

Processing of Oil Seeds with Increase of Minor Components

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During processing of oil seeds minor components are mobilized within the plant material, co-extracted and enriched in the oil. In order to produce an oil rich in minor components we have been investigating both:

high temperature short time (HTST) conditioning of the seed and mild screw pressing followed by supercritical extraction as well.

The first part of the contribution deals with the impact of rapid preheating up to temperatures of 145° C on the amount of polyphenols and phospholipids in rape oil that was produced by screw pressing and extraction of the press cake as well. Those valuable constituents get released from the cell structure by the hydrolysis effect of the steam pretreatment and they enrich in the oil. The level of increase is higher in the extracted oil from press residue compared to the oil directly produced by the screw press. Based on the antioxidative effect of the polyphenols the stability of the oils increases remarkably while the higher amount of phospholipids creates a potential source for the separation of rape lecithins. Moreover some results will be reported on the behaviour of the polyphenols along the refining step of water degumming.

Minor oil components of increasing interest are the phytosterols that are present in relativ high amount in corn germ oil. Therefore, a combined process mobilizing and saving these minor components has been evaluated. In a first process step the corn germs are mechanically deoiled. Secondly the press cake was extracted by both solvent extraction and supercritical extraction as well. The results show a considerable increase in phytosterol content of the oil that was extracted from press cakes by supercritical CO₂. It was found that the adhesion oil (press cake oil) is richer in sterols than the processed oil and the original corn germ oil.