

Author: [ADVANCED](#) | Volume Page
 Keyword: |



[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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[\[PDF \(65K\)\]](#) [\[References\]](#)

Properties of Plasticized-Zein Film as Affected by Plasticizer Treatments

[Raffi PARAMAWATI](#)¹⁾, [Tomoyuki YOSHINO](#)²⁾ and [Seiichiro ISOBE](#)³⁾

1) *Center for Development of Agricultural Engineering*

2) *Doctoral Degree Program in Agricultural Sciences, University of Tsukuba*

3) *Food Engineering Division, National Food Research Institute*

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Corn-zein is a protein polymer promising as a biodegradable food packaging film to overcome environmental pollution caused by the use of non-degradable petroleum-derived plastics. However, the brittleness of pure zein film requires that plasticizers be added. The effects of the proportion of polyethylene glycol (PEG) and lauric acid (LA) used as composite plasticizer on mechanical and barrier properties of zein-based film were observed. Flexibility of plasticized-zein films increased as the portion of PEG was increased, as shown by the trend of decreasing elastic modulus (EM) and increasing elongation to break (ETB). Tensile and puncture strength values were also affected by increase in the PEG portion, although they were not as consistent as EM and ETB values. Water vapor permeability values rose with PEG while values for oxygen permeability were more erratic.

Keywords: [zein](#), [biodegradable film](#), [mechanical properties](#), [barrier properties](#)

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