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Swedish University of Agricultural Sciences

SLU Risk Assessment of Plant Pests

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Feedback on a list of plant pests with candidates for risk assessments – Batch 8

Background

Since 2021, a large number of plant pests has been evaluated using EFSAs PeMoScoring tool (EFSA 2022). The group of pests receiving a score above a threshold value has been considered for further assessment by COM, but not all of these pests are proposed for a pest categorisation.

SLU Risk Assessment of Plant Pests was requested by the Swedish Board of Agriculture to provide feedback particularly for the group of plant pests proposed not to be considered for further pest categorisation. This group of pest includes, i) a group of four pests for which SLU Risk Assessment of Plant Pests has not previously done any evaluation and ii) species for which previous evaluation have been made (Björklund and Boberg, 2021a,b; 2022a,b,c,d; 2023).

A literature search was conducted to investigate whether any reports from Sweden or additional relevant information could be found for the first group of pests. The list of pests not proposed for further categorisation was then evaluated based on the information provided by COM (2023, unpublished) and previous evaluations performed.

The species in the first group of pests were:

- *Erysiphe salmonii*
- Pepo aphid-borne yellows virus
- *Phytophthora rosacearum*
- *Sawadaea polyfida*

Methods

A broad approach was used to find information about observations of the four pests in Sweden and other relevant information. Searches were performed in: Web of Science (2023), Google Scholar (including “Sweden” in the search string, and in different specific databases, i.e., CABI Compendium Crop Protection (CABI 2023a), Descriptions of Plant Viruses (DPVweb.net 2023), EPPO Global Database (EPPO 2023a), EPPO Platform on PRAs (EPPO 2023b), International Committee on Taxonomy of Viruses (ICTV 2023), SLU Artfakta (SLU Swedish

Species Information Center 2023), iNaturalist (2023), GBIF (2023), UK Plant Health Risk Register (FERA 2023), and United States National Fungus Collections Fungus-Host Dataset (Farr et al. 2021).

The searches included the following preferred names and synonyms (EPPO 2023a, Mycobank 2023) and with EPPO codes within brackets:

- *Erysiphe salmonii* (syn. *Uncinula salmonii*)
- Pepo aphid-borne yellows virus (syn. PABYV), [PABYV0]
- *Phytophthora rosacearum* [PHYTRO]
- *Sawadaea polyfida* (syn. *Uncinula polyfida*), [SAWDPO]

Results and discussion

Feedback on pests not previously evaluated

Erysiphe salmonii
Additional information to the information provided in the proposal by COM: Apart from the already listed EU countries (Austria, Romania and Slovenia) it may also be relevant to consider reports of the fungus from Ukraine (in 2015 as the first report in Europe) (Heluta et al 2017) and Switzerland (in 2020 and 2022 and considered widespread where it is found) (Beenken and Brodtbeck 2020; WSL 2023). *Erysiphe salmonii* was also recently found in Italy (Hofbauer and Braun 2023). No reports of observations of *Erysiphe salmonii* in Sweden were found. The host range includes, apart from different *Fraxinus* sp., also *Syringa* sp. (Yamaguchi et al. 2021).

Pepo aphid-borne yellows virus [PABYV0]
No reports of observations of Pepo aphid-borne yellows virus in Sweden were found.

Phytophthora rosacearum **[**PHYTRO]
Additional information to the information provided in the proposal by COM: Apart from the already listed EU countries (Poland, Czechia, Portugal, Bulgaria) it may also be relevant to consider reports of the pathogen from Croatia, Turkey and Norway (Jung et al 2015; Strømeng et al. 2015; Talgø et al. 2020; Kurbetli et al. 2020). In Norway, *P. rosacearum* was found in a plant nursery and in soil collected in a nature reserve (Strømeng et al. 2015; Talgø et al. 2020). *Phytophthora rosacearum* has also been reported from a nursery and from river filtrates in Sweden (Redondo et al 2018a,b). In the latter samples, DNA barcoding and high-throughput sequencing was used for the detection and is thus associated with uncertainty.

A culture of *P. rosacearum* is available at the fungal biodiversity centre (CBS; KNAW 2023) from Australia which was isolated from *Olea europaea*. This is an additional host to the list provided by COM.

Sawadaea polyfida
Additional information to the information provided in the proposal by COM: Apart from the already listed EU country (Switzerland) it may also be relevant to consider reports that the pathogen was recently reported from Austria (Hofbauer and Braun 2023). *S. polyfida* was also detected in Germany, but by using DNA barcoding and high-throughput sequencing and is thus associated with uncertainty (Wemheuer et al 2019). No reports of observations of *Sawadaea polyfida* in Sweden were found.

Feedback on pests proposed not to be further assessed

Due to extreme time constraints the evaluation of the pests were limited to previous collected information as described earlier. Based on this information it is unclear why the following pests would not be considered for pest categorisation to assessed whether they would fulfil the criteria to be considered as quarantine pest or regulated non-quarantine pests. Some reasons for their potential relevance are also provided:

- ***Atherigona orientalis* [ATHEOR]**,
  An Express Risk Analysis was conducted in Germany assessing the risk for Germany as well as for the EU as medium (moderate uncertainty)(Baufeld & Schrader 2022). The PRA indicate that measures were taken in accordance with Article 29 of Regulation (EU) 2016/2031.
- **Dasheen mosaic virus [DSMV00],**
  Reported from several MS, but plants for planting may be the most important pathway and significant yield losses are reported by CABI (2023b).
- **Pepo aphid-borne yellows virus [PABYV0],**
  Reported from a couple of MS, but plants for planting may be the most important pathway. Impact of the virus is uncertain but was recently described a new species in 2017 (Ibaba et al. 2017).
- **Pepper yellow mosaic virus [PEPYMV],**
  Reported from several MS, but plants for planting may be the most important pathway and significant yield losses are reported on tomato and peppers (Bento et al. 2009).
- ***Phytophthora rosacearum* [**PHYTRO],
  Reported from several MS, but plants for planting is likely the most important pathway. The host range is large and severe dieback and mortality is described for the species.
- ***Xanthomonas translucens* pv. *undulosa* [XANTTU],**
  Presence in the EU appear to be uncertain, cf. the pest distribution reported in EPPO Global Database (EPPO, 2023). The incidence and severity of disease is increasing in Canada and USA according to sources in EFSAs media monitoring newsletter (EFSA 2021).

Author

This report was prepared by SLU Risk Assessment of Plant Pests at the Swedish University of Agricultural Sciences:

Johanna Boberg, Dept. of Forest Mycology and Plant Pathology, Swedish University of Agricultural Sciences, PO Box 7026, SE-750 07 Uppsala, Sweden. Visiting address: Almas allé 5, E-mail: Johanna.Boberg@slu.se

References

Beenken, L., & Brodtbeck, T. (2020). First record of *Erysiphe salmonii* causing powdery mildew on Fraxinus ornus in Switzerland. *New Disease Reports*, *42*(1), 22-22.

Bento CDS, Rodrigues R, Zerbini JFM & Sudré CP, (2009). Sources of resistance against the Pepper yellow mosaic virus in chili pepper. Horticultura brasileira, 27, 196-201.

Björklund, N. and Boberg, J. (2021a). Feedback on a list of plant pests with candidates for risk assessments. SLU.ua.2021.2.6-2603, July 2, 2021. SLU Risk Assessment of Plant Pests, Swedish University of Agricultural Sciences. www.slu.se/risk-assessment

Björklund, N. and Boberg, J. (2021b). Feedback on a list of plant pests with candidates for risk assessments – Batch 2. SLU.ua.2021.2.6-4443, December 14, 2021. SLU Risk Assessment of Plant Pests, Swedish University of Agricultural Sciences. www.slu.se/risk-assessment

Björklund, N. and Boberg, J. (2022a). Feedback on a list of plant pests with candidates for risk assessments – Batch 3. SLU.ua.2022.2.6-1487, April 19, 2022. SLU Risk Assessment of Plant Pests, Swedish University of Agricultural Sciences. www.slu.se/risk-assessment

Björklund, N. and Boberg, J. (2022b). Feedback on a list of plant pests with candidates for risk assessments – Batch 4. SLU.ua.2022.2.6-1919, June 2, 2022. SLU Risk Assessment of Plant Pests, Swedish University of Agricultural Sciences. www.slu.se/risk-assessment

Björklund, N. and Boberg, J. (2022c). Feedback on a list of plant pests with candidates for risk assessments – Batch 5. SLU.ua.2022.2.6-2918, August 11, 2022. SLU Risk Assessment of Plant Pests, Swedish University of Agricultural Sciences. www.slu.se/risk-assessment

Björklund, N. and Boberg, J. (2022d). Feedback on a list of plant pests with candidates for risk assessments – Batch 6. SLU.ua.2022.2.6-3744, October 21, 2022. SLU Risk Assessment of Plant Pests, Swedish University of Agricultural Sciences. www.slu.se/risk-assessment

Björklund, N. and Boberg, J. (2023). Feedback on a list of plant pests with candidates for risk assessments – Batch 7. SLU.ua.2023.2.6-342, February 17, 2023. SLU Risk Assessment of Plant Pests, Swedish University of Agricultural Sciences. www.slu.se/risk-assessment

Baufeld, P, and Schrader, G. (2022) Express PRA to *Atherigona orientalis*. Updated 08/18/2022 (replaces version from: 02/11/2016), Julius Kühn Institute, Institute for National and International Plant Health. Available at: https://pra.eppo.int/pra/0b5ddc83-0dd3-46b2-992e-1e360f6766e9

CABI (2023a) CABI Compendium. Wallinford, UK: CAB International. Available from https://www.cabidigitallibrary.org/journal/cabicompendium [Accessed 2023-06-06]

CABI (2023b) Dasheen mosaic virus (dasheen mosaic). In: CABI Compendium. Wallingford, UK: CAB International. https://doi.org/10.1079/cabicompendium.19413 [Accessed: 2023-07-07]

DPVweb.net (2022) DPVweb.net, Descriptions of Plant Viruses, https://www.dpvweb.net/ [Accessed 2023-07-06]

EFSA (2021) Media Monitoring, Plant Health Newsletter, No. 51, June 2021. European Food Safety Authority (EFSA), EFSA-Q-2021-00345, doi: 10.2903/sp.efsa.2021.EN-6688

EFSA (European Food Safety Authority), Tayeh, C., Mannino, M. R., Mosbach-Schulz, O., Stancanelli, G., Tramontini, S., ... & Jeger, M. J. (2022). Proposal of a ranking methodology for plant threats in the EU. *EFSA Journal*, *20*(1), e07025. https://doi.org/10.2903/j.efsa.2022.7025

EPPO (2023a) EPPO Global Database (available online). https://gd.eppo.int [Accessed 2023-07-06]

EPPO (2023b) EPPO Platform on PRAs, the complete version that requires login, https://pra.eppo.int/ [Accessed 2023-07-06]

(dataset) Farr, David F., Rossman, Amy Y., Castlebury, Lisa A. (2021). United States National Fungus Collections Fungus-Host Dataset. Ag Data Commons. https://doi.org/10.15482/USDA.ADC/1524414. [Accessed 2023-07-06].

FERA (2023). UK Plant Health Risk Register. Department for Environment, Food & Rural Affairs. https://planthealthportal.defra.gov.uk/pests-and-diseases/uk-plant-health-risk-register/index.cfm [Accessed 2023-07-06]

GBIF (2023) Global Biodiversity Information Facility (GBIF) https://www.gbif.org/ [Accessed 2023-07-06]

Heluta, V. P., Takamatsu, S., & Siahaan, S. A. (2017). *Erysiphe salmonii* (Erysiphales, Ascomycota), another East Asian powdery mildew fungus introduced into Ukraine. *Український ботанічний журнал*, (74,№ 3), 212-219.

Hofbauer, W. K., & Braun, U. (2023). New discoveries of powdery mildew species from Austria and Italy. *Schlechtendalia*, *40*, 272-277.

Ibaba, J. D., Laing, M. D., & Gubba, A. (2017). Pepo aphid-borne yellows virus: a new species in the genus Polerovirus. Virus Genes, 53, 134-136.

ICTV (2023) International Committee on Taxonomy of Viruses (ICTV), database available from https://ictv.global/taxonomy [Accessed 2023-07-06]

iNaturalist (2023) iNaturalist, California Academy of Sciences och National Geographic Society, database available from https://www.inaturalist.org [Accessed 2023-07-06]

Jung, T., Orlikowski, L., Henricot, B., Abad-Campos, P., Aday, A. G., Aguín Casal, O., ... & Peréz-Sierra, A. (2016). Widespread *Phytophthora* infestations in European nurseries put forest, semi-natural and horticultural ecosystems at high risk of *Phytophthora* diseases. *Forest Pathology*, *46*(2), 134-163.

KNAW (2023) CBS strains database. Westerdijk Fungal Biodiversity Institute. https://wi.knaw.nl/fungal_table [Accessed 2023-07-06]

Kurbetli, İ., Karaca, G., Aydoğdu, M., & Sülü, G. (2020). *Phytophthora* species causing root and collar rot of pomegranate in Turkey. *European Journal of Plant Pathology*, *157*(3), 485-496.

Redondo, M. A., Boberg, J., Stenlid, J., & Oliva, J. (2018a). Functional traits associated with the establishment of introduced *Phytophthora* spp. in Swedish forests. *Journal of applied ecology*, *55*(3), 1538-1552.

Redondo, M. A., Boberg, J., Stenlid, J., & Oliva, J. (2018b). Contrasting distribution patterns between aquatic and terrestrial *Phytophthora* species along a climatic gradient are linked to functional traits. *The ISME Journal*, *12*(12), 2967-2980.

SLU Swedish Species Information Center (2023) Artfakta, https://artfakta.se/artbestamning [Accessed 2023-07-06]

Strømeng, G., Brurberg, M. B., Ørstad, K., & Talgø, V. (2015). Kartlegging av *Phytophthora*-arter i Åkersvika naturreservat. *NIBIO oppdragsrapport*. Vol. 1. Nr 4. https://nibio.brage.unit.no/nibio-xmlui/bitstream/handle/11250/2374477/NIBIO_RAPPORT_2015_1_4.pdf?sequence=6&isAllowed=y

Talgø, V., Brurberg, M. B., & Pettersson, M. (2020). Kartlegging av *Phytophthora* i Bymiljøetatens planteskole i Oslo 2019. *NIBIO Rapport*. Vol. 6. Nr 206. https://nibio.brage.unit.no/nibio-xmlui/bitstream/handle/11250/2669984/NIBIO_RAPPORT_2020_6_106.pdf?sequence=2&isAllowed=y

Web of Science (2023) Clarivate, Web of Science, https://www.webofscience.com/wos/alldb/basic-search [Accessed 2023-07-06]

Wemheuer, F., Wemheuer, B., Daniel, R., & Vidal, S. (2019). Deciphering bacterial and fungal endophyte communities in leaves of two maple trees with green islands. Scientific reports, 9(1), 14183.

WSL (Swiss Federal Institute for Forest, Snow and Landscape Research) (2023) SwissFungi distribution map https://www.wsl.ch/map_fungi/search?taxon=null&start=1991&end=2023&lang=en [Accessed 2023-07-06]

Yamaguchi, Y., Meeboon, J., Heluta, V. P., Liu, S. Y., Feng, J., & Takamatsu, S. (2021). Phylogeny and taxonomy of *Erysiphe* species (powdery mildew: Erysiphaceae) occurring on the ash trees (*Fraxinus* spp.). Mycoscience, 62(2), 115-123.