



جامعة الفيوم
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قسم علوم وتكنولوجيا الأغذية



رقم البحث: الخامس

Potential of Low Cost Agro-Industrial Wastes as a Natural Antioxidant on Carcinogenic Acrylamide Formation in Potato Fried Chips. عنوان البحث باللغة الإنجليزية:

الباحثون المشاركون:

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ملخص البحث باللغة الانجليزية:

Acrylamide is classified as a toxic and a prospective carcinogen to humans, and it is formed during thermal process via Maillard reaction. In order to find innovative ways to diminish acrylamide formation in potato chips, several extracts of agricultural waste including potato peels, olive leaves, lemon peels and pomegranate peels extracts were examined as a soaking pre-treatment before frying step. Total phenolic, total flavonoids, antioxidant activity, and the reduction in sugar and asparagine contents were additionally performed. Proximate composition of these wastes was found to be markedly higher in fat, carbohydrate and ash contents. Lemon peels and potato peels showed almost similar phenolic content (162 ± 0.93 and 157 ± 0.88 mg GAE /g, respectively) and exhibited strong ABTS and DPPH radical scavenging activities than the other wastes. The reduction percentage of reducing sugars and asparagine after soaking treatment ranged from 28.70 to 39.57% and from 22.71 to 29.55%, respectively. HPLC results showed higher levels of acrylamide formation in control sample (104.94 mg/kg) and by using the wastes extracts of lemon peels, potato peels, olive leaves, and pomegranate peels succeeded to mitigate acrylamide levels by 86.11%, 69.66%, 34.03%, and 11.08%, respectively. Thus, it can be concluded that the soaking of potato slices in the tested wastes extracts as antioxidant as pre-treatment before frying reduces the formation of acrylamide and in this way, the risks connected to acrylamide consumption could be regulated and managed.