

COMPARATIVE EXTRACTION STUDIES OF VARIOUS PHYTOSTEROLS

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Phytosterols are natural plant sterols, these compounds are proved to decrease serum total and low density lipoproteins (LDL) – cholesterol level. The beneficial properties can be utilized either as enriched food ingredients in functional foods or as natural components of regular diet. Their main sources are in unsaponifiable fractions of seeds and nuts. Plant sterols are minor constituents of vegetable oils. The aim of the study was to develop novel phytosterol extraction and proper GC-FID methods and to examine the stability of phytosterols. Six standard compounds (cholesterol, campesterol, brassicasterol, stigmasterol, β -sitosterol, stigmastanol) have been used during the analysis. Cold pressed wheat germ oil with high level phytosterol content is suggested for food applications. According to extraction results the highest phytosterol concentration was also found in this product. For these reasons the wheat germ oil sample was used to test the extraction efficiency of different methods. Eight different extraction procedures were developed by adding additional purification steps and utilizing various concentrations of the saponifying agents. The stability of six common dietary sterol compounds were analysed for a period of one year in twelve different plant seed oil samples (wheat germ, corn germ, line, sesame, poppy, pumpkin, soy bean, rape, hemp, dill, grape, walnut).

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