Multispectral Image Analysis for Robust Prediction of Astaxanthin Coating - DTU Orbit
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The aim of this study was to investigate the possibility of predicting the type and concentration level of astaxanthin coating of aquaculture feed pellets using multispectral image analysis. We used both natural and synthetic astaxanthin, and we used several different concentration levels of synthetic astaxanthin in combination with four different recipes of feed pellets. We used a VideometerLab with 20 spectral bands in the range of 385-1050 nm. We used linear discriminant analysis and sparse linear discriminant analysis for classification and variable selection. We used partial least squares regression (PLSR) for prediction of the concentration level. The results show that it is possible to predict the level of synthetic astaxanthin coating using PLSR on either the same recipe, or when calibrating on all recipes. The concentration prediction is adequate for screening for all recipes. Moreover, it shows that it is possible to predict the type of astaxanthin used in the coating using only ten spectral bands. Finally, the most selected spectral bands for astaxanthin prediction are in the visible range of the spectrum.

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