

## عنوان مقاله:

Utilization of apple seeds as a valuable waste with high industrial worthiness and human health benefits

## محل انتشار:

پنجمین همایش بین المللی مطالعات میان رشته ای در صنایع غذایی و علوم تغذیه ایران (سال: 1400)

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## خلاصه مقاله:

A significant fraction of waste from fruit processing industry is mainly including seeds, peels and pomace. Apple is one of the most important fruits cultivated throughout the world. During processing of apples generate huge quantity of pomace (up to ۲۰-۳۵% of fresh fruit weight) and consists primarily a mixture of peel/ pulp tissue (۹۴.۵%), with a significant amount of seeds (۴.۱%) and stems (1.۱%). Apple seeds are sources of potential bioactive compounds that can be used as substrates for the extraction of phenolic and antioxidant compounds and minerals. Originally polyphenols were based on their properties as scavengers of free radicals and reactive oxygen species. Their health effects may explain the chemo-preventive roles of these biomolecules in preventing cancer and other diseases in humans but further studies are needed. For instance polyphenols, quercetin, are efficient inhibitors of sulfotransferases and may change the activity of thyroid hormones, steroids and catecholamines. These effects embrace in vitro anti-mutagenic activity, modulation of carcinogen metabolism, antioxidant activity, anti-inflammatory mechanisms, modulation of signal transduction pathways, anti-proliferative and apoptosis-inducing activity. The apple seed oils are useable in the flavoring and soap manufacturing. Apple seeds also contain significant amount of lipids (۲۷۷ g oil/kg), in which unsaturated fatty acids were the predominant (۸۹ g/۱۰۰ g oil). Their rich composition in  $\alpha$ -linoleic acid and their high content of  $\alpha$ - and  $\gamma$ -tocopherols allows them to be beneficial for balancing diet fatty acid composition. The free radical scavenging activity of apple seed oil was superior to grape seed oil

## کلمات کلیدی:

Bioactive compounds, Apple seed oil, Antioxidant activity, Valuable waste

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