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Research Details :

Research Title : INTERACTION OF THIOCARBAMATE HERBICIDES WITH FATTY-ACID SYNTHESIS IN GERMINATING PEAS AND THEIR MICR
INTERACTION OF THIOCARBAMATE HERBICIDES WITH FATTY-ACID SYNTHESIS IN GERMINATING PEAS AND THEIR MICR

Descriptipn : The thiocarbamate herbicides, diallate and triallate, inhibit very long chain fatty acid synthesis in germinating peas without affecting the de novo formation of palmitate and stearate. This result explains the herbicides ability to interfere with cutin and suberin formation. When the herbicides were tested directly with a microsomal fraction from pea seeds, they inhibited the labelling of all fatty acids from [C-14]malonyl-CoA and did not selectively reduce elongation. On the other hand, pre-treating seeds before the isolation of microsomes yielded preparations which lacked the ability of synthesise very long chain fatty acids but not palmitate and stearate. The latter result was not due to prevention of the translation of the elongation enzymes as shown by experiments where exogenous precursors were used for elongation. We conclude, from our experiments, that the thiocarbamates are converted to more active metabolites (possibly sulphoxides) and it is these metabolites which are responsible for the selective inhibition of fatty acid elongation and, hence, interfere with the formation of surface coverings.

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Researchers :

Researcher Name (Arabic)	Researcher Name (English)	Researcher Type	Degree	Email
خالد بن عمر أبو النجا		Researcher	استاذ مشارك	kabalnaja@Yahoo.com