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Molecular Analysis of Class III Peroxidases from Cotton

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A molecular analysis of class III peroxidases from cotton (*Gossypium hirsutum* L.) was undertaken using the sequence of 12 genes available in databanks. Sequence comparison, phylogenetical analysis, and investigation of expression in organs were performed to characterize this group of peroxidases in cotton. All 12 genes possess the characteristics of class III peroxidases, including three conserved domains with the catalytic histidines involved in haem-binding and catalysis, four disulfide bridges, a salt bridge, a signal peptide that targets the protein to the secretory pathway, and putative N-glycosylation sites. Possible functions for these peroxidases according to their phylogenetical position and the existence of close orthologs in other plant families are suggested. Two class III peroxidases from cotton play a role in the oxidative burst response of cotton to bacterial blight.