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(54) Title: PURIFIED PROTEINS, RECOMBINANT DNA SEQUENCES AND PROCESSES FOR CONTROLLING THE RIPENING OF COFFEE PLANTS

(57) Abstract

Purified proteins, DNA sequences that code on expression therefore and recombinant DNA molecules, including hosts transformed therewith for transforming coffee plants to suppress the expression of enzymes necessary for ethylene synthesis. The DNA sequences and recombinant DNA molecules are characterized in that they code on expression for the enzymes ACC synthase or ACC oxidase that are elements of the pathway for ethylene biosynthesis in coffee plants. Coffee plants are tansformed with vectors containing ACC synthase and/or with ACC oxidate DNA sequences that code on expression for the respective mRNA that is antisense to the mRNA for ACC synthase and/or ACC oxidase. The resulting antisense mRNA binds to XMI mRNA, thereby inactivating the mRNA encoding one or more enzymes in the pathway for ethylene synthesis. The described DNA sequences can also be used to block synthesis of ACC synthase or ACC oxidate using co-suppression. The result in either event is that the transformed plants are incapable of synthesizing ethylene, though other aspects of their metabolism is not affected.

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