Abstract

Near infrared spectroscopy was used to assess total soluble sugar (TSS) and lipid contents in the freeze‑dried kernel of coconuts from two cultivars: PB121 or MYD x WAT from Ivory Coast and VRD x VTT from Vanuatu. The spectra of 385 samples were acquired on a NIRSystems 6500 monochromator. Using this spectral library, a classification algorithm was applied to extract 128 samples representative of the library. The latter were used to construct calibration equations in reference to HPLC laboratory analyses for sugar contents and automatic extraction by organic solvent for lipid coconuts. The TSS and lipid contents predicted by the model provided information on coconuts quality from the two cultivars studied at different stages of ripeness. This study demonstrated the suitability of a near infrared spectroscopy tool for assessing the quality of coconut palm fruits. The methodology chosen was shown to be relevant for the research and production constraints encountered in the coconut commodity chain. The cost of the study was lowered by 70%, whilst the volume of organic solvents was reduced by more than 90%.