Abstract:

‘Huaizhi’, ‘Nuomici’, and ‘Guiwei’ lychees were stored at 4°C, then the superoxide dismutase (SOD) activity, plasma membrane permeability, superoxide radical and malon-dialdehyde (MDA) content in the pericarp were determined. The browning index of the pericarp was also investigated. The results showed that the browning index and membrane permeability were greatly increased as the length of storage was prolonged and the plasma membrane permeability was found to be correlated positively with the browning index; the SOD activity appeared to decline at first, then raise, and decline at last with the extension of storage. In contrast, the MDA content and the producing rate of superoxide radical changed regularly, that is to say, they rose first, then declined and rose again at last with the extension of storage and browning. The MDA content and superoxide radical and the SOD activity were correlated with the browning of lychee pericarp. Furthermore, the SOD activity had a certain adverse trend with the content of MDA and the production rate of superoxide radical. The results indicated that SOD activity, MDA content, superoxide radical and plasma membrane permeability could be considered as important physiological indices in determining the browning of lychee pericarp.