

Solanum tuberosum Ammonium Transporter Gene: Some Bioinformatics Insights

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Abstract : Plants require nitrogen (N) to support desired production levels. Nitrogen is available to plants in the form of nitrate or ammonium, which are transported into the cell with the aid of various transport proteins. Ammonium transporters (AMTs) play a role in the uptake of ammonium, the form in which nitrogen is preferentially absorbed by plants. *Solanum tuberosum* AMT1 (StAMT1) was characterized using molecular biology and bioinformatics methods. Nucleotide database sequences were used to design AMT1-specific primers which were used to amplify the AMT1 internal regions. Nucleotide sequencing, alignment and phylogenetic analysis assigned StAMT1 to the AMT1 family. The deduced amino acid sequences showed that StAMT1 is 92%, 83% and 76% similar to *Solanum lycopersicum* LeAMT1.1, *Lotus japonicus* LjAMT1.1 and *Solanum lycopersicum* LeAMT1.2 respectively. StAMT1 fragments were shown to correspond to the 5th - 10th trans-membrane domains. Residue StAMT1 D15 is predicted to be essential for ammonium transport, while mutations of StAMT1 S76A may further enhance ammonium transport.

Keywords : ammonium transporter, bioinformatics, nitrogen, primers, *Solanum tuberosum*

Conference Title : ICAFS 2016 : International Conference on Agricultural and Farming Systems

Conference Location : Cape Town, South Africa

Conference Dates : November 03-04, 2016