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Detection of CaMV-35S Promoter and NOS Terminator in Genetically Modified Tomato Seed in Iraqi Markets

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Abstract: The present study was focused to detect leading elements that control gene expression in genetically modified tomato by using conventional PCR technique.These common elements in all GM. plants are CaMV-35S promoter isolated from cauliflower mosaic virus and T-Nos terminator from the Agrobacterium tumefaciens. Seventy eight tomato genotypes were collected from Iraqi institutions and markets. The experiment was conducted in the Institute of Genetic Engineering/University of Baghdad/ Iraq and Directorate of Seeds Testing and Certification/Ministry of Agriculture/ Iraq. The tomato DNA samples were extracted manually by C-hexadecyl-Trimethyl-Ammonium-Bromide (CTAB) method. When measuring the optical density (OD) of the tomato samples, most purity values were found to be between (1.7-1.9).Two specific primers of CaMV-35S promoter, Nos terminator supplied by Canadian Alpha DNA Company , AccuPower®PCR Pre mix PCR supplied by Korean Bioneer Company and positive control (plasmid) supplied by Dr. ShathaAyidYousif/ Directorate of Agricultural Research/ Ministry of Science and Technology/ Iraq, were used in this study. Results showed that twenty four tomato genotypes were genetically modified.The primer specific of CaMV -35S promoter recorded a PCR product of 95 bp in 15 GM tomato and 13 GM tomato genotypes contain Nos terminator were a PCR product of 180 bp which as match with results of positive control (plasmid) which contains promoter and terminatorand that four tomato genotypes contain major components CaMV-35S promoter and Nos terminator together in the same sample.

Key words: Tomato, Conventional PCR, CaMV-35S promoter and T-Nos terminator