

Transport of myo-inositol, D-pinitol, and D-chiro-inositol in soybean explants. (A00-gomes301672-oral)

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Abstract:

D-Pinitol, *myo*-inositol, and D-*chiro*-inositol comprise the free cyclitols in soybean (*Glycine max* (L.) Merrill) plants. *myo*-Inositol is biosynthesized in soybean embryos, but the location of D-pinitol and D-*chiro*-inositol biosynthesis is unknown. The objective was to test if D-pinitol and D-*chiro*-inositol are biosynthesized in maternal tissues and transported to embryos. Increasing cyclitols in soy products may be useful for the treatment of subjects with non-insulin dependent diabetes mellitus and polycystic ovary syndrome. *myo*-Inositol, D-*chiro*-inositol, and D-pinitol were exogenously fed to soybean stem-leaf-pod explants. Galactosyl cyclitols were extracted from mature seeds and analyzed by gas chromatography. Cyclitol concentrations were higher in seed coats than in embryos. Feeding *myo*-inositol increased galactinol 50% and D-*chiro*-inositol 3 fold in mature embryos, feeding D-pinitol tripled galactopinitols, and feeding D-*chiro*-inositol increased fagopyritol B1 20 fold. Surgical removal of embryos from seed coats and analysis of downloaded compounds demonstrated that *myo*-inositol, D-*chiro*-inositol, and D-pinitol are biosynthesized in maternal tissues *in planta* and transported to soybean embryos whereas fagopyritol B1 and galactopinitols are biosynthesized in embryo tissues.

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