

Biologically active oligosaccharides from pectins of *Pisum sativum* L. seedlings affecting root generation

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Abstract

Two physiologically active oligosaccharide fractions were isolated from pectin of *Pisum sativum* L. cell wall after its partial acid hydrolysis. These fractions displayed stimulating and inhibiting effects on root formation in thin-layer explants. The subsequent separation of these fractions by gel permeation and anion-exchange chromatography resulted in fractions with effective concentrations two orders of magnitude lower than the concentrations of the initial fractions. The resulting oligosaccharides displayed their effect on the earliest stage of the rhizogenesis associated with formation of root primordias. The rhizogenesis-inhibiting fraction suppressed cell division by 30-50%. The stimulating fraction mainly contained fragments of xyloglucan and galactan, and the inhibiting fraction contained fragments of xyloglucan, galactan, and arabinan. The polymerization degrees of the stimulating and of the inhibiting oligosaccharides were 10-11 and 5-6, respectively.

Keywords

Cell division, Growth, Neutral oligosaccharides, Pectins, *Pisum sativum* L., Root formation