

Development of ELISA for a *Verticillium Dahliae* Phytotoxin and its Application

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Abstract: A specific polyclonal antiserum was prepared against a purified phytotoxin from *Verticillium dahliae* of cotton, and a double antibody sandwich ELISA procedure was developed for detection of *Verticillium dahliae* phytotoxin (PLPC) in culture filtrates, different issues of inoculated cotton seedlings and naturally diseased plants. Results showed that the PLPC in culture filtrates was detectable by the developed ELISA when 2 strains (VD-8 and VD-5) were

grown in Czapek's medium under shaking condition at 25°C only for 3 days, which is 1~2 days earlier than that of the bioassay. The PLPC in stems and petioles of seedlings (cv. Simian 3) could be detected by the ELISA when the seedlings were inoculated with the spores (1×10^7 spores \cdot ml⁻¹) of strain VD-8 by watering roots only for 5 days, which are 3~5 days earlier than the time of symptom appearance. The rate of positive samples was 100% by the ELISA among 30 stems, petioles and veins from naturally diseased cottons. These results demonstrate that the developed ELISA can be used for early detection of PLPC in culture filters and early diagnosis of verticillium wilt of cotton.

Key word: Cotton; *Verticillium* wilt; phytotoxin; ELISA; detection