

3rd International Conference and Exhibition on Food Processing & Technology

July 21-23, 2014 Hampton Inn Tropicana, Las Vegas, USA

Antimicrobial and strength properties of curcuma (*Curcuma longa*) and henna (*Lawsonia inermis*) coated food contact papers

Ahsen Ezel Bildik¹, Oznur Ozden¹ and Ozlem Tokusoglu²

¹Istanbul University, Turkey

²Celal Bayar University, Turkey

Paper has hygroscopic structure, so that this material is weak against steam, water vapor, and liquids. Packaging materials coated with coating color which has strong barrier properties gain resistance against liquids. At the same time, paper density increases because of the gaps in the paper are filled. Paper packaging materials coated with synthetic polymers are not biodegradable and environmentally friendly. Scientists are in quest of using natural polymers as coating agents. *Curcuma longa* (zerdecil) and *Lawsonia inermis* (kına) materials used in this study are preferred because of their antioxidant and antibacterial features beside their natural biopolymers. These materials are also biocompatible, environmentally friendly and recyclable. They are suitable materials for coating because of their water-insoluble structure. It was obtained the turmeric paper and henna coated papers. These two samples were made; first one was 10% (w/w) of *C. longa*, the other one was 10% (w/w) *L. inermis* and 30% (w/w) starch used as binder for both samples. Distilled water used in all processes. Paper surface was coated with prepared coating color using # 0 bar by hand drawn. The amount of coating on one side was applied as a maximum of 4.5 g/m². In this study, packaging papers which are direct contact with food were chosen. Best results were obtained in snack chips box and sulfite paper. Physical strength tests were made in addition to antimicrobial activity tests to understand how all these process affected the papers strength properties. According to the results of this study, all coating operations increased burst index in reference to uncoated papers. Coating sulfite papers with curcuma increased the index 56.2% while coating sulfite papers with *L. inermis* increased to 55.5%. Coating boxes with *C. longa* increased the index 9.1% while coating boxes with *L. inermis* increased to 2.5%. Elastic modulus, tear index value of all samples decreased and breaking length, elongation, and tensile index values increased.

Biography

Ahsen Ezel Bildik completed her Bachelor's, Master's and PhD studies at Istanbul University, Faculty of Forestry, Forest Engineering Department (Istanbul). She is currently working as Researcher in Istanbul University. She is expert on packaging quality and quantity. Her specific study areas are on nutraceutical additives of paper making and packaging, paper surface coating applications with antimicrobial materials and corrugated board strength properties evaluation.

ahsenezel.bildik@istanbul.edu.tr