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Newsletter of the french ragweed observatory

Dear colleague,

You receive this letter because you were identified as a person who is likely to work on ragweed species. If you no longer want to receive this letter, please click here to unsubscribe and we are sorry for any inconvenience.
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The new version of the newsletter of the french ragweed observatory is a report focusing on scientific news about ragweed. It aims to share information in the scientific community about this plant. If you have any suggestion, please contact us at ambroisie-risque@fredon-france.fr.

We wish you an interesting reading and look forward to receive your reactions !

New Page on Ambrosia Worldwide

We are pleased to announce the launch of a new section on our website dedicated to *Ambrosia*. This resource provides detailed information on its **biology, distribution, and management across the globe**, featuring country-specific articles and an interactive map.
Please note that articles are available in French, but can be translated via your browser.
For any feedback, feel free to contact us via email.

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Phenolic Acids as Inhibitors of Common Ragweed: A Selective Approach for Maize Cultivation

Pismarović L, Šoštarčić V, Kljak K, Lazarević B, Šćepanović M (2025) Correction: Three inhibitory phenolic acids against common ragweed (Ambrosia artemisiifolia L.) had a minimal effect on maize growth in vitro and in vivo . PLOS ONE 20(4): e0322155. https://doi.org/10.1371/journal.pone.0322155

This study evaluates the impact of three phenolic acids—ferulic acid, vanillic acid, and p-coumaric acid—on the inhibition of common ragweed (*Ambrosia artemisiifolia*). These naturally occurring compounds are studied for their potential to reduce the growth of ragweed without affecting nearby agricultural crops, specifically maize (*Zea mays*). Experimental results show that **these acids effectively inhibit the germination** and **early growth of ragweed**, while having minimal impact on maize development in both laboratory and greenhouse conditions. The findings suggest that these phenolic acids could serve as natural and selective herbicidal agents for managing ragweed infestations, providing a less harmful alternative to chemical methods for crop protection.

Inhibition of the Invasive Plant Ambrosia trifida by Sigesbeckia glabrescens Extracts

Yin, L., Zhang, G., Zhao, H., Zhang, Y., Wangchen, J., Wan, F., Liu, B., & Qian, W. (2025). Ecotoxicology and Environmental Safety, 289, 117716.

This study explores how extracts from the medicinal plant *Sigesbeckia glabrescens* can **inhibit the growth of the invasive weed *Ambrosia trifida*** (giant ragweed), which is notorious for its ecological damage and herbicide resistance. The research highlights the potential of using allelopathy, where one plant suppresses another through chemical means, as a sustainable method for controlling *A. trifida*.

Extracts from both the roots and leaves of ***S. glabrescens*** **significantly reduced the height and biomass of *A. trifida***. This effect was linked to disruptions in carbon and nitrogen metabolism, including decreased expression of genes related to nitrate absorption, photosynthesis, and sucrose synthesis. Additionally, the extracts induced oxidative stress in *A. trifida*, leading to cell apoptosis. Three major allelochemicals—coumarin, ferulic acid, and 5-aminolevulinic acid (5-ALA)—were identified as key compounds responsible for these inhibitory effects. The findings suggest that *S. glabrescens* extracts could be used as a bioherbicide for managing *A. trifida* invasions.

Sensitization and Allergic Symptoms Caused by Ragweed in the Drebkau Area

Gereke, U. (2025). Charité – Universitätsmedizin Berlin.

This article examines the high sensitization rates and allergic symptoms caused by ragweed (Ambrosia) in Drebkau, Brandenburg. Ragweed pollen is highly allergenic, and even low concentrations can trigger allergies.

Among 129 long-term residents, 17.8% were sensitized to the major ragweed allergen (nAmb a1), and 37.9% had specific IgE antibodies against Ambrosia artemisiifolia. Notably, 33% of participants under 30 were nAmb

a1 positive, with no sensitization to mugwort (nArt v1), indicating primary sensitization to ragweed.

The study found similar allergic symptoms between those sensitized to ragweed or mugwort. However, most nAmb a1 positive patients were also sensitized to other allergens, shortening their symptom-free period. The findings suggest a high primary sensitization rate to ragweed due to prolonged exposure, warranting further research.

Risk Assessment and Potential Distribution of Common Ragweed in South Africa

Shivambu, T.C., Moshobane, M.C., Shivambu, N., Nelufule, T., Seoraj-Pillai, N., & Nangammbi, T.C. (2025). Russian Journal of Biological Invasions, 18(1), 168-172.

This study evaluates the risk and potential distribution of the invasive weed *Ambrosia artemisiifolia* (common ragweed) in South Africa using the Australian Weed Risk Assessment (AWRA) and species distribution modelling (SDM). The AWRA score **indicated a high risk** (32/49), particularly for the **environment** and **agricultural sectors**. SDM showed that *A. artemisiifolia* has wide climatic tolerance, with minimal changes in predictions under current and future scenarios.

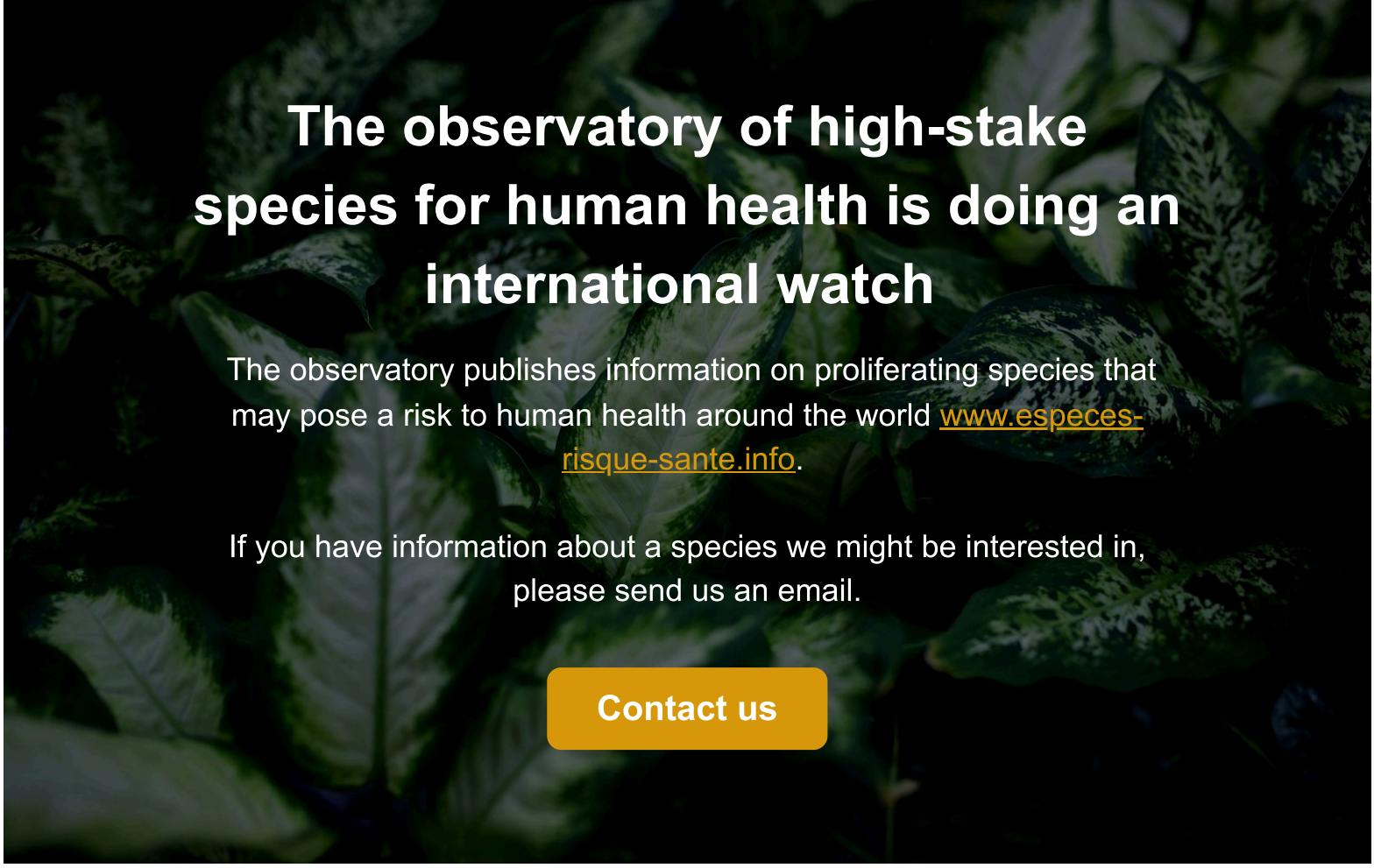
Google Trends analysis revealed significant global interest in ragweed, especially between 2004 and 2009, with the highest search hits in the USA, Austria, Canada, and Saint Pierre and Miquelon Islands. The study recommends **prioritizing the management and surveillance of common ragweed due to its high risk** and climatic suitability, and suggests including it in the national list of prohibited species to prevent further spread.

Burial Depth and Temperature Effects on the Germination and Viability of Giant Ragweed Seeds

Savić, A., Ringselle, B., Barroso-Bergadà, D., Bohan, D.A., & Bergkvist, G. (2025). Weed Research, 65(1), e70004.

This study examines how burial depth and temperature impact the germination and viability of *Ambrosia trifida* (giant ragweed) seeds from Nebraska, USA, and Serbia. Nebraskan seeds were heavier and had higher viability and germination rates than Serbian seeds. **Germination rates decreased and latency increased with greater burial depth**. Seeds at 5 cm depth had low dormancy, while those at 40 cm did not germinate at any temperature. Higher temperatures increased germination rates and reduced latency, except for seeds at 40 cm depth. The findings suggest that shallow tillage could help deplete the seed bank, while deep ploughing could bury seeds at depths where they remain dormant. **Understanding temperature requirements for breaking dormancy can optimize weed control timing**.

More Information



The observatory of high-stake species for human health is doing an international watch

The observatory publishes information on proliferating species that may pose a risk to human health around the world www.especes-risque-sante.info.

If you have information about a species we might be interested in, please send us an email.

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