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ISOLATION AND CHARACTERIZATION OF CROCETIN (NATURAL APOCAROTENOID) GENES IN SAFFRON (*CROCUS SATIVUS* L.)

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One of the most valuable and irreplaceable ones all over the world is Saffron. Saffron is the dried stigmas of *Crocus sativus* L. (Iridaceae) and the most precious and expensive spice. Due to the presence of water soluble carotenoid derivatives in saffron which are known to have antioxidant, anticarcinogenic and antitumors activities, this spice is often used for medicinal purposes. Saffron has three major carotenoid derivatives crocin, picrocrocin and safranal that are responsible for its intense color, bitter taste and aroma, respectively. In the pathway for making crocin, it possesses many enzymes which are catalyzes the reactions and are coded by related key genes. This research aim was to identify, isolate, and characterize *LycB*, *CCD*, *CI*, *ZDS*, *PSY*, *IPP* genes that was done by comparing with other genomes and protein sequences of these genes in other plants. Genomic DNA and cDNA was extracted from stigma organs, after designing specific primers of these genes, using reference nucleotide sequence and carrying out PCR for gene amplification, the product of reaction was electrophoresed on the agarose gel. The resulting bands were isolated and characterized from the saffron genome. All exon and introns were identified from the crocetin component genes. After comparison between the sequenced fragments of nucleotide and the reference genome revealed, and also blasting sequences, we observed that there is a very similar resemblance between the crocetin encoding genes with few nucleotide differences between fragments (point mutations) which did not make a difference, in amino acids and ultimately in proteins.

Biography

Iman Yousefi Javan has completed his PhD from Tuscia University (University of Viterbo in Italy). His graduation course is Plant Biotechnology and he was the winner of the scholarship in Italy (in years 2009 & 2010). He is Head of Department and Assistant Professor of Torbat Heydarieh University in Iran (Department of Plant Production, Faculty of Agriculture), which is one of Iranian leading University. He has published more than 10 papers in reputed journals and has been serving as an Editorial Board Member of reputed. He is Academic Staff in Torbat Heydarieh University since 2014. Having a special interest in application of new methods in genetic plants resources, here he is working about of Drawing genetic map of the Tetraploid wheat. He is Member of Iranian Agriculture and Natural Resources Engineering Organization (M.n. 1008506996); Food and Agriculture Organization (FAO) (M.n. CSCP); Iranian Science Agronomy and Plant Breeding Association (M.n.3502); International Society for horticultural science; Member of ABRII (Agriculture Biotechnology Research Institute of Iran).

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