Development of Breathing Monolayer Plastic Packaging

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Abstract

The importance and relevance of development of permeable polymeric materials become apparent due to accelerating demand on breathing packaging in food processing, pharmaceutical, and horticultural industries. The present research was pursued to develop breathable plastic packaging suited for desired level of moisture permeable applications. The monolayer plastic films differed by resin composition were extruded on blown film equipment and two types of packages differed by architecture were prepared from the films extruded .To evaluate the package quality the shelf life of fresh mushrooms packed in the packages was studied. Water vapor transmission rate and other performance properties of plastic films were determined. Results demonstrated good breathability of the developed packaging. Preference was given to the filled polyolefin compounds. Importance of filler particle size, treatment and processing conditions, including biaxial orientation was shown. Use of local fillers and traditional single layer extrusion equipment did not contribute to the cost significantly, making packaging affordable easily by local consumers.