EVALUATION OF NIRS FOR ASSESSING PHYSICAL AND CHEMICAL CHARACTERISTICS OF LINEN WEFT YARN

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Previous reports have shown that Near Infrared Spectroscopy (NIRS) can be used to assess physical and chemical properties of flax fibre and fabric quality. Currently, spinners assess yarn quality mainly based on strength and regularity measurements. There two key characteristics are influenced by quality of raw fibres used, especially the degree of retting and stregth. The aim of this investigation was to evaluate the use of NIRS for assessing quality of weft grade yarn available on the commercial market. In order to develop the NIR calibrations, a range of samples representing poor, medium and good quality weft yarn samples was included in the calibration and validation sample sets. The samples were analysed for physical and chemical parameters including caustic weight loss, fibre fractions, lipid, ash and minerals. A detailed protocol for assessing yarn quality has been developed to maximize the accuracy of the reflectance spectra. The development of partial least squares regression models and validation of the calibration equations using blind samples will be presented and discussed.