

molecular weights of 15 500 and 14 600. The same changes could be detected in systemically invaded leaves with a delay. The first differences were detectable before symptoms were visible. Recovered leaves, first harvested three weeks after inoculation, showed similar patterns. There was a correlation between increases in the levels of the new proteins and recovery.

In inoculated and recovered leaves the appearance of the newly formed proteins could completely be suppressed by actinomycin D. After 14 days there were only small amounts of these proteins in systemically infected leaves. Plants treated with actinomycin D showed more severe symptoms and did not recover completely.

Although there is no direct evidence for an involvement of the proteins in plant resistance and recovery, they may play a role in the development of these mechanisms.

- (1) Laemmli, U.K., 1970. Cleavage of structural proteins during the assembly of the head of bacteriophage T4. *Nature* 227: 680-685.

Comparison of soluble leaf protein patterns during the first stages of pathogenesis in tobacco ringspot virus-infected tobacco

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Tobacco plants (*Nicotiana tabacum* cv. Xanthi-nc) infected with tobacco ringspot virus develop necrotic ringspots on the inoculated leaves and necrotic line patterns and leaf deformation on the systemically infected leaves.

The pH 8.0-soluble proteins of inoculated and systemically infected leaves were extracted and separated electrophoretically in 11% polyacrylamide gels containing SDS. The soluble leaf protein patterns of the infected plants were compared with those from leaves of corresponding stages of buffer-inoculated plants.

Apart from changes in the intensity of different protein bands of higher molecular weights, no significant alterations in the protein constitution of inoculated leaves could be detected. Electrophoretic separations of extracts from systemically infected leaves showed an increase of a constitutional protein with Rf 0.88 from the seventh to the fourteenth day after inoculation. In addition, a novel protein appeared with an electrophoretic mobility of 0.77.

Further electrophoretic studies at all stages of infection and with special regard to the recovery phenomenon must be made to determine a possible role of the increasing and newly appearing proteins in the recovery stage of pathogenesis.

Occurrence and possible role of thionin-like proteins in apple, tomato, melon and rice seed

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Initial studies focused on revealing the nature of the agglutination of *Erwinia*
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