

学 位 論 文 要 旨

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題 目	Studies on the insect transmittability of <i>Cucurbit chlorotic yellows virus</i> and <i>Chrysanthemum stem necrosis virus</i> (2種虫媒介性ウイルス (ウリ類退緑黄化ウイルス(CCYV)およびキク茎えそウイルス(CSNV)) の媒介機構の解明)

Vegetable and flower production is very important industry for Kyusyu region.

However, latest rapid development of ex / import in their products causes epidemics of some plant virus diseases, especially, which are transmitted by minute polyphagous insects.

Cucurbit chlorotic yellows virus (CCYV) , which belongs to the genus Crinivirus of the family Closteroviridae, was recorded in 2010 and is rapidly spreading throughout Japan in association with the distribution of its vector, whitefly *Bemisia tabaci* (Okuda et al. 2010). Therefore, it has become one of the major threats to melon and cucumber production.

On the other hands, *Chrysanthemum stem necrosis virus* (CSNV), which belongs to the *Tospovirus* genus in the *Bunyaviridae* family, was first identified in 2006 in field grown chrysanthemum plants in Japan (Matsuura et al. 2007). All species in this genus was transmitted by thrips, such as *Franklinia occidentalis* .

They have been reported their knowledge, but they were not enough to know basic mechanism on the mediation of their insect-transmissible plant virus diseases for establishment of their management systems. Therefore, the following was what I conducted.

Symptom development of CCYV-infected melon plants and virus accumulation in the plants were analyzed throughout the growth stage. And, in order to identify characteristics of CCYV transmission by *B. tabaci* in a semipersistent manner, I analyzed that correlation between virus accumulations in CCYV-infected leaves in various growth stages and those in *B. tabaci* that suck the plants. In addition, time course assay to quantify the amount of CCYV RNA in *B. tabaci* was conducted after a plenty acquisition period. Moreover, experiment to determine the ability of flight and diffusion of *B. tabaci* conducted.

Fifty-three melon (*Cucumis melo*) accessions that originated from India, Pakistan and Bangladesh were evaluated for resistance to CCYV, and JP 138332 showed a low symptoms and much lower CCYV RNA accumulation comparable to the commercial variety.

The vector competence of *Frankliniella occidentalis* for CSNV was evaluated using three vector strains with distinct competences for *Tomato spotted wilt virus* (TSWV), which is type virus *Tospovirus* genus, and the competence of *F. occidentalis* as a vector for CSNV is not related to that for TSWV. Additionally, I investigated the CSNV transmission and acquisition efficiencies of two *F. intonsa* strains, and These results indicate that *F. intonsa* cannot be a major vector for CSNV.

This study was discussed their virus disease controls based on my researches and explanations from an epidemical viewpoint.