

Reversible Conversion in the Brassinosteroid Quartet Castasterone, Brassinolide and their 3 β -Epimers

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The metabolism of deuterated brassinosteroids has been studied in excised leaves of *Secale cereale*, and *in vitro* in seedlings of *Arabidopsis thaliana* and cell suspension cultures of *Lycopersicon esculentum*. In addition to the known biosynthetic conversion of castasterone to brassinolide and epimerization to 3-epicastasterone, inversion of the 3 α -configured hydroxyl group of brassinolide to a 3 β -configured one in 3-epibrassinolide has been observed using liquid chromatography (HPLC) with electrospray ionization (ESI) and selected ion-monitoring mass-spectrometry (SIM-MS). Administration of deuterated 3-epicastasterone and 3-epibrassinolide to *Arabidopsis* and *Secale* seedlings resulted in the formation of castasterone and brassinolide, respectively, indicating conversion of configuration at C-3 of brassinosteroids is reversible.

Key words: Biosynthesis, Brassinosteroids, Epimerization