P6 - The uses of mid-infrared spectral information from milk recording organization to certify milk geographic origin

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This study investigated the opportunity to detect the geographic origin of milk from the mid-infrared (MIR) analysis of milk. Milk MIR spectral data related to milk recording data were available in the Belgium Walloon Region via European project OptiMIR (INTERREG IVB North West Europe Program). In Wallonia, the Ardenne region is associated to a traditional product of the area, a appellation d'origine "Beurre d'Ardennes". Therefore, discrimination studies were conducted to distinguish Ardennes region from the rest of Wallonia. A total of 542,733 Walloon spectral records linked to their geographic origin were used (97,369 of MIR spectra for Ardennes region and 450,326 for the rest of Wallonia). The spectral data selected and pre-treated were adjusted for the effects of breeds, months, years and days in milk using ab appropriate mixed model. To test the MIR ability for milk authentication, chemometric tools, such as quadratic discriminant analysis were applied to the adjusted spectrafor three MIR spectral regions (e.g. 930-1600 cm-1, 1710-1810 per cm and 2560-2990 per cm). Results of classification showed that 94% of the records from the Ardernnes region were properly classified. Based on this results, MIR spectroscopy techniques may provide useful fingerprints to detect geographic origin and could be potentially used in routine management decision and quality assurance tools.