Fast and non-destructive analysis of foods using machine learning

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https://www.chimslab.unimore.it/

RESEARCH ACTIVITY

The activities of CHIMSLAB are mainly aimed at the development of rapid and non-destructive methods for the analysis of food.
In particular, the laboratory skills include:

- Development and application of chemometric algorithms for the characterization of food and raw materials

- Optimization of products and processes through experimental design techniques

- Characterization of food matrices by NIR spectroscopy

- Processing of digital images for the quantification of colour and for the identification of defects in food and raw materials

- Chemical mapping and early identification of defects in food samples using hyperspectral images
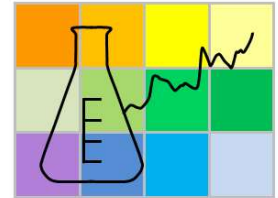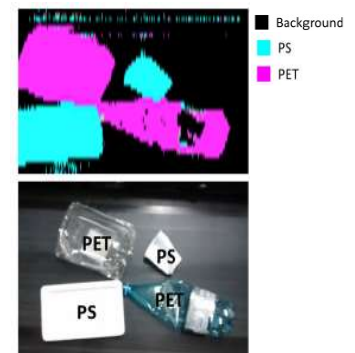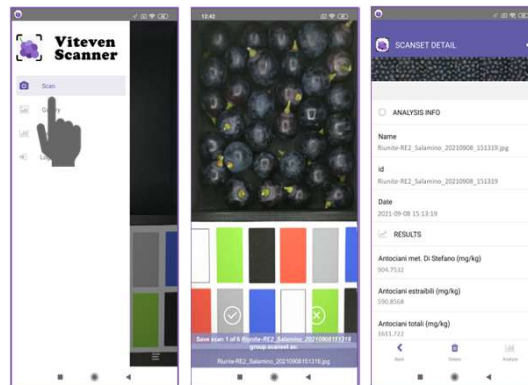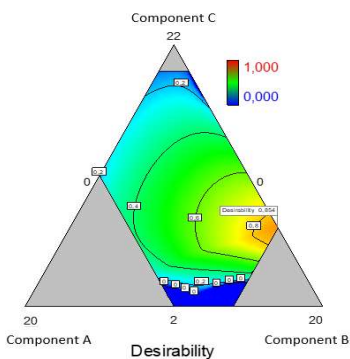
OFFERED SERVICES

- Analysis of RGB and hyperspectral images aimed at:
  - extracting chemical, physical, rheological and sensory information on food
  - quickly differentiating products in quality or defect categories
  - quantifying the various constituents of the sample simultaneously

- Non-destructive analysis of samples by NIR spectroscopy for the construction of classification or calibration models

- Analysis of historical data and consultancy for the resolution of problems concerning the acquisition and processing of experimental data

- Study of product properties through experimental design

- Process monitoring by means of multivariate control charts