EXPRESSION PROFILES OF TOMATO NITRATE TRANSPORTER 2 (NRT2) GENES UNDER ABIOTIC STRESS CONDITIONS

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ABSTRACT
Nitrate (NO3-) is the most abundant form of inorganic nitrogen found in the soil. It is actively taken up through the roots and leaves, and then transported within the plant by various nitrate transporters, each of which has different features. The Nitrate Transporter 1 (NRT1)/Peptide Transporter (PTR) family (NPF), NRT2 family, Chloride Channel (CLC) family and Slow Anion Channel (SLAC) protein family are the four protein families that fulfil key functions in relation to nitrate transport. Our study revealed the presence of four novel NRT2 genes in the tomato genome. They interact with many other genes that perform various functions in many crucial pathways including the transport, photosynthesis, fatty acid metabolism and amino acid catabolism pathways. The responses of the SlNRT2 genes to drought and salinity stresses are diverse, and they are neither stress- nor tissue-specific. The findings of this study should provide a useful scientific basis for future studies concerning the roles of the NRT2 gene family in plants.

Key words: NRT2, gene family, tomato, drought, salt stress

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