Sweet chili sauce is the important exported product which its market growth increases every year. The development of an accurate and rapid technique for quality evaluation of sweet chili sauce will be very useful for exporting. This research aimed to apply of near infrared spectroscopy (NIRS) for quality determination of sweet chili sauce. Sample preparation for near infrared (NIR) measurement and development of physiochemical and heat sensation model were investigated. Results showed that sample manually stirred about 10-15 times before pouring into the British cup holder was suitable method for sample preparation. For physiochemical models, 180 samples were analyzed to quantify the total soluble solids (TSS), reducing sugar (RS), total sugar (TS), total acidity (TA), pH and color of L*, a*, b*, C* and h, while 100 samples were used to analyzed capsaicin content and scoville heat units (SHU). The transflectance spectra in the region of 1100-2500 nm were scanned in each sample and original spectra were treated by multiplicative scatter correction (MSC). Both spectra and physiochemical data were used to develop the predictive partial least squares regression (PLSR), the moving window partial least squares regression (MWPLSR) and the searching combination moving window partial least squares regression (SCMWPLSR) models. Results showed that the SCMWPLSR models for predicting TSS, RS and TS yielded the best prediction results, their highest correlation coefficient (R) values were 0.992, 0.959 and 0.956, respectively. While the MWPLSR was the best method for predicting TA, capsaicin content and SHU, their highest R values were 0.938, 0.964 and 0.941, respectively. For heat sensation models, 50 samples were evaluated by 10 trained panelists and were also scanned by NIRS. Results showed that the back propagation artificial neural network (BP-ANN) was suitable method to develop predictive heat sensation models. Their highest R values were 0.820-0.910. According to these results, NIRS could be potentially used for predicting physiochemical and heat sensation quality of sweet chili sauce.

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