Invited Trends Article

Induction of Antimicrobial 3-Deoxyflavonoids in Pome Fruit Trees Controls Fire Blight

Heidrun Halbwirth[a], Thilo C. Fischer[b], Susanne Roemmelt[c], Francesco Spinelli[d], Karin Schlangen[a], Silke Peterek[c], Emidio Sabatini[d], Christian Messina[e], John-Bryan Speakman[f], Carlo Andreotti[d], Wilhelm Rademacher[f], Carlo Bazzi[e], Guglielmo Costa[d], Dieter Treutter[c], Gert Forkmann[b], and Karl Stich[a*]

[a] Institute of Technical BioScience, Technical University of Vienna, Getreidemarkt 9/173, A-1060 Wien, Austria. Fax: (43) 1 58801 17399. E-mail: kstich@mail.zserv.tuwien.ac.at
[b] Chair of Floriculture Crops and Horticultural Plant Breeding, Department of Plant Sciences, Technical University of Munich, Freising, Germany
[c] Unit of Fruit Science, Department of Plant Sciences, Technical University of Munich, Freising, Germany
[d] Department of Arboriculture, University of Bologna, Bologna, Italy
[e] Department of Agroenvironmental Sciences and Technologies, University of Bologna, Bologna, Italy
[f] BASF, Agricultural Center, Limburgerhof, Germany

* Author for correspondence and reprint requests

Z. Naturforsch. **58c**, 765–770 (2003); received August 1, 2003

Fire blight, a devastating bacterial disease in pome fruits, causes severe economic losses worldwide. Hitherto, an effective control could only be achieved by using antibiotics, but this implies potential risks for human health, livestock and environment. A new approach allows transient inhibition of a step in the flavonoid pathway, thereby inducing the formation of a novel antimicrobial 3-deoxyflavonoid controlling fire blight in apple and pear leaves. This compound is closely related to natural phytoalexins in sorghum. The approach does not only provide a safe method to control fire blight: Resistance against different pathogens is also induced in other crop plants.

Key words: Fire Blight (*Erwinia amylovora*), Luteoforol, Enhanced Resistance