

Allelopathic activity of decomposing straw of wheat and oat and associated soil on some crop species

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ABSTRACT

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Allelopathic effects of decomposing straw of wheat (*Triticum aestivum* L.) and oat (*Avena sativa* L.) and associated soil were assessed on germination and early root growth of wheat, oat, and subterranean clover (*Trifolium brachycalycinum* Katzn. & Morley). Although allelopathic activity was widespread during decomposition, only speed of germination and root length were affected with both inhibitory and stimulatory effects. Important differences in sensitivity were found among the target species, with mainly subterranean clover being stimulated, and the grasses mainly inhibited. Conversely, only minor differences in effectiveness were found between the source species. Soil treatments were less effective than straw treatments, with a generalised pattern of inhibitory cycles being evident. Results suggest that allelopathic activity might be of minor relevance in mulch tillage involving the investigated species. However, further research to characterise and identify the chemicals responsible for observed allelopathic effects is needed.

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