Abstract

Fruit classification is important to improve quality during processing, storage and marketing. The aim of the study was to determine if a new system combining chlorophyll fluorescence (ChlF) and C-support vector machine (C-SVM) might assist the classification of jujube fruits based on postharvest quality, including ascorbic acid and total phenols contents and 2,2′-diphenyl-1-picrylhydrazyl (DPPH) radical-scavenging activity. Our results showed that the best classification accuracy of fruit quality was up to 93.33% using the RBF SVM classifier ($C = 2$, $\gamma = 0.5$), and the correct classification rates of 86.67% was achieved for the sigmoid ($C = 2$, $\gamma = 0.5$) SVM classifier as well as the polynomial ($C = 2$, $\gamma = 0.5$, $d = 1$) SVM classifier. The proposed SVM classifier achieved the best classification accuracy, showing that the SVM-ChlF system can provide a potential tool for automatically classifying the quality of not only jujube fruits, but also any other chlorophyll-containing fruits in packing lines.