

International Conference on Agricultural & Horticultural Sciences

September 14-15, 2012 Hyderabad International Convention Centre, India

Lycopene and β - carotene gene sequence polymorphism identified in contrasting tomato genotypes.

Shilpa P, A.T.Sadashiva, K.V.Ravishankar, K. S. Shivashankar, Amrutha Sindhu B, Punith Kumar R, Kavitha P, Krithika T. K and M. George Christopher Indian Institute of Hoticultural Research. India

Tomato (Solanum Lycopersicum) is one of the nutritive sources for Vitamin C and some major carotenoids like Lycopene and Vitamin A precursor β - carotene. Elucidation of the structure of these carotenoids has led to the study of genes and their action involved in biosynthesis of carotenoids. The genes that encode the enzymes of interest involved in biosynthesis of carotenoids were cloned and sequenced. Enzymes like CrtL (Lycopene β cyclase), Pds (Phytoene desaturase), crtR (β - carotene hydroxylase) from carotenoid pathway and Sus (Sucrose synthase) were used. Contrasting genotypes for lycopene and β - carotene were chosen and analysed by cloning the genes involved with the above enzymes. Sequence analysis showed Single Nucleotide Polymorphism at four positions in CrtL (Lycopene β cyclase) gene for IIHR 2101 with low lycopene content and β -carotene content compared to other lines such as IIHR 249-1-15-4, IIHR 2866 and Arka Vikas. Similarly Single Nucleotide Polymorphism at five positions for Sus (Sucrose synthase) in the sequence of A.Vikas when compared to other lines. Phytoene desaturase and β - carotene hydroxylase also showed sequence polymorphism among the genotypes. Thus the difference in lycopene and β - carotene content in the genotypes may be due to the sequence polymorphism identified which may lead to amino acid changes and also the resulting end product.

Biography

Shilpa.P is working as Senior Research Fellow at Molecular Biology Lab , IIHR at Bangalore.

shilpasept@gmail.com