Abstract

As a part of a project concerned with detecting bruises on 'Golden Delicious' and 'Jonagold' apples, a hyperspectral imaging system was used for separating stem-end/calyx regions from true bruises. Based on principal component analysis (PCA) of the hyperspectral images, multiple effective wavebands were selected. Afterwards, PCA and image-processing techniques were applied to the multispectral images. The stem-end/calyx regions were identified and distinguished from the cheek surfaces by analysing the contour features of the first principal component score images. None of the sound tissue was misclassified as a stem-end or calyx region for both cultivars apples. In the investigated samples, all of the stem-end/calyx presented in the images were correctly recognised for the 'Golden Delicious' apples and 98·33% for 'Jonagold' apples. Less than 3% of bruises were misclassified as stem-end/calyx regions for both cultivars apples.