

**Title** Comparison of human-bite and instrument puncture tests of cucumber texture  
**Author** Kaoru Kohyama, Ai Nagata, Yuko Tamaki and Naoki Sakurai  
**Citation** Postharvest Biology and Technology, Volume 52, Issue 2, May 2009, Pages 243-246  
**Keywords** Texture; Cucumber fruit; Temperature; Puncture test

### **Abstract**

The texture of cucumber fruit was studied with human-bite measurement and instrument puncture testing. The bite test with the incisors was conducted using a multiple-point sheet sensor. Cross-sectional slices (10 mm thick) taken from the middle of each fruit were tested at two different temperatures (23 and 4 °C). Removing skin reduced bite pressure required for fracture by 15% after being normalized by the contact area. The required bite pressure on the flesh was greater, and that on the placenta was lower, than the whole bite pressure. When the slices had skin, the bite pressures required to fracture the flesh and placenta tissues exceeded those for peeled samples. The bite force required to fracture cucumber slices at low temperature was significantly lower than that at room temperature. Properties obtained in instrumental puncture tests of flesh, placenta, and skin did not significantly differ with temperature.