

ウイルスを媒介するタバココナジラミの生態および防除に関する研究

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ファイル(説明)	博士論文全文 博士論文要旨(Eng) 博士論文要旨(日本語)
別言語のタイトル	Studies on the ecology and control of Bemisia tabaci that can transmit viruses
学位授与番号	17701甲連研第877号
URL	http://hdl.handle.net/10232/00029620

学 位 論 文 要 旨	
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題 目	Studies on the ecology and control of <i>Bemisia tabaci</i> that can transmit viruses (ウイルスを媒介するタバココナジラミの生態および防除に関する研究)
<p>Large volumes of fruits and vegetables are produced in the Kyushu District, and there are many production areas. <i>Bemisia tabaci</i> (Hemiptera: Aleyrodidae) is a serious pest of fruits and vegetables, and there are many biotypes with different biological characteristics, such as insecticide susceptibility and host compatibility. To control this pest, identification of the characteristics of dominant biotype is important. The presence of the following four biotypes has been mainly confirmed in Japan: Q, B, JpL and Nauru. The presence of biotype Q has been recently confirmed, and the area of its distribution has been rapidly expanding. In this study, to accumulate basic data on the ecology of Q, surveys on outbreaks and cold hardiness of the pest in Kumamoto Prefecture were conducted.</p> <p>Of the damage caused by <i>B. tabaci</i>, indirect damage mediated by pathogenic viruses is more serious than direct damage by sucking. <i>B. tabaci</i> is a vector for many viruses, and the following two pathogenic viruses are particularly of economic importance in the Kyushu District: TYLCV belonging to the genus <i>Begomovirus</i> and CCYV of the genus <i>Crinivirus</i>. To control these viruses transmission by insect, knowledge on how to disrupt the infection cycle by focusing on the insect vector of the virus, source of the virus, and cultivated plants is important. Control measures against the virus transmission by <i>B. tabaci</i> can be divided into ‘restrictions on movement’, ‘growth prevention’, and ‘restrictions on shipping’. In this study, ‘growth prevention’ was investigated.</p> <p>Adults of <i>B. tabaci</i> were collected from crops cultivated in greenhouses and fields in Kumamoto Prefecture, and their biotypes were surveyed. Biotype Q was dominant in <i>B. tabaci</i> growing on cultivated crops in Kumamoto Prefecture regardless of the time of appearance, regions, or host plant crops. After the presence of Q was confirmed in Japan in 2004, <i>B. tabaci</i> growing on crops cultivated in the Kyushu District were surveyed and the dominance of Q was suggested. When cold hardiness of the dominant Q was surveyed, overwintering individuals were observed in a few cases in Kumamoto Prefecture. This is the first report that confirmed the overwintering of Q in Japan.</p> <p>As a part of the ‘growth prevention’, I developed a new insecticide susceptibility test method, and investigated the sensitivity of Q populations collected in 2004 and 2012-2014 using it. Sensitivities to pyridaben, dinotefuran, and nitenpyram were reduced in Q collected in 2012-2014. Then, the inhibitory effects on TYLCV or CCYV transmission by Q and timing of insecticide application were investigated. Dinotefuran and pyrifluquinazon exhibited a TYLCV infection-inhibitory effect, and spraying at 7-day intervals may be effective for infection inhibition. Dinotefuran granules exhibited a CCYV infection-inhibitory effect, and for the application timing, 3 days before permanent planting was effective. The findings of this study confirm the inhibition of virus transmission by <i>B. tabaci</i>, being expected to contribute to the stable production of fruits and vegetables in the Kyushu District.</p>	