

**Title** Relation of biospeckle activity with chlorophyll content in apples  
**Author** Artur Zdunek and Werner B. Herppich  
**Citation** Postharvest Biology and Technology, Volume 64, Issue 1, February 2012, Pages 58-63  
**Keywords** Biospeckle; Apple; Chlorophyll; Nondestructive

#### **Abstract**

Biospeckle is a relatively new and potentially valuable method for non-invasive evaluation of quality of fresh fruits and vegetables. It has been proposed that biospeckle reflects particle movement at the cellular or sub-cellular level. However, the biological bases for the correct interpretation of this phenomenon, as well as the data obtained with this approach, are still rarely investigated. For studying biospeckle activity, normally red lasers are used. On the other hand, this wavelength is absorbed by chlorophyll. Hence, light propagation and biospeckle activity could be affected by the presence of this photosynthetic pigment. The goal of this study was to evaluate the potential interrelationships between the biospeckle activity and chlorophyll content in apples. The experiment showed that, for apples, the biospeckle activity linearly decreases with increasing chlorophyll content. Low coefficients of determination ( $R^2 \sim 0.3$ ) suggest that the real movement of particles, reflected by biospeckle, is masked by light absorption.