

Pseudococcus viburni (Signoret) (Hemiptera: Pseudococcidae) does not occur in Korea

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*Pseudococcus viburni*의 국내 미분포 보고

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ABSTRACT: The obscure mealybug, *Pseudococcus viburni* Signoret (Hemiptera: Pseudococcidae) is a polyphagous cosmopolitan pest, damaging vineyards and fruit orchards. The species has long been quarantined in Korea and has never been recorded in the wild in Korea. In this study, to confirm the absence of *P. viburni* in Korea, we have searched for the species from the orchards. 533 sites of persimmon orchards, 144 sites of apple and other orchards, and 281 sites of nurseries and greenhouses were surveyed for the last three years (2015-2017). As a result, *P. viburni* occurs neither in the wild nor in nurseries in Korea.

Key words: *Pseudococcus viburni*, Distribution, Korea

초록: 가루각지벌레류인 *Pseudococcus viburni* Signoret (Hemiptera: Pseudococcidae)는 포도원과 다른 과실 과원에도 피해를 주는 국제적 해충이다. 이 종은 한국에서 오랫동안 격리되어 왔으며 야외에서의 발생기록은 전혀 없다. 본 연구에서는 한국에서의 *P. viburni* 부재를 확인하기 위해 전국적으로 감 과수원 533사이트, 사과 및 기타 과수원 144사이트, 묘목원 및 온실 281사이트를 지난 3년간(2015-2017) 조사하였다. 그 결과 *P. viburni*는 한국의 야외에서나 묘목원 등에서 발생되지 않는 것으로 확인되어 이를 보고한다.

검색어: *Pseudococcus viburni*, 분포, 국내

The obscure mealybug, *Pseudococcus viburni* (Signoret, 1875) (Hemiptera: Pseudococcidae) is a polyphagous cosmopolitan pest, damaging vineyards and fruit orchards, including apple, pear, strawberry, plum, grapevine, persimmon, mango, etc. (Mani and Shivaraju, 2016). The species was formerly known as *Pseudococcus affinis* (Maskell) or *Pseudococcus obscurus* (Essig), and both were synonymized to *P. viburni* (Ben-Dov and Matile-Ferrero, 1995). *Pseudococcus viburni* is placed within the *maritimus* species complex (Wilkey and McKenzie, 1962), and is considered as a native US pest (Miller et al., 2005).

The species has long been quarantined in Korea and has never been recorded in the wild in Korea. However, one note in Gimpel's Ph.D. dissertation (1983) unexpectedly added Korea in its distribution, with one sample which is noted collected on persimmon.

We consider the occurrence note of *P. viburni* in Korea by Gimpel is an error, probably by misidentification. Even

Gimpel stated that this species is unusually variable and so difficult to identify morphologically, such as from *P. maritimus* (Ehrhorn). He also mentioned that the species is possibly mixed with more than one species and no single character can separate the species from others. In fact, a molecular and morphological phylogenetic analysis of Pseudococcidae confirmed that *P. viburni* and *P. maritimus* are more closely related to each other than to their congeners (Hardy et al., 2008).

To confirm the absence of *P. viburni* in Korea, we have searched for the species from the orchards of apple, pear, grape, tomato, and persimmon as well as nurseries and greenhouses in Korea. 533 sites of persimmon orchards, 144 sites of apple and other orchards, and 281 sites of nurseries and greenhouses were surveyed for the last three years (2015-2017) (Supplementary Table 1). Whenever any mealybugs are found, at least one mealybug sample per each site was either slide-mounted for morphological identification or DNA-extracted for molecular barcode identification if further confirmation is needed.

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As we suspected, and noted in our survey result presented in Australia (Jeong et al., 2017), not even one specimen of *P. viburni* was found through the extensive survey. Our conclusion based on the survey on the *Pseudococcus* pest species in Korea is the following:

- *Pseudococcus viburni* occurs neither in the wild nor in nurseries in Korea (Jeong et al., 2017).
- *Pseudococcus longispinus* occurs only in nurseries but not in the wild as it is unable to survive the winter in Korea (Jeong et al., *in prep.*).
- Unexpectedly, another *Pseudococcus* species occurs only in nurseries but unable to survive the winter in Korea (Jeong et al., *in prep.*), and the species is best-matching with *Pseudococcus orchidicola* (Koo et al., 2017).

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Supplementary Information

Supplementary data are available at Korean Journal of Applied Entomology online, <http://entomology2.or.kr/>.

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