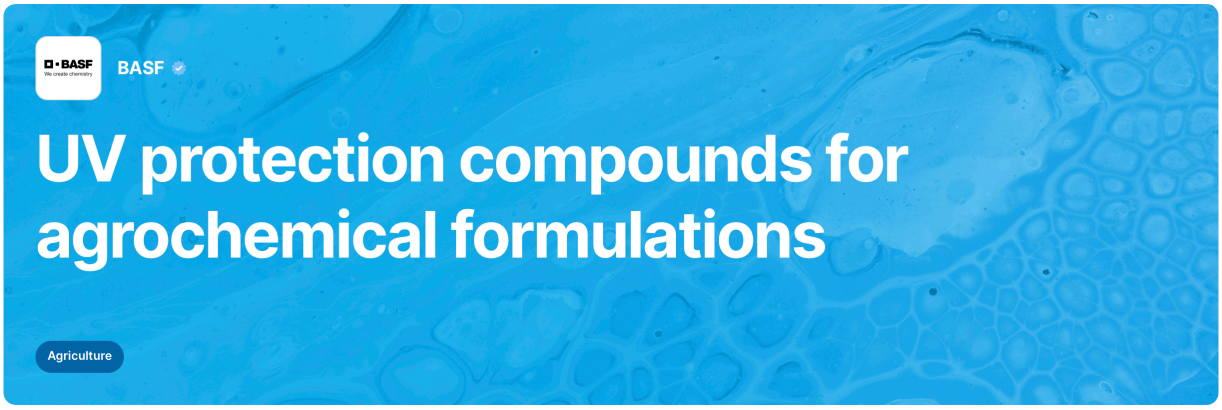

Background

Farmers rely on agrochemicals to manage diseases, insects, and weeds, but exposure to UV radiation can lead to degradation, reducing their effectiveness. Various approaches exist to mitigate this issue, including UV absorbers and photostabilizers in combination with formulation development. However, many of these solutions present limitations that hinder their widespread adoption due to regulatory requirements. Additionally, traditional UV stabilizers often rely on particle-based reflection or scattering mechanisms which are not suitable for oil-based agrochemical formulations. Finding new substances to protect agrochemicals from UV degradation is increasingly important to accommodate product applications in different regions. The challenge is to identify environmentally responsible ingredients that effectively prevent UV degradation without compromising formulation stability, application efficiency, or regulatory acceptance.

What we're looking for

We are looking for innovative materials that can provide UV protection for agrochemicals after they have been applied to plants. The substance should not be classified by any global regulatory agency as sunscreen, persistent, endocrine disruptors, or CMR (carcinogenic, mutagenic or reprotoxic). Ideally, the substance would be sustainably sourced, compatible in agrochemical formulations, and effective through absorption, radical scavenging, and/or antioxidant activity.

Solutions of interest include:

- (Bio)polymers that are able to be solubilized and then act as physical or chemical blockers.
- Blockers/stabilizers integrated into the agrochemical formulation.
- Chemical blockers/stabilizers (e.g. radical scavengers, antioxidants, etc.).
- Oil-soluble substances (liquid or solid) that dissolve in organic solvents.
- Physical blockers (e.g., UV absorbing compounds).

Our must-have requirements are:

- Expected to be safe for application on plants, the environment and for humans.
- If the substance is a polymer, it should be soluble in organic solvents or be able to be solubilized.
- Physical blockers must be effective in the 280 nm to 420 nm range.

Our nice-to-have's are:

- Bio-based and/or sustainably sourced.
- Biodegradable.
- Scalable and expected to be inexpensive in the final formulation.
- Generally Recognized as Safe (GRAS)
- Scientific evidence indicating adequate UVB and/or UVA protection when added to a formulation.
- Material is available for evaluation.

What's out of scope:

- Substances recognized by any global regulatory agency as a sunscreen for drug or cosmetic products.
- Particles and substances that cannot be dissolved or solubilized in organic solvents.
- Encapsulation technologies or approaches.
- Strongly thickening or gelling polymers.
- Substances that primarily act through reflection or scattering.
- Animal-derived substances.
- Materials classified as microplastics.
- Volatile substances.

Acceptable technology readiness levels (TRL): Levels 4-6

1. Basic principles observed
2. Concept development
3. Experimental proof of concept
4. Validated in lab conditions
5. Validated in relevant environment
6. Demonstrated in relevant environment
7. Regulatory approval
8. Product in production
9. Product in market

What we can offer you
Eligible partnership models:

- Material transfer
- Sponsored research

Benefits:

Sponsored Research

Funding is proposal dependent, but an accepted proposal could expect support in the range of $25,000 - $100,000 (milestone dependent) with the potential for follow on funding.

Expertise

Partners will interact with a project lead to mutually develop a project plan and engage to ensure success. Partners will have access to experts as appropriate.

Reviewers

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Collaboration & Scouting NA

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