Adsorption of Phenolic Antioxidants from Grapeseed Using Amberlite® XAD-7 Resin

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The interest in phenolic antioxidants has increased in the last decade because of their positive effects on different diseases such as cardiovascular and neurological diseases, as well as cancers. Grape seeds are rich sources of monomeric phenolic compounds, and these compounds act as antioxidants scavenging free radicals.

Adsorption of grapeseed phenolics in aqueous batch solution was studied polymethylmethacrylate adsorption resin. Adsorption was determined by mixing weighed amounts of the adsorbent at 25-75°C and the grapeseed extract concentration ranging from 0.3-0.7 mg/ml. Samples were withdrawn at regular intervals from the aqueous phase and total phenolics remeaning in the liquid phase was determined. The experimental data of adsorption isotherms were well fitted to a Langmuir model. The maximum adsorption capacity was determined as 50.39 mg of total phenolics/g XAD-7 resin at 25°C and the initial concentration of 0.5 mg/ml grapeseed extract.