

عنوان مقاله:

Inhibitory Effect of Vitamin C on *Aspergillus parasiticus* Growth and Aflatoxin Gene Expression

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خلاصه مقاله:

Objective: Aflatoxin is known as one of the most important mycotoxins that threatens of human life. The toxin is produced by *Aspergillus* species which are common cause of contamination of agricultural products. For this reason, the use of organic compounds has always been considered in order to inhibit the growth of fungi and production of toxin. The aim of this study was to investigate the effect of vitamin C on the growth rate of fungi and the level of aflR gene expression (gene responsible for aflatoxin production). **Material and method:** At first, *Aspergillus parasiticus* ATCC15617 was cultured in SDA medium containing vitamin C with concentrations of 200, 100, 50, 25, 12.5, 6.25, 3.1 mg / ml at 28 ° C for 72 hours. Then, the amount of aflatoxin produced in the presence of vitamin C was measured by HPLC method. Finally, by extracting the DNA of cultured samples, the aflR gene expression level was evaluated by real-time PCR at different concentrations of vitamin C. **Result:** The results showed that the deformation of mycelium was started in medium with 50 mg / ml of vitamin C and only fungal spores were observed at higher concentrations. The results of measurement of toxin showed that the level of total aflatoxin and the subset of B₁, B₂, G₁ and G₂ were 5.9, 1.9, 0.2, 3.5 and 0.3 ppm in the presence of vitamin, respectively. While without the presence of vitamin C, these values were 207.5, 73.6, 4.5, 123.4, 6 ppm, respectively. Measuring the expression level of aflR genes, showed that at a concentration of 25 mg / ml of vitamin C, the level of gene expression is down 68%, and at the concentration of 50 mg / ml, the level of gene expression is decreased up to 81%. **Conclusion:** This study showed that vitamin C, as a human-compatible compound, could be considered as a good way to keep agricultural products from fungal aflatoxin.

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