

Use of statistical software for experimental design

Lorinc Garai^a

^aDoctoral School of Multidisciplinary Engineering Sciences, University of Győr
garailorinc@garailorinc.hu

Abstract

Experimental design and evaluation of an analytical method was performed with Statistica and Minitab statistical software.

Instrumental analysis (chromatography) of vitamin E was optimized. During the test, vitamin E is separated from the fatty part of food by saponification. The time and temperature of this step is critical. A Hungarian standard describing the protocol (MSZ EN 12822) recommends a wide range of temperature and time, giving an opportunity to optimize the recovery of the analyte.

Experimental tests were performed from vegetable oil sample to find the temperature and time settings for the best recovery. Both factors were examined with centered two-level factorial design. Trend analysis showed a tendency towards the corner points of highest possible temperature and shortest possible saponification time.

Evaluation was made with Statistica and Minitab.

Keywords: statistical software, experimental design, Statistica, Minitab

MSC: 62K15