

基于CT和图像处理的苹果贮藏期预测模型 Forecast Model of Apple Storage Time Based on CT Technology and Image Processing

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关键词: 苹果 贮藏期 CT无损检测技术 图像处理

摘要: 应用CT技术扫描不同贮藏期的富士苹果, 获取含有不同贮藏期信息的CT图像, 并对CT图像及图像直方图进行对比分析。结果发现, 苹果的CT图像随着贮藏时间的延长呈现增亮的趋势, 直方图呈现明显的双峰特性, 其中代表果肉区域的右峰随着贮藏时间的延长而呈现右移的趋势。设计了一种简单快速的图像处理算法, 计算CT图像的特征点灰度均值, 将其与贮藏时间相对照, 建立图像平均灰度值与贮藏时间的线性关系。实验验证表明该模型的预测误差较低, 平均误差1.08 d。 Computed tomography (CT) images and histograms scanned of Fushi apples in different storage time were compared and analyzed. It's found that the images were getting brighter with the storage time increased and the right peaks of the histogram were moving right. The average gray value of the CT images was calculate to design a simple and fast image processing algorithm. The linear relationship was established between the average gray value and the storage time. The prediction error of the model was low and the average prediction error was 1.08 d.

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