

Forecasting Coffee Quality by Near Infrared Transflectance Spectra: a Virtual Cup-Tester Panel

M. PETRACCO¹, F. SUGGI-LIVERANI¹, G. DELLA RICCIA²

¹illycaffè S.p.A., Research and Technology Development Department, via Flavia 110,
34147 Trieste, Italy

²Department of Mathematics and Informatics, University of Udine, via delle Scienze 206,
33100 Udine, Italy

SUMMARY

Espresso coffee value stems mainly from its sensory quality, as traditionally determined by cup-testers' panels. Since this approach is time-consuming and expensive, the number of tested samples per day is often inadequate to meet with industrial needs.

An instrumental screening procedure, able to discard *a priori* undesirable samples likely to be rejected by the panel, would be therefore of help if rapid, non destructive, and reliable.

We developed a procedure for checking the reliability of predictions obtained examining a large number of Near Infra Red Transflectance spectra with the related sensory Merit data, using a data base regression technique know as LOCAL in the WinISI software package.

From a total of 3438 raw coffee samples from Brazil, collected over a seven year period, 1753 samples were chosen to build a library. We studied predictions based on global calibrations and by local data base regression, selecting appropriate neighbours to an individual calibration for each sample.

Results show that LOCAL data base regression technique performs better than global calibration by partial least squares regression, and is precise enough for industrial purposes.