

Waterlogging-induced changes in carbohydrates of root soybean

BORELLA Junior^{1*}, RODRIGUES Lissane Borges Valério¹, MARTINS, Angelita Celente¹, AMARANTE Luciano¹², OLIVEIRA Denise dos Santos Colares², OLIVEIRA Ana Claudia Barneche³, BRAGA Eugenia Jacira Bolacel¹

¹Federal University of Pelotas, Department of Botanic, Institute of Biology, Pelotas- 10 RS, postalbox 354, 96160-000 Brazil, ²Federal University of Pelotas, Chemical Sciences, Pharmaceutical and Food Center, 12 Pelotas-RS, postalbox 354, 96160-000 Brazil, ³ Brazilian Agricultural Research Corporation – EMBRAPA, Pelotas-RS, 96160-000 Brazil. * borellaj@gmail.com

Waterlogging blocks the oxygen supply to the root system and inhibits the respiration, resulting in a severe decline in the energy status of cells by shifting from mitochondrial oxidative phosphorylation to fermentative process, leading a carbohydrate accumulation. This study evaluated carbohydrate contents in roots of two soybean genotypes under hypoxic and post-hypoxic conditions. Nodulated plants (genotypes Fundacep 53 RR and BRS Macota) were grown in vermiculite and transferred to hydroponic system at reproductive stage. Root system was submitted to hypoxia by flowing nitrogen gas in the solution for 24 and 72 h. For recovery, plants returned to normoxia condition by transferring to vermiculite for 24 and 72 h. Carbohydrate content (total soluble sugar, sucrose, starch and water-soluble polysaccharides) were quantified in roots. The most important metabolites, sugar and sucrose increased by hypoxia in both genotypes. However, Fundacep RR 53 was more responsive to the metabolic effects caused by hypoxia and post-hypoxia than BRS Macota by accumulating more carbohydrates, and it is likely that these characteristics contribute positively to improve adaptation to oxygen deficiency.

Resúmenes (índice)

Índice de resúmenes de trabajos presentados en el XV Congreso Latinoamericano de Fisiología Vegetal – XXX Reunión Argentina de Fisiología Vegetal- Mar Del Plata, 2014.

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