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**INDUCTION AND ANTIFUNGAL ACTIVITIES OF
3-DEOXYANTHOCYANIDINS PHYTOALEXIN COMPOUNDS AS
HOST RESPONSE AGAINST INVADING
COLLETOTRICHUM FALCATUM IN SUGARCANE**

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The fungal disease red rot, caused by *Colletotrichum falcatum*, causes severe yield loss and poor juice quality of sugarcane, thereby leading to economic loss and elimination of many elite sugarcane varieties especially in the Asian continent. The resistance mechanism of sugarcane is complex to understand due to its polyploidy nature. Previous studies on this host-pathogen interaction revealed the expression of various transcripts involved in the flavonoid biosynthesis pathway and the differential accumulation of 3-deoxyanthocyanidin phytoalexin compounds as a result of the defense response. To further establish the role of phytoalexin accumulation in host defense, HPLC studies were carried out. The results clearly showed the differential accumulation of 3-deoxyanthocyanidin compounds including apigeninidin, luteolinidin, cyanidin and some uncharacterized compounds, in varying concentrations corresponding to the clones resistance to the pathogen. Accumulation of phytoalexin compounds had a direct role in restricting the pathogen progression in the host tissue. Conidial germination assays carried out with the HPLC fractions showed that luteolinidin fraction inhibits germ tube elongation and appressorium formation. The results indicate that induction and accumulation of phytoalexins compounds during host-pathogen interaction leads to restriction of pathogen progression in resistant varieties. The role of these compounds will be studied in detail using mass spectrometric technique and their specific function characterized in future studies.