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Oligosaccharin - A new systemic factor in the acquisition of freeze tolerance in winter plants

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Abstract

The acquisition of freeze tolerance in winter plants involves, among other cellular responses, activated catabolism of cell wall polysaccharides, thereby liberating oligosaccharides. One of these was identified as an oligosaccharin (physiologically active fragment) that most likely originates from hemicelluloses. Treatment of winter wheat seedlings with the oligosaccharin at 2°C increased their freeze tolerance by ~30%. Results obtained to date suggest that the oligosaccharin acts as an endogenous and systemic signaling molecule during cold adaptation.
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Keywords

Cell wall, Cold hardening, Freeze-tolerance, Oligosaccharin, *Triticum aestivum* L.