



ENVIRONMENTAL SAFETY OF BIOTECHNOLOGICAL PLANT PROTECTION PRODUCTS

FUNDED BY NOVO NORDISK FOUNDATION 2025-2030

STAKEHOLDER UPDATE

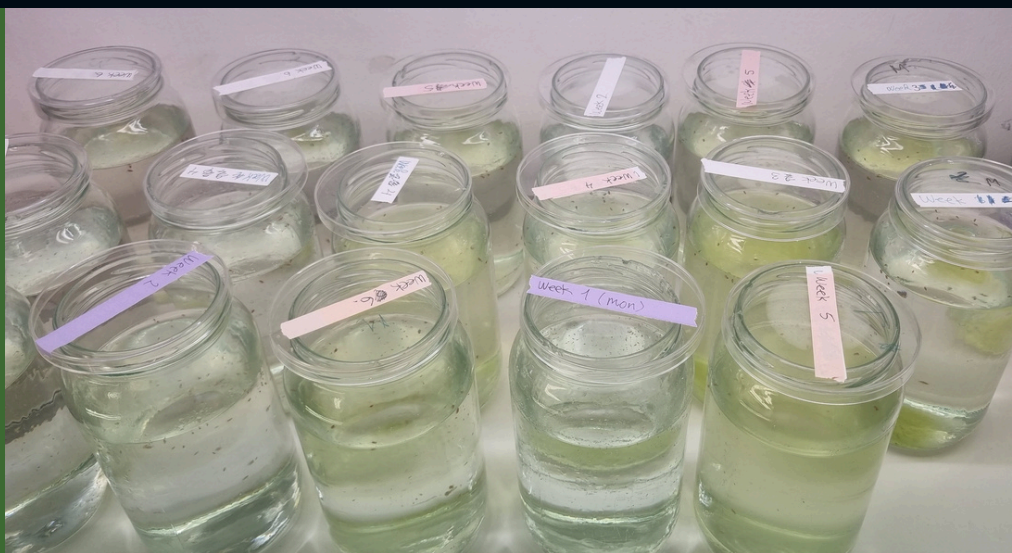
February 2026 | Vol 1

ONLINE SEMINAR ON PEPTIDES IN PLANT PROTECTION

Join us online on 26th of
February, 15.00- 16:30 CET

Join us for this Bi-annual ENSAFE Online Seminar where PhD fellow Kitzia Y. Molina-Zamudio will present her research on a meta-analysis of peptides used in plant protection, covering peptide sources, modes of action, and structure-derived properties relevant for regulation and environmental risk assessment, and highlighting key knowledge gaps. Professor Nina Cedergreen will then share general updates on the ENSAFE project. There will be time for questions.

Register here:
<https://shorturl.at/k0jz1>



STATUS OF 2025

During 2025, ENSAFE established a strong foundation for advancing the scientific basis for assessing the environmental safety of RNA- and peptide-based plant protection products. The consortium expanded with new PhD fellows and collaborators, and key research activities progressed across *in silico* modelling, *in vivo* testing, and environmental

fate studies. Major milestones included the development of a peptide database, selection and production of dsRNA candidates for testing, and proof-of-concept experiments demonstrating biological effects in target insects. ENSAFE also strengthened its engagement and visibility through a →





→ STATUS OF 2025

→ dedicated communication strategy, launch of the project website and LinkedIn profile, publication of news articles, participation in international conferences, first poster presentations and awards, and the project's first stakeholder meeting. Study tours,

bilateral meetings with biotech companies, and contributions to SETAC activities further supported dialogue across science, industry, and regulation. In January 2026, the consortium met for an internal two-day meeting to align research questions, map interdependencies,

and plan activities for 2026. With these foundations in place, ENSAFE looks forward to a productive year with continued research progress and active engagement with stakeholders. Thank you for following our journey!

NEWS AND EXPLAINERS FROM THE PHD FELLOWS

What happens to dsRNA pesticides in the environment?

PhD fellow Lærke Valsted Bak Nielsen investigates what happens to dsRNA-based pesticides after application. She describes how dsRNA behaves in soil, water, and plants, why degradation matters for risk assessment, and how new detection and testing methods can improve environmental safety evaluations.

Could peptides offer safer plant protection?

Kitzia Y. Molina-Zamudio, PhD fellow, explores whether peptides—well known from medicine—could also reduce reliance on chemical pesticides in agriculture. She discusses their potential benefits, regulatory challenges, and why scientific evidence is essential to assess their safety for crops, beneficial organisms, and the environment..

Can AI help assess RNA pesticide safety?

In this article, PhD fellow Lorenzo Favaro shows how AI and machine learning could possibly help design more specific RNA-based pesticides. He explains how

computational models may predict off-target effects, reduce laboratory testing, and support safer, data-driven crop protection solutions.

RNAi and environmental safety

PhD fellow Martina Nardelli explains how RNA interference (RNAi) can be used as a precise tool for pest control. The article focuses on why it is crucial to understand effects on non-target species such as bees and ladybugs, and how this knowledge supports sustainable and responsible innovation.

What are biopesticides and biotechnological pesticides?

In this explainer, Professor Nina Cedergreen clarifies the differences between biopesticides and biotechnological pesticides. She explains how these products work, why they are often considered safer than conventional chemicals, and how bioinformatics and regulation can help ensure environmental protection and farmer trust.



ENSAFE IN BRIEF

Objective: The ENSAFE project is exploring the environmental safety of new bio-based alternatives, such as RNA interference (RNAi) technology and bioactive peptides, which offer a promise of effective pest and disease control with minimal environmental impact. However, the EU currently lacks a dedicated regulatory framework to assess these innovations.

The project will bridge this gap by providing scientific data and tools to underpin an environmental risk assessment framework, to support a safe and sustainable use of biotechnological plant protection products.

Duration: From January 2025 to December 2030.

Budget: DKK 60 million (approx. EUR 8 million). Funded by the Novo Nordisk Foundation (grant agreement number NNF24OC0087112).

Consortium:

University of Copenhagen: Environmental toxicology, plant protection, and bioinformatics.

Aalborg University: Environmental microbiology, biotechnology, and molecular methods.

UK Centre for Ecology & Hydrology (UKCEH): Ecotoxicology, pollution impacts, and chemical risk assessment.



MEET US HERE:

IMPPC 2026 : Antalya, Türkiye (17–21 May)

Meet ENSAFE at the International Molecular Plant Protection Congress in Antalya, Türkiye, where project lead Professor Nina Cedergreen and several PhD students will attend and engage with the global plant protection research community.

SETAC 2026: Maastricht, The Netherlands (17–21 May)

ENSAFE will be present at the SETAC Europe 36th Annual Meeting with Professor David Spurgeon and PhD fellows, some of whom will present and participate in scientific exchanges on environmental science.

- **Sign up for news:** ensafe.dk
- **Follow us:** linkedin.com/in/ensafe
- **Write us:** ensafe@plen.ku.dk