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## Cynara cardunculus L. and Cistus incanus L. as aflatoxin B1 suppressors on food matrices (sesame seeds & macadamia nuts)

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**Statement of the Problem:** Various fungi are known to contaminate products intended for human and animal consumption. Among these, A. flavus and A. parasiticus are the most common and widespread in nature and they are known to produce aflatoxin B1 (AFB1), which is the most dangerous contaminant of foods and crops due to its carcinogenic and mutagenic activity. Especially foodstuffs rich in oil content are sensitive to AFB1 producing fungal invasion and therefore they are often contaminated with AFB1. According to the literature, many plants, due to their bioactive compounds, have been shown an inhibitory effect on fungal growth and mycotoxin production.

**Methodology & Theoretical Orientation:** The aim of this study was to investigate the anti-aflatoxigenic efficacy of *Cynara cardunculus* L. and *Cistus incanus* L. extracts in inoculated with A. parasiticus fatty food matrices. Specifically, sesame seeds and macadamia nuts were selected as substrates for the investigation of the anti-aflatoxigenic ability of C. cardunculus L. and C. incanus L. respectively. The anti-aflatoxigenic efficacy of the two plants was also investigated in the microbiological medium yeast extract sucrose (YES). Moreover, two different HPLC methods for AFB1 determination in sesame seeds and macadamia nuts were developed and validated.

**Findings:** The results showed that C. cardunculus L. displayed a complete inhibition of AFB1 both in sesame seeds (99.2–99.9%) and in YES medium (97.8–99.9%) while C. incanus L. inhibited the AFB1 production in percentage of 72.5-85.9% for macadamia nuts and in a percentage of 87.1-90.1% for YES medium.

**Conclusion & Significance:** The anti-aflatoxigenic extracts studied in this work, can be possibly used for reducing or preventing pre/post-harvest AF production and combined with good agricultural, manufacturing and storage practices could lead to a product of guaranteed quality and safety.

## Biography

Eleni Kollia is a Chemist (MSc) and has her expertise in Food Chemistry/Microbiology. She received her BSc in Chemistry and her MSc in Food Chemistry from the National and Kapodistrian University of Athens. She is currently pursuing her PhD in Chemistry, focusing on Food Chemistry/Food Microbiology and Toxicology. Her current research focuses on finding natural agents/compounds for reducing or inhibiting the fungal invasion of foods and crops. Moreover, her research aims to prevent the pre/post-harvest mycotoxin contamination of the crops.

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