

Effect of Cupric Complex of Glycine on Enzyme Activities in Cotton Infected by *Verticillium* Wilt

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Abstract: Cupric complex of glycine which is a new kind antiseptic developed by our laboratory are sprayed on the leaves of cotton plant to prevent and to cure *Verticillium* wilt of cotton. The inhibiting *Verticillium* wilt test in lab showed that cupric complex of glycine could inhibit the grow of the *Verticillium* wilt in the PDA culture medium. This experiment tends to explain cupric complex of glycine could induce the resistance of cotton plant to *Verticillium* wilt through the impact on the activities of several enzymes in cotton leaves. In early stage of exponential phase of *Verticillium* wilt, cupric complex of glycine was sprayed on the leaves of the healthy and the sick plants which were taken as test materials. The last three functional leaves of each cotton plants which were taken off 1 day before, 1~7 hours, and 1, 3, 5, 7, 9 days after sprayed, washed with distilled water and then grinded in the phosphate solvents (pH = 7) to obtain the enzyme solvents for test. And the ac-

tivities of the peroxidase(POD), polyphenol oxidase(PPO), catalase(CAT) and phenylalanine aminolyase(PAL) in the test materials were conducted by several corresponding trials. The results showed that the activities of POD, PPO, CAT and PAL in the sick plants were higher than those in the healthy ones, the four enzymes activities were in fluctuation with different degrees. Because the four enzymes are relative to the resistance of cotton plant, the results indicated that cupric complex of glycine may increase the activity of the four enzymes to reduce the self-harm done by over oxidation of lipid membrane; cupric complex of glycine may also adjust the activity of the oxygen metabolism to induce the resistance of the cotton plants and the anti-fungal activities. Cupric complex of glycine could increase the activities of POD, PPO, CAT and PAL and reduce the development of fungal disease of *Verticillium* wilt of cotton plant.

Key words: cotton plant ;*Verticillium* wilt; cupric complex of glycine; peroxidase; polyphenol oxidase; catalase; phenylalanine aminolyase