

Phytoalexin Protects Plants

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Summary

Plant diseases cause serious economic losses in numerous crop plants. To prevent these losses, a large amount of agricultural chemicals are used in cultivation. But some chemical compounds harm human beings. It is important to look for effective methods that do not use such chemicals. One plan is to use antimicrobial compounds in plants. Many antimicrobial compounds produced by plants have important roles in their resistance to infection by bacteria, fungi and nematodes. The defective compounds may be broadly classified into phytoanticipins which are constitutive, and phytoalexins which are synthesized in response to invasion by microorganisms. Müller and Börger laid a firm foundation for the phytoalexin concept in 1940. The response of plants to infection is first induced by attaching a pathogen to the plant cell surface. Elicitor is an inducer of phytoalexin, which acts like a pathogen. Ultraviolet light (UV) is one elicitor, causing radiation induced production of phytoalexin scoparone (6,7-dimethoxycoumarin) in the leaves and flavedo of various citrus cultivars. Duration of changes in scoparone synthesis differed among citrus cultivars, organs and growth phases. Using production of scoparone by UV radiation it is possible to reduce mould decay.