

## Plasticizers vegetable (TEC and PEG3) plasticized poly (acid lactic) (PLA)/ poly ( $\epsilon$ - caprolactone) (PCL) blends

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### Abstract

Currently, petroleum-based plastics are widely used for food packaging in all over the world. Due to their environmental pollution problems, most of the researchers are interested to replace the petroleum-based plastics with environment-friendly biodegradable polymers for packaging materials, in which biodegradable packaging materials based on starch, protein, and poly lactic acid (PLA) have been produced for packaging of food and medicine. However, these materials are weaker than petroleum-based plastics in using as packaging materials. In order to produce strong packaging materials, these bio-based materials are composed of biopolymers and synthetic polymers. They are already commercialized mainly for single-use disposal packaging applications such as bottles, cold drink cups, thermoformed trays and lid containers, blister packages, overwrap as well as flexible films. The PCL is well-known synthetic, biodegradable, semi-crystalline polyester, characterized by a high elongation at break and high flexibility but its strength is relatively low and its melting point at 60 °C is too low for various applications. Thus it is quite reasonable to expect that the blending of PLA with PCL may bring about either improved flexibility or increased strength in comparison with each individual component. In recent years, blends of PLA with more flexible biodegradable polymers, such as PCL, have been developed and investigated. Two types of plasticizers vegetable, which are the triethyl citrate (TEC) and the poly (ethylene glycol) (PEG3), are used as plasticizer to 80PLA/20PCL blend. The aim of this study was to investigate the effects of plasticizers loadings on the thermal, dynamical and rheological properties of PLA/PCL films, as well as, to investigate the interaction between PLA/PCL and plasticizers.

### Biography

M. Maiza has completed her PhD at the age of 30 years from setif University, Algeria. My academic training and three years of experience working as a Senior Research in Development of Thin Layers and Applications (Polymer, Biodegradable, Plasticizer, food packaging) me to be an effective researcher and instructor in your department. Algeria. She has 2 publications.



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