Metabolic pathways of the diseased potato

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Chart can be viewed on the internet at www.potatometabolicpathways.webs.com

Balbon et al. (2011) identified 284 PIR-NB-LRR and 600 CC-NB-LRR sequences in S. tuberosum ssp. tuberosum

Cellwall-derived oligogalacturonides (eliciting activity) are modulated by changes in pH.

In plants, calcium-dependent protein kinases (CDPKs) are modulated by changes in Ca2+ concentration.

Enzyme-control by phosphorylation and/or 14-3-3 proteins

Protein phosphorylation

Choline and phosphatidylcholine biosynthesis

Other genes or proteins up-regulated by wounding or infection but not yet included in pathways

Ceramide signalling

Sphingolipids

Protein ubiquitination

Phosphatidylinositol signalling cascades

Sesquiterpene phytoalexin biosynthesis

sesquiterpenes

Fatty acid degradation

Lipid peroxidation

Lipoxygenase

Oxylipin pathway

Mevalonate pathway

Shikimate pathway

Phenylpropanoid biosynthesis

Cell wall Associated enzyme pathway

Glycoalkaloids

Ethylene biosynthesis

Polyamine biosynthesis

Abbreviations

Pathogenesis-related proteins

Compounds which induce/control resistance related responses in plants (secondary to genes)

metabolic conversion

signal transduction

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