Laboratory for Honey Bee Health. The analysis of entomological specimens collected under official surveillance helps to consolidate the reliability of the diagnostic tools described in the WOAH Manual. Phylogenetic analyses are also ongoing, aimed at better understanding the international dissemination of *A. tumida*. The laboratory maintains regular contact with sanitary and research organizations on Réunion Island, contributing to its scientific and technical expertise in the surveillance, prevention, and management of the small hive beetle—a major asset in the event of future international alerts. The laboratory exchanges information with the Italian National Reference Laboratory regarding the health situation of *A. tumida* in Calabria and Sicily. A research partnership has been established with an Italian research institute for the collection of hive debris from infested apiaries. Regular exchanges are also maintained with the Friedrich-Loeffler-Institut (FLI, Germany), which is likewise a WOAH Reference Laboratory for *A. tumida* infestation in honey bees (via email or meetings). At the end of 2025, a bilateral proficiency test was launched between our two laboratories on the morphological method. Our laboratories also collaborated closely on the revision of the WOAH Manual chapters, which were published this year. The next inter-laboratory proficiency test organized by ANSES Sophia Antipolis, initially planned for 2025, has been postponed to 2027 due to human resource constraints and limited access to biological material for panel preparation. Although this activity does not appear in previous items of the report, it is important to note that the laboratory has continued preparing this test by collecting new entomological specimens. This activity is funded by the European Commission as part of the Sophia Antipolis laboratory's EURL mandate.*