

# Difference in hydroxamic acid content in roots and root exudates of wheat (*Triticum aestivum* L.) and rye (*Secale cereale* L.): Possible role in allelopathy

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Hydroxamic acids (Hx) produced by some cereal crops have been associated with allelopathy. However, the release of Hx to the soil by the producing plant-an essential condition for a compound to be involved in allelopathy-has not been shown. GC and HPLC analysis of roots and root exudates of wheat (*Triticum aestivum* L.) and rye (*Secale cereale* L.) cultivars, with high Hx levels in their leaves, demonstrated the presence of these compounds in the roots of all cultivars analyzed and in root exudates of rye. Moreover, bioassays employing root exudates collected from wheat and rye seedlings demonstrated that only rye exudates inhibited root growth of wild oats, *Avena fatua* L., a weed whose root growth is inhibited by Hx. These results suggest that rye could potentially interfere with the growth of *Avena fatua* in nature and that this interference could be due to the release of Hx to the soil by way of roots. © 1991 Plenum Publishing Corporation.