

EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION

22-27633

***Exochomus quadripustulatus* (Coleoptera: Coccinellidae)**

Listed in: *PM 6/3 Biological control agents safely used in the EPPO region (2022): Appendix 1 – commercially used biological control agents.*

Further details are given for each BCA, including its preferred scientific name, common synonyms, taxonomic classification, the pests against which it is mostly targeted, its origin and the date of first use as a commercial agent. In cases where information is not known a (?) is detailed. Countries where it is or has been used in the EPPO region are also listed on the basis of information provided by the companies and by some EPPO countries. This information may not have been available from all EPPO countries and may therefore be incomplete. Each agent has been used commercially at some time in the countries listed, but in some cases may no longer be commercially available or used there. Information is also given, when available, on the natural distribution of the agent in the EPPO region, whether it is used in the field and/or under protected conditions. Additional remarks are included when necessary

Detailed information (from *PM 6/3 Biological control agents safely used in the EPPO region*)***Exochomus quadripustulatus***

Synonym	-
Family	Coccinellidae
Main target pests	Hemiptera (<i>Pulvinaria</i> , <i>Saissetia oleae</i> , <i>Ceroplastes</i> , <i>Sphaerolecanium</i> and <i>Coccus</i>)
Original distribution	Europe, and throughout Palearctic region
Distribution in EPPO	Widespread
Date of first use	1975
EPPO countries where used	Germany, Greece,
Use	Outdoors/Indoors

Criteria used for adding *Exochomus quadripustulatus* to PM 6/3 PM 6/3 Biological control agents safely used in the EPPO region

1. Criteria used for addition to the List*

A biological control agent which is (or has been) commercially available or officially used	<input checked="" type="checkbox"/>
---	-------------------------------------

AND either

Has been used for at least 5 years in at least 5 EPPO countries (exceptionally fewer, if relevant crops, target pests or plants are present in <5 countries), or	<input type="checkbox"/>
Is indigenous and widespread in part of, or the whole of EPPO region, or	<input checked="" type="checkbox"/>
Is established and widespread in part of, or the whole of the EPPO region	<input type="checkbox"/>

AND

There are no previous reports of adverse effects	<input checked="" type="checkbox"/>
--	-------------------------------------

Criteria	Summary information (for EPPO region*)	References
BCA has been used for at least 5 years in at least 5 EPPO countries (exceptionally fewer, if relevant crops, target pests or plants are present in less than 5 countries)		
Is indigenous and widespread in part of, or the whole of EPPO region	Albania, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lebanon, Lithuania, Luxemburg, Macedonia, Moldova, Montenegro, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Spain, Sweden, Switzerland, Syria, The Netherlands, Turkey, Ukraine, United Kingdom	Laudeho and Katsoyannos, 1977; Radwan and Lövei, 1982; Viggiani, 1991; Merlin, 1993; Kovář, 1995; Sengonca and Faber, 1995; Arnold and Sengonca, 1999; 2001; Ulgenturk and Toros, 1999; Sengonca and Arnold, 2003; Coutanceau, 2015; Holecová et al., 2018; (https://www.gbif.org/species/5877963 ; https://fauna-eu.org/cdm_dataportal/taxon/ee66f36d-0898-4b36-a28e-7af206efac12 ; https://inpn.mnhn.fr/espece/cd_nom/11136?lg=en)
Is established and widespread in part of, or the whole of the EPPO region		

References

- Arnold C, Sengonca C (1999) Die Wollige Napschildlaus *Pulvinaria regalis* Canard - (k)ein Problem für Straßen- und Alleebäume unserer Städte? - Mitteilungen der Deutschen Gesellschaft für Allgemeine und Angewandte Entomologie (Giessen) 12:93-96
- Arnold C, Sengonca C (2001) Die Wollige Napschildlaus *Pulvinaria regalis* Canard (Hom. Coccidae) Ein neuer Schädling an Park- und Alleebäumen in Deutschland. In: Dujesiefken, D., Kockerbeck, P. (eds.): Jahrbuch der Baumpflege 2001, Augsburgener Baumpflegetage, pp. 218-222. - Thalacker Verlag, Braunschweig
- Coutanceau JP (2015) Les coccinelles du Parc national du Mercantour (Coleoptera : Coccinellidae), in Daugeron C., Deharveng L., Isaia M., Villemant C. & Judson M. (coords), Mercantour/Alpi Maritime All Taxa Biodiversity Inventory. Zoosystema 37:193-205
- Holecová M, Zach P, Hollá K, Sebestová M, Klesniaková M, Šestáková A, Honěk A, Nedvěd O., Parák M, Martinková Z, Holec J, Vigišáková S, Brown PMJ, Roy HE, Kulfan J (2018) Overwintering of ladybirds (Coleoptera: Coccinellidae) on Scots pine in Central Europe. European Journal of Entomology 115:658-667
- Laudeho Y, Katsoyanos P (1977) Lâcher en fin d'été sur une population de *Saissetia oleae* Oliv. (Hom., Coccidae) d'*Exochomus quadripustulatus* L. (Col., Coccinellidae) après réactivation en laboratoire. Fruits 32:562-567
- Sengonca C, Arnold, C (2003) Development, predation, and reproduction by *Exochomus quadripustulatus* (Coleoptera: Coccinellidae) as predator of *Pulvinaria regalis* Canard (Homoptera: Coccidae) and its coincidence with the prey in the field. Journal of Plant Diseases and Protection 110:250-262
- Radwan Z, Lövei G. (1983) Aphids as prey for the coccinellid *Exochomus quadripustulatus*. Entomologia Experimentalis et Applicata 34:283-286
- Ülgentürk S, Toros S (1999) Natural enemies of the oak scale insect, *Eulecanium ciliatum* (Douglas) (Hemiptera: Coccidae) in Turkey. Entomologica 33:219-224.
- Viggiani, G. -1991- Nuova minaccia peri lecci delle aree urbane: la *Nidularia pulvinata*. [New threat to holm oak in urban areas: *Nidularia pulvinata*.]. Informatore Agrario 47:67-70.