

Identification and determination of genetic diversity aflatoxin producing *Aspergillus* spp. in pistachio nuts using RAPD

Abstract:

Pistachio nut is one of the most important agriculture crops in Iran. The product is attacked by aflatoxigenic fungi *A. flavus* and *A. parasiticus*. the toxin produced in the nuts by the fungi is detrimental to human and animal health feeding from contaminated nuts. The objective of the project was to detect and determine the genetical diversity of the aflatoxigenic isolates in the stored pistachio nuts. The contaminated pistachio nuts were collected from the stored nuts in Kerman province. The isolates of fungal species were separated, purified and then identified based on morphological characteristics using *Aspergillus* key. The HPLC was employed to determine the type and rate of aflatoxins produced by the fungi in nuts. The PCR method by using the primers designed from aflR gene utilized to identify aflatoxigenic isolates. The RAPD technique by five 20-mer primers was used to genetically identify the aflatoxigenic fungi. As was expected a 798 bp DNA fragment was amplified in each of genomic DNA extracted from each isolate. There was no difference between aflatoxigenic and nonaflatoxigenic species in RAPD test. The marker could differentiate between *A. flavus* and *A. parasiticus*.

Key words: PCR, RAPD marker, HPLC, aflatoxin, *Aspergillus* spp. Pistachio nuts



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