




Quick scan for *Acanthococcus lagerstroemiae*

National Plant Protection Organization, the Netherlands

Quick scan number: QS2024ENT003

Quick scan date: 9 October 2024

No.	Question	Quick scan answer for <i>Acanthococcus lagerstroemiae</i>
1.	What is the scientific name (if possible up to species level + author, also include (sub)family and order) and English/common name of the organism? <i>Add picture of organism/damage if available and publication allowed.</i>	<p><i>Acanthococcus lagerstroemiae</i> (Kuwana, 1907) (Hemiptera: Eriococcidae) Common name: crapemyrtle bark scale</p>  <p>5523058</p> <p>Crapemyrtle bark scale, <i>Acanthococcus lagerstroemiae</i> (Kuwana), close-up of infestation. Photograph by Gary Brooks, Bayer Crop Science, Bugwood.org.</p>
2.	What prompted this quick scan?	Literature in which the non-European species <i>A. lagerstroemiae</i> has been reported as a pest of <i>Lagerstroemia</i> spp. (García Morales et al., 2016; Borden et al., 2018; Kondo & Watson, 2022).

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	<i>Organism detected in produce for import, export, in cultivation, nature, mentioned in publications, e.g. EPPO alert list, etc.</i>	
3.	Wat is the risk assessment area?	The risk assessment area is the territory of the European Union (EU 27)
4.	What is the current area of distribution?	<p>Palaearctic: China, India, Japan, Mongolia, South Korea, United Kingdom (UK)*.</p> <p>Nearctic: first observed in Texas (2004), now spread throughout the Southern and Northeastern United States of America (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Missouri, New Jersey, New Mexico, New York, North Carolina, Oklahoma, Pennsylvania, Tennessee, Texas, Virginia, Washington) (Borden et al., 2018; Kalaman, 2022).</p> <p>*The record in the UK is based on (Hoy, 1963), but in this catalogue, there is no reference to any collecting locality or voucher specimen. Thus, its presence in the UK is highly uncertain.</p>
5.	What are the host plants?	<p>The species is known from 23 plant genera, such as <i>Buxus</i>, <i>Celtis</i>, <i>Anogeissus</i>, <i>Diospyros</i>, <i>Mallotus</i>, <i>Dalbergia</i>, <i>Glycine</i>, <i>Lagerstroemia</i>, <i>Punica</i>, <i>Ficus</i>, <i>Myrtus</i>, <i>Ligustrum</i>, <i>Ternstroemia</i>, <i>Glochidion</i>, <i>Malus</i>, <i>Pseudocycdonia</i> and <i>Rubus</i>. In Japan, it is most commonly found on <i>Lagerstroemia indica</i> (Kondo & Watson, 2022). In a host range test with six <i>Lagerstroemia</i> species (including <i>L. indica</i>) and <i>Lythrum californicum</i> (all Lythraceae), <i>L. limii</i> appeared to be most suitable for development of <i>A. lagerstroemiae</i> and <i>L. speciosa</i> least suitable (Wu et al., 2021).</p>
6.	<p>Does the organism cause any kind of plant damage in the current area of distribution and/or does the consignment demonstrate damage suspected to have been caused by this organism?</p> <p><i>Yes/no + plant species on which damage has been reported + short description of symptoms.</i></p> <p><i>Please indicate also when the organism is otherwise harmful (e.g. predator, human/veterinary pathogen vector, etc.).</i></p>	<p>Yes, damage has been reported on <i>Lagerstroemia indica</i>. <i>Acanthococcus lagerstroemiae</i> feeds on the phloem sap, which can cause branch dieback and stunt growth (Wang et al., 2016). The primary damage is, however, aesthetic rather than severely harmful to the tree (Borden et al., 2018). Control measures are, however, taken to control this pest in the US (Chen & Diaz, 2022). Nymphs produces excess amounts of honeydew which accumulates on surfaces and on which black sooty mold fungi grow, which can result in the blackening of branches and leaves (Borden et al., 2018; Wang et al., 2016). Black sooty mold fungi are also likely to grow on buildings, cars and pavement in the vicinity of host plants that are severely infested. No quantitative data have been found on yield losses (either in volume or in quality of the harvested product (search in the databases CABabstracts 1973 to 2024 week 39 and Biological abstracts 1969 to June 2024 via Ovid on 1st October 2024 using the search string 'Acanthococcus AND lagerstroemiae').</p>
7.	<p>Assess the probability of establishment in the Netherlands (NL) (i.e. the suitability of the environment for establishment).</p> <p>a. In greenhouses</p> <p>b. Outdoors</p> <p>c. Otherwise (e.g. storage facilities, human environment)</p>	<p>The probability of establishment outdoors in the Netherlands is assessed to be high. The species has a wide distribution in the USA and models indicate that <i>A. lagerstroemiae</i> can establish in a wide range of climates (Wang et al., 2016). The species may also be able to establish in greenhouses when host plants are present year-round.</p>
8.	<p>Assess the probability of establishment in the EU (i.e. the suitability of the environment for establishment).</p>	<p>High. As <i>A. lagerstroemiae</i> is present in the USA as far north as the state of New York (Skvarla et al., 2024), it can likely establish in large parts of the EU. Moreover, one of the main host plants, <i>Lagerstroemia indica</i>, is used in urban greenspace in the Mediterranean Basin. It is also planted in Lyon, Toulouse and Paris (see observations on iNaturalist: https://www.inaturalist.org/observations?subview=map&taxon_id=135394).</p>

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9.	What are the possible pathways that can contribute to spread of the organism after introduction? How rapid is the organism expected to spread (by natural dispersal and human activity)?	Natural dispersal occurs through the first instar nymphs (crawlers) which are mobile and may also be spread by wind (Wright et al., 2024). All the other instar nymphs and adult female are, in a way, sessile. They do have legs, but they do not actively use them. Plant trade is probably the main way by which <i>A. lagerstroemiae</i> is able to spread over large distances.
10.	Provide an assessment of the type and amount of direct and indirect damage (e.g. lower quality, lower production, export restrictions, threat to biodiversity, etc.) likely to occur if the organism would become established in NL and the EU, respectively?	<p><i>Acanthococcus lagerstroemiae</i> can cause aesthetic damage to <i>Lagerstroemia</i> plants in the urban green. Because of the production of honeydew, black sooty mold fungi are likely to grow on buildings and cars and this can also be experienced as being annoying. In nurseries, infested trees may become unmarketable. In the EU, propagating material of ornamental plants should also be practically free of pests before marketing (Council Directive 98/56/EC) and it may be difficult to fulfill these requirements in case of an infestation with <i>A. lagerstroemiae</i>. (Heavily) infested plants may have to be discarded because scale insects are difficult to control and have been considered as alarming pests in the Dutch ornamental industry for many years already (Riemens et al., 2023). (Chen & Diaz, 2022) report several neonicotinoids as being most effective against <i>A. lagerstroemiae</i> in Louisiana (US) but these insecticides are prohibited in the EU and are considered harmful to bees and other pollinators.</p> <p><i>Punica granatum</i> is also a host of <i>A. lagerstroemiae</i>, but the number of individuals on this plant species is much less than on <i>Lagerstroemia</i> species and therefore the damage done by the crapemyrtle bark scale is relatively low (Xie et al., 2020). On the other hand, (Ma, 2011) reported serious damage of <i>A. lagerstroemiae</i> on pomegranates (<i>Punica granatum</i>) in China. <i>Punica granatum</i> is grown in the EU as a fruit crop and the introduction of <i>A. lagerstroemiae</i> may result in damaged fruit trees.</p>
11.	Has the organism been detected on/in a product other than plants for planting (e.g. cut flowers, fruit, vegetables)? If "no", go to question 12	No.
12.	If the organism has been found on/in a product other than plants for planting (e.g. cut flowers, fruit, vegetables), what is the probability of introduction (entry + establishment)? Only to be answered in case of an interception or a find.	
13.	Additional remarks	<ul style="list-style-type: none"> • <i>Acanthococcus lagerstroemiae</i> has a wide host range and can, therefore, be introduced by import of plants for planting of many plant species. • From 2021 to 2023, 151 plants of <i>Lagerstroemia</i> were imported into the Netherlands from countries (Japan and United States of America) where <i>A. lagerstroemiae</i> is known to be present. • The species has not yet been reported (ScaleNet) or intercepted (TRACES/Europhyt) in the EU.
14.	Summary and conclusions	<ul style="list-style-type: none"> • This Quick scan of <i>Acanthococcus lagerstroemiae</i> was prompted by literature in which the non-European species <i>A. lagerstroemiae</i> is reported as a pest of <i>Lagerstroemia</i> spp. • <i>Acanthococcus lagerstroemiae</i> is not known to be present in the EU.

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		<ul style="list-style-type: none"> • <i>Acanthococcus lagerstroemiae</i> can likely establish in large parts of the EU. • <i>Acanthococcus lagerstroemiae</i> has many host plants but most severe infestations are known on <i>Lagerstroemia</i> spp. Introduction of the pest will likely have an impact on <i>Lagerstroemia</i> spp. and possibly other plant species including pomegranate (<i>Punica granatum</i>).
15.	References	<p>Borden M, Martini X & Dale A, 2018. Crapemyrtle Bark Scale <i>Acanthococcus</i> (=Eriococcus) <i>lagerstroemiae</i> (Kuwana) (Insecta: Hemiptera: Eriococcidae). EENY711/IN1218, 7/2018". EDIS 2018 (4). Gainesville, FL. Available online: https://doi.org/https://doi.org/10.32473/edis-in1218-2018</p> <p>Chen Y & Diaz R, 2022. Managing crapemyrtle bark scale: are we winning the fight? Louisiana Agriculture, 65 (1), 38-39. Available online: https://digitalcommons.lsu.edu/cgi/viewcontent.cgi?article=1097&context=louisianaagriculture</p> <p>García Morales M, Denno B, Miller D, Miller G, Ben-Dov Y & Hardy N, 2016. ScaleNet: A literature-based model of scale insect biology and systematics. Database [Web page]. Available online: http://scalenet.info [Accessed: 02.09.2024].</p> <p>Hoy JM, 1963. A catalogue of the Eriococcidae (Homoptera: Coccoidea) of the world. New Zealand Department of Scientific and Industrial Research.</p> <p>Kalaman H, 2022. Crape myrtle bark scale (<i>Acanthococcus lagerstroemia</i>) recently discovered in Florida [Web page]. UF/IFAS. Available online: https://blogs.ifas.ufl.edu/pestalert/2021/05/23/crape-myrtle-bark-scale-acanthococcus-lagerstroemia-recently-discovered-in-florida/ [Accessed: 04.09.2024].</p> <p>Kondo T & Watson GW, 2022. Encyclopedia of scale insect pests. CABI.</p> <p>Ma J, 2011. Occurrence and biological characteristics of <i>Eriococcus lagerstroemiae</i> Kuwana in Panxi district. South China Fruits, 5 (3).</p> <p>Riemens M, Beerling E, Bonants P, Bremmer J, Kempenaar C, Lotz B, Nederpel C, Ruigrok P, van der Salm C & Tielen J, 2023. Staat van Plantgezondheid 2023: In de Nederlandse Land-en tuinbouw. Wageningen Plant Research.</p> <p>Skvarla MJ, Chase KD, Riley CB & Slone J, 2024. First Records of Crapemyrtle Bark Scale (Hemiptera: Eriococcidae: <i>Acanthococcus Lagerstroemiae</i>) from New Jersey and New York. Proceedings of the Entomological Society of Washington, 125 (3), 428-432.</p> <p>Wang Z, Chen Y, Gu M, Vafaie E, Merchant M & Diaz R, 2016. Crapemyrtle Bark Scale: A New Threat for Crapemyrtles, a Popular Landscape Plant in the U.S. Insects, 7 (4), 78. Available online: https://www.mdpi.com/2075-4450/7/4/78</p> <p>Wright ER, Chase KD & Ward SF, 2024. Quantifying the potential for wind and phoresy to drive off-plant movement of crapemyrtle bark scale, <i>Acanthococcus lagerstroemiae</i> (Kuwana) (Hemiptera: Eriococcidae): Implications for spread in urban landscapes. Agricultural & Forest Entomology, 26 (2), 210-217. Available online: https://doi.org/http://dx.doi.org/10.1111/afe.12608</p> <p>Wu B, Xie R, Knox GW, Qin H & Gu M, 2021. Host Suitability for Crapemyrtle Bark Scale (<i>Acanthococcus lagerstroemiae</i>) Differed Significantly among Crapemyrtle Species. Insects, 12 (1), 6. Available online: https://www.mdpi.com/2075-4450/12/1/6</p>

No.	Question	Quick scan answer for <i>Acanthococcus lagerstroemiae</i>
		Xie R, Wu B, Dou H, Liu C, Knox GW, Qin H & Gu M, 2020. Feeding preference of crapemyrtle bark scale (<i>Acanthococcus lagerstroemiae</i>) on different species. <i>Insects</i> , 11 (7), 399.
16.	Follow-up measures	Special attention for possible presence of <i>Acanthococcus lagerstroemiae</i> on plants for planting of <i>Lagerstroemia</i> from China, India, Japan, Mongolia, South Korea and USA during import inspections. In case of an interception or find the infested lot will be placed on hold and a final decision will be made concerning possible emergency measures against <i>A. lagerstroemiae</i> .