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ESTER BIOSYNTHESIS IN KIWIFRUIT - FROM GENES TO ENZYMES TO PATHWAYS

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Abstract:

The distinctive flavours of different kiwifruit (*Actinidia*) genotypes are determined by a unique combination of volatile compounds. We are using a genomics approach to identify genes responsible for the production of esters in kiwifruit. From an extensive database of kiwifruit ESTs we have mined acyl transferase genes, including putative alcohol acyl transferases predicted to be involved in the final step of ester biosynthesis. In this paper we report the first functional characterisation of two acyl transferases in kiwifruit, AeAT9 and AdAT17, using either transient expression in planta or by recombinant protein expression in yeast. Evidence is provided that both enzymes are alcohol acyl transferases and could potentially have roles in the biosynthesis of esters in kiwifruit. Our results suggest these two alcohol acyl transferases enzymes contribute to the production of branched, straight chain and sulphur esters.