ASSESMENT OF THE OXIDATIVE STATE OF THERMALLY TREATED SUNFLOWER OIL AFTER REGENERATION WITH MOLECULAR SIEVES

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Abstract

Edible oils undergo undesirable changes over time or during thermal treatment due to enzymatic, microbial, and chemical processes, leading to spoilage. In this study, the oxidative state of sunflower oil was assessed by determining the peroxide value (PV), anisidine value (AV), and Totox value (TV) using standard methods. The oil was heated at temperatures ranging from 110 to 190°C for 10 and 30 minutes, also in the presence of molecular sieves (Zeolite 4A, clinoptilolite, and bentonite). When using the synthetic molecular sieve Zeolite 4A, a reduction in the Totox value by 35.72% was observed. When natural molecular sieves were used, a reduction of 33.19% was recorded for clinoptilolite, while for bentonite, the reduction was 31.08%. Both natural and synthetic molecular sieves demonstrated a strong ability to regenerate thermally treated oils.

Keywords: *Sunflower oil, Molecular Sieves, Thermal Treatment, Regeneration, Oxidative state.*