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| Author | Hongshun Yang, Hongjie An, Guoping Feng and Yunfei Li |
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**Abstract**

Skin status of produce is important in determining fruit quality. Sensory evaluation is often used to express this characteristic. A new method, atomic force microscopy (AFM), was proposed to denote the changes of skin status. Arithmetic roughness ($R_a$) and root mean square roughness ($R_q$) of 'Jinxiu' yellow peach (*prunus persicu* L. Batsch.) were analysed by AFM. The $R_a$ and $R_q$ values increased with storage time in both controlled atmosphere (CA) and regular air (RA) storage, and the values of CA group were smaller than that of RA group. There is a linear correlation between $R_a$ and $R_q$. The three-dimensional profiles of the skin could also be gained by AFM. The results indicate that the roughness values increase with the storage time, and the roughness of CA group increases slower than that of RA group.