

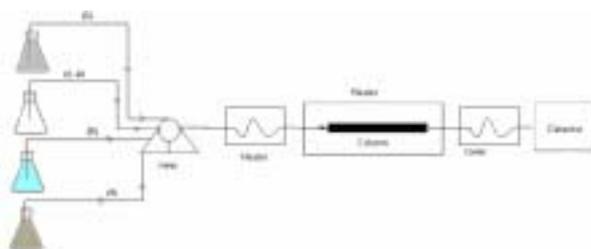
Investigation of Adsorption Capacity of Bleaching Earth Material by the New Column System

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In the refinery process, the bleaching step is used mainly to remove or convert undesired by-products to harmless ones from fats and oils. Bleaching unit is a vital part of edible oil refining process which is not only used for removing of colour pigments, traces of gums, soaps, pro-oxidant metals but also for the quality of oil in terms of shelf-life. Impurities from crude edible oil is removed by using of bleaching earths which are usually bleaching earth activated by heating with strong acids or micro wave irradiation. In this study, the colour removal from neutralized sunflower oil was studied with different kinds of commercial bleaching earths. The effect of changes in contact time (25 and 35 minutes), temperature (80-125°C) and percentage of bleaching earth with respect to the oil (% 0.1-0.9 by weight) on color, chlorophyll and carotene concentrations, oxidation degree, soap, conjugated percentage were investigated by the new column system. As shown in figure; using very sensitive gradient pump, neutralized oil was pumped to the column in which bleaching earth material was filled. Before oil was reach to the column, oil was heated in/by the line heater to the desired temperature. During oil passing through the column, all material could be adsorbed by bleaching earth till adsorption capacity of bleaching earth has been full. After over adsorption capacity, undesired material could pass through column without adsorption it means that concentration of all undesired material in input and output oil is equally ($C/C_0=1$) As a result, adsorption capacity of bleaching earth material was determined by new column system using Langmuir, D-R isotherms and Scatchard plot analysis



1. G. Kaynak, M. Ersoz, H. Kara, "Investigation of the Properties of Oil at the Bleaching Unit of Oil Refinery" *Journal of Colloid and Interface Science*, 280(1), 2004, 131-138