



Risk Assessment of the Biological Control Product «Gulløyelarver» with the Active Organism Chrysoperla Carnea

**Torsten Källqvist ^{a*}, Katrine Borgå ^b, Hubert Dirven ^c, Ole Martin Eklo ^d,
Merete Grung ^a, Jan Ludvig Lyche ^d, Marit Låg ^b, Asbjørn Magne Nilsen ^e
and Line Emilie Sverdrup ^f**

^a Norwegian Scientific Committee for Food Safety (VKM), Norwegian Institute for Water Research,
Norway.

^b Norwegian Scientific Committee for Food Safety (VKM), University of Oslo, Norway.

^c Norwegian Scientific Committee for Food Safety (VKM), Norwegian Institute of Public Health (FHI),
Norway.

^d Norwegian Scientific Committee for Food Safety (VKM), Norwegian University of Life Sciences,
Norway.

^e Norwegian Scientific Committee for Food Safety (VKM), Norwegian University of Science and
Technology, Norway.

^f Norwegian Scientific Committee for Food Safety (VKM), Det Norske Veritas, Norway.

Authors' contributions

This work was carried out in collaboration between all authors. The opinion has been assessed and approved by the Panel on Plant Protection Products of VKM. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/EJNFS/2022/v14i930526

Grey Literature

**Received 20 April 2022
Accepted 29 June 2022
Published 13 August 2022**

ABSTRACT

Gulløyelarver (green lacewing larvae, *Chrysoperla carnea*) is a product for biological control. The application is for use against aphids in green-houses and tunnels.

Gulløyelarver was used in Norway from 1985-1993. An assessment in 2001 concluded however that the use of products with *Chrysoperla carnea* could represent an environmental risk since it was not known if the species in the products were the same as the ones with natural occurrence in Scandinavia.

In this regard, The Norwegian Food Safety Authority would like VKM to perform an assessment of possible risks related to health and environment in light of possible new data.

VKM's conclusions are as follows:

Health:

The larvae of *Chrysoperla carnea* have hollow jaws through which they can inject digestive enzymes into their prey. In contact with humans, the larvae are capable of delivering painful bites which may cause local swelling. Such bites are however not considered dangerous, and can be avoided with preventive measures.

Allergic asthma and rhino conjunctivitis has been reported in persons working in the production of biological agents with *Chrysoperla carnea*, but it is the opinion of VKM that such effects are not likely to be relevant for users of the agents.

Environment:

A previous assessment in 2001 concluded that the use of products with *Chrysoperla carnea* represented an environmental risk because of the risk of genetic interference with natural populations of the species in Norway.

Lacewings belonging to the *Chrysoperla carnea* complex are considered established and indigenous in Norway, and a recent study by the Norwegian Institute for Agricultural and Environmental Research (Bioforsk) strongly suggests that the lacewings in the commercial products belong to the same cryptic species complex as individuals sampled in Norway. In case the species in the products is different from those present in Norway, any genetic interference with local populations in Norway is prevented by differences in duetting songs.

If an invertebrate biological control agent is indigenous and has limited direct or indirect effect on the environment, it is the opinion of VKM that it could be authorized for release in greenhouses or plastic tunnels.

Chrysoperla carnea is polyphagous and cannibalistic. They prefer aphids, but may also consume other insects and mites. It is however the opinion of VKM that the environmental risk from this will be minimized in greenhouses and tunnels where the release will be in a contained environment and directed against aphid colonies.

Establishment, host range and dispersal ability should be carefully reviewed, even if the species is indigenous. *Chrysoperla carnea* may establish in the greenhouse and plastic tunnels and may also possess the ability to disperse and survive in the field. However, it is the opinion of VKM that the direct and indirect effects of this are at most moderate, although it cannot be completely excluded that *Chrysoperla carnea* species in the products might also have properties that have not been reviewed.

Keywords: VKM; assessment; Norwegian Scientific Committee for Food Safety; *carnea*.

Available:<https://vkm.no/download/18.2994e95b15cc54507161ec69/1498223261770/20a4ccaf17.pdf>

ISBN: 978-82-8259-148-5.

NOTE:

This work was carried out in collaboration between all authors. The opinion has been assessed and approved by the Plant Protection Products products of VKM. All authors read and approved the final manuscript.

Competence of VKM experts: Persons working for VKM, either as appointed members of the Committee or as external experts, do this by virtue of their scientific expertise, not as representatives

for their employers or third party interests. The Civil Services Act instructions on legal competence apply for all work prepared by VKM.

Suggested citation: VKM (2014) Risk assessment of the biological control product «Gulløyelarver» with the active organism *Chrysoperla carnea*. Opinion of the Plant Protection Products of the Norwegian Scientific Committee for Food Safety, ISBN: 978-82-8259-148-5, Oslo, Norway.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

© 2022 Källqvist et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.