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► **To cite this version:**

Houssein Abdillahi, Elodie Chabrat, Antoine Rouilly, Luc Rigal. Influence of citric acid on thermoplastic wheat flour/poly(lactic acid). 9. International Conference on Renewable Resources and Biorefineries, Jun 2013, Anvers, Belgium. 2013, 9. International Conference on Renewable Resources and Biorefineries (RRB-9). hal-02746255

HAL Id: hal-02746255

<https://hal.inrae.fr/hal-02746255v1>

Submitted on 3 Jun 2020

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**9th International Conference on
Renewable Resources and Biorefineries**

5 – 7 June, 2013

Antwerp, Belgium

INFLUENCE OF CITRIC ACID ON THERMOPLASTIC WHEAT FLOUR/POLY(LACTIC ACID) BLENDS

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The effects of citric acid on Wheat flour/Glycerol /Poly(lactic acid) blends prepared by one-step twin-screw extrusion have been studied to improve barrier properties of starch based materials. A series of injected samples were produced from prepared compounds with varying ratio (0-20%, w/w) of citric acid. The effects of citric acid on the water vapor permeability, oxygen permeation, moisture absorption, solubility, mechanical and morphological properties were then investigated. The presence of citric acid improved the dispersion of PLA and the plasticization of wheat flour as shown by scanning electron microscope. The barriers properties results proved that citric acid behaves as compatibilizing agent between starch and PLA phases for ratios between 0 and 10% and more as a plastic when the added amount exceeds 10%.

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