

## 1. Content of the 'Topic Description' document

### 1.1. Topic area

Pest/vector biology, epidemiology, taxonomy.

### 1.2. Topic title

Set up of reliable detection protocols for the specific identification of '*Candidatus* Phytoplasma phoenicium'.

### 1.3. Description of the problem the research should solve

Almond witches'-broom (AlmWB) is a severe disease which affects almond, peach and nectarine trees in Lebanon, and only almond trees in Iran. In Lebanon, during the last two decades, the disease, rapidly spread and killed almost 100,000 trees over a period of 10 years. Almond witches broom (AlmWB) is a phytoplasmas disease caused by '*Candidatus* Phytoplasma phoenicium' (CaPphoe) (A1 EPPO alert list), actually occurring only in Lebanon and Iran. In these countries, recent outbreaks induced severe crop losses on almond and peach trees. In Lebanon, CaPphoe is transmitted by the leafhopper *Asymmetrasca decedens* and by the cixiids *Tachycixius viperinus* and *T. cf. cypricus*; in Iran, insect vectors are still unknown. Multiple gene typing analyses of CaPphoe strains infecting almond, peach and nectarine allowed the identification of genetically distinct AlmWB-associated phytoplasma strains from diverse host plants based on *inmp* (integral membrane protein) gene sequence analysis. Europe, Italy and all the Mediterranean Countries are strongly interested to keep AlmWB out of their territories where peach and other stone fruits are largely cultivated. Early detection of CaPphoe, aimed at a fast identification and eradication of infected plants, is an essential measure to avoid the introduction and spread of the pathogens into free areas. Detection methods for CaPphoe have been developed and include conventional and real-time polymerase chain reaction (PCR). Sporadic distribution and variation in the titer in different parts of infected plants has been observed, making CaPphoe detection sometimes inconsistent. This project aims to carry out studies to develop fast, reliable and harmonized detection protocols for the identification of genetically distinct CaPphoe strains.

### 1.4. Description of the expected results

The project is expected to deliver protocols for the detection of genetically distinct CaPphoe strains, validated in accordance to the European standards for the harmonization of the detection within the EC.

### 1.5. Beneficiaries of this research product

- Diagnostic laboratories and inspection services: this project will generate standardized diagnostic guidelines.
- NPPO could adapt their policies based on scientifically validated scheme from national and international bodies.
- Industry will benefit from the availabilities of better controlled plants and of an adapted regulatory framework allowing them to produce and/or commercialize better quality products.

### 1.6. Research funders and research contribution/ distribution

Funding organisation	Research activity and researchers involved
1. University of Milan, Italy  Piero A. Bianco piero.bianco@unimi.it	-Project coordination. -Assessment and improvement of detection methods for CaPphoe. -Validation of detection method. -Interlaboratory test.



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<p>2. The Council for Agricultural Research and Economics, Italy</p> <p>Luca Riccioni <a href="mailto:luca.riccioni@crea.gov.it">luca.riccioni@crea.gov.it</a></p>	<p>-Assessment and improvement of detection methods for CaPphoe. -Validation of detection method. -Interlaboratory test.</p> <p>Contact person: Luca Ferretti E.mail address: <a href="mailto:luca.ferretti@crea.gov.it">luca.ferretti@crea.gov.it</a></p>
<p>3. French Agency for Food, Environmental and Occupational Health &amp; Safety, France</p> <p>Géraldine Anthoine <a href="mailto:geraldine.anthoine@anses.fr">geraldine.anthoine@anses.fr</a></p>	<p>-Participation in the interlaboratory test</p> <p>Contact person: Marianne Loiseau E.mail address: <a href="mailto:marianne.loiseau@anses.fr">marianne.loiseau@anses.fr</a></p>
<p>4. All-Russian Plant Quarantine Centre, Russia</p> <p>Natalia Sherokolava <a href="mailto:natalia_sh@mail.ru">natalia_sh@mail.ru</a></p>	<p>-Contribution to be detailed</p> <p>Contact person: Yuri Shneyder Email address: <a href="mailto:yury.shneyder@mail.ru">yury.shneyder@mail.ru</a></p>
<p>5. Ministry of Agriculture Forestry and Food, Slovenia</p> <p>Erika Oresek <a href="mailto:Erika.Oresek@gov.si">Erika.Oresek@gov.si</a></p>	<p>-Assessment and improvement of detection methods for CaPphoe. -Validation of detection method. -Interlaboratory test.</p> <p>Contact person: Nataša Mehle E.mail address: <a href="mailto:natasa.mehle@nib.si">natasa.mehle@nib.si</a></p> <p>Contact person: Marina Dermastia E.mail address: <a href="mailto:Marina.dermastia@nib.si">Marina.dermastia@nib.si</a></p>
<p>6. American University of Beirut, Lebanon</p> <p>Yusuf Abou Jawdah <a href="mailto:abujawyf@aub.edu.lb">abujawyf@aub.edu.lb</a></p>	<p>-Contribution to be detailed</p> <p>Contact person: Yusuf Abou Jawdah E.mail address: <a href="mailto:abujawyf@aub.edu.lb">abujawyf@aub.edu.lb</a></p>
<p>7. Shiraz University, Iran</p> <p>Siampour Majid <a href="mailto:siampour@agr.sku.ac.ir">siampour@agr.sku.ac.ir</a></p>	<p>-Contribution to be detailed</p> <p>Contact person: Siampour Majid E.mail address: <a href="mailto:siampour@agr.sku.ac.ir">siampour@agr.sku.ac.ir</a></p>

### 1.7. Research project partnership outside Euphresco

Euphresco funding ensures a certain level of transnational collaboration among Euphresco member countries. It is possible, if the funding consortium is interested, to contact funding organisations or research groups outside the geographical area covered by Euphresco members. The Euphresco coordinator could advertise the research topic in order to have an enlarged collaboration. If funders are interested in this possibility, please check the case below:

The funding consortium of the topic mentioned in section 1.2 requires to advertise the topic outside the Euphresco network

### 1.8. Any other relevant information on content

## 2. Euphresco management aspects of the project

### 2.1. Indication of the topic budget

Funding organisation <sup>a</sup>	Mechanism <sup>b</sup>	Total Budget <sup>c</sup>
1. UNIMI (IT)	NC	€ 10 000
2. CREA (IT)	NC	€ 2 000
3. ANSES (FR)	NC	€ 11 900
4. FGBU-VNIIKR (RU)	NC	€ 10 000
5. MKGP (SI)	NC	€ 8 000
6. AUB (LB)	NC	€ 10 000
7. SHIRAZU (IR)	NC	€ 2 000
total		€ 53 900

### 2.2. Expected duration of the project (only for non-competitive topics)

24 months.

### 2.3. Identification of project coordinator

Has the research project coordinator been identified?

Yes

No

### 2.4. Any other relevant information on topic organisation and management

<sup>a</sup> First member is project coordinator. A minimum of two partners are necessary for each proposal. Add lines as needed.

<sup>b</sup> Please indicate the preferred mechanism (e.g. real pot RP; virtual pot VP; non-competitive NC), or several mechanisms if there is flexibility.

<sup>c</sup> Optional, as this amount can still change in the next phase. In-kind contribution should also be indicated in this column.