UNDERSTANDING THE H STATISTIC DURING ROUTINE ANALYSIS OF ANIMAL FATS.

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During two consecutive years, it was developed global calibrations for the prediction of fatty acids on Iberian pig fat. These equations should analyse well samples of that animal fat because of their high accuracy ($SECV_{C16:0} = 0.26\%$; $SECV_{C18:0} = 0.28\%$; $SECV_{C18:1} = 0.26\%$; $SECV_{C18:2} = 0.15\%$) and their broad covering composition range.

In some cases, when new samples are predicted H (Mahalanobis distance) values higher than 3 (recommended value for agricultural products by the ISI software) are obtained. However, there are not any obvious factors which tells that samples scanned are very different to the spectral mean of the calibration population. Furthermore, these samples are well predicted according to the SEP values.

The objective of the present work is to deepen the understanding of the H statistic when analysing animal fats.

Three different validation files were predicted with equations obtained from January '97 to April '98. The Set A has spectra of 20 samples not included on the calibration file and scanned in May of 1998. The Set B has spectra of 20 samples included on the calibration file and scanned again in November '99. The Set C contains 150 spectra of one sample representative of the mean values (for fatty acids composition) of the calibration file. This sample was analysed three times per week during June '99 to July '00.

The H mean values for the Set A, Set B and Set C were respectively 1.35, 14.39 and 11.71. These anomalous values for the Set B and C make not sense because Set B contains replicate subsamples of the same samples scanned during calibration development and Set C only contains spectra of one sample which represent the mean spectrum of the calibration files.

Results will be shown to demonstrate that small day to day variations are responsible of the high H values. When a PCA and LIB file are created with calibration samples and spectra of the Set C modelling day to day variations, the H values for Set A, Set B and Set C were respectively 1.83, 2.16 and 0.93.