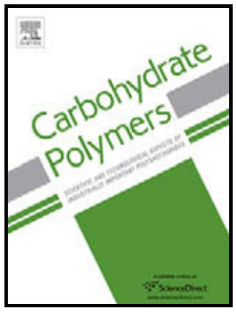

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Quantifying the surface properties of enzymatically-made porous starches by using a surface energy analyzer

Juan Manuel Martinez-Alejo[1], Yaiza Benavent-Gil[2], Cristina M. Rosell[2*],

Teresa Carvajal[3*], Mario M. Martinez[4,5,6*]

[1]Department of Industrial and Physical Pharmacy, Purdue University, 575 Stadium Mall Drive, West Lafayette, IN 47907, USA

[2]Institute of Agrochemistry and Food Technology (IATA-CSIC), C/Agustin Escardino, 7, Paterna 46980, Valencia, Spain

[3]Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, IN 47907, USA

[4]Whistler Center for Carbohydrate Research, Department of Food Science, Purdue University, 745 Agriculture Mall Drive, West Lafayette, IN 47907, USA.

[5]School of Engineering, University of Guelph, 50 Stone Road East, Guelph, ON N1G 2W1, Canada

[6]Department of Food Science, University of Guelph, 50 Stone Road East, Guelph, ON N1G 2W1, Canada

[*]Corresponding mario.martinez@uoguelph.ca; tcarvaja@purdue.edu;

crosell@iata.csic.es

Highlights

- The surface properties of enzymatically-made porous starches were investigated
- Inverse gas chromatography was sensitive enough to detect surface alterations
- The increase in porosity and surface area had no effect on water vapor sorption
- Enzyme treatments resulted in porous starches with significant higher surface energy
- Starch acid-base behavior can be selectively increased depending on the enzyme

Abstract

The behavior of starch during processing and its performance in products is influenced by the surface energetics/structure of the constituent particles. This work investigates the effect of enzymatically-produced porous maize starch particles on their energetic surface properties using inverse gas chromatography-based surface energy analysis (SEA). Three modified maize starch samples treated with amylase (AM), glucoamylase (AMG) and cyclodextrin-