

Aloe vera coating for fruits and vegetables.(Update)



Resource: Engineering & Technology for a Sustainable World; 11/1/2005

Aloe vera gel is best known for its therapeutic effect on burned or irritated skin, but in the future you could be eating the gel as a healthful additive to your fruits and veggies.

Researchers in Spain say they have developed a gel from the tropical plant that can be used as an edible coating to prolong the quality and safety of fresh produce. The gel, which does not appear to affect food taste or appearance, shows promise as a safe, natural, and environmentally-friendly alternative to conventional synthetic preservatives that are currently applied to produce after harvesting.

Although a number of edible coatings have been developed to preserve food freshness, the new coating is believed to be the first to use Aloe vera, according to study leader Daniel Valero of the University of Miguel Hernandez in Alicante, Spain.

Valero and his associates dipped a group of common table grapes (Crimson Seedless) into Aloe vera gel and stored them for five weeks under low temperature while exposing a group of untreated table grapes to the same conditions. The colorless Aloe gel used in this study was developed through a special processing technique that maximized the amount of active compounds in the gel, Valero and associates say. The gel can also be applied as a spray.

The untreated grapes appeared to deteriorate rapidly within about seven days, whereas the gel-coated grapes were well-preserved for up to 35 days under the same experimental conditions, the researchers say. The gel-treated grapes were firmer, had less weight loss, and less color change than the untreated grapes, measures which correspond to higher freshness.

A sensory panel of 10 people evaluated the quality of both the untreated and the gel-treated grapes by consuming some of the grapes. They found that the gel-treated grapes were generally superior in taste.

The researchers believe that the gel works through a combination of mechanisms. Composed mostly of polysaccharides, the gel appears to act as a natural barrier to moisture and oxygen, which can speed food deterioration. But the gel also enhances food safety, the scientists say. Based on previous studies by others, Aloe vera gel appears to contain various antibiotic and antifungal compounds that can potentially delay or inhibit microorganisms that are responsible for foodborne illness in humans as well as food spoilage.

Although the health effects of Aloe gel on human consumption were not directly measured in this study, the coating is believed to be safe, the researchers note. They note that Aloe vera gel has been used as a functional ingredient in some foods and beverages for years. In addition to preserving table grapes, which are highly perishable, the gel can be applied to other fruits and vegetables. Further testing of the gel on other types of produce is anticipated.

The gel also offers potential environmental benefits, the researchers add. It could provide a greener alternative to sulfur dioxide and other synthetic food preservatives that are commonly used on produce and increasingly the target of health concerns.

For more information, contact Michael Bernstein, m_bernstein@acs.org.