



# Turkish Journal of Agriculture and Forestry

Turkish Journal

of

Agriculture and Forestry

 [Keywords](#)  
 [Authors](#)



[agric@tubitak.gov.tr](mailto:agric@tubitak.gov.tr)

[Scientific Journals Home Page](#)

## Induction of Phytoalexin Accumulation in Broad Bean (*Vicia faba* L.) Cotyledons Following Treatments with Biotic and Abiotic Elicitors

Soner SOYLU

Mustafa Kemal University, Faculty of Agriculture Department of Plant Protection,  
Antakya, Hatay - TURKEY

Mark H. BENNETT

University of London, Imperial College, Department of Biology, Wye, Ashford, KENT.  
TN25 5AH. UNITED KINGDOM

John W. MANSFIELD

University of London, Imperial College, Department of Biology, Wye, Ashford, KENT.  
TN25 5AH. UNITED KINGDOM

**Abstract:** Broad bean (*Vicia faba*) cotyledons that were inoculated artificially with fungal pathogens or exposed to various abiotic agents were analysed for phytoalexin production. Biotic elicitors, such as *Botrytis cinerea* and *B. allii*, and abiotic elicitors, such as ultraviolet (UV) radiation (254 nm) and freezing-thawing, were used to induce phytoalexin accumulation. Weyerone and other weyerone derivatives were the major phytoalexins responding in broad bean cotyledons. The quantities of weyerone within elicitor-treated tissues were examined by thin layer chromatography. The highest amount of weyerone was induced by *B. cinerea* (943 µg/g fresh weight). Treatment of cotyledons with UV radiation (452 µg/g f.wt), *B. allii* (325 µg/g f.wt) and freezing-thawing (288 µg/g f.wt) also caused considerable activation of the phytoalexin synthesis. Cell necrosis and weyerone accumulation were closely associated, and the highest concentration of weyerone was in tissue bearing brown lesions. Only very low concentrations of weyerone accumulated at sites of mechanical damage. The results indicate that the presence of both damaged and healthy tissues is necessary for phytoalexin production.

**Key Words:** Broad bean, *Vicia faba*, phytoalexin, induced resistance, abiotic elicitors

---

Turk. J. Agric. For., **26**, (2002), 343-348.

Full text: [pdf](#)

Other articles published in the same issue: [Turk. J. Agric. For., vol.26,iss.6.](#)