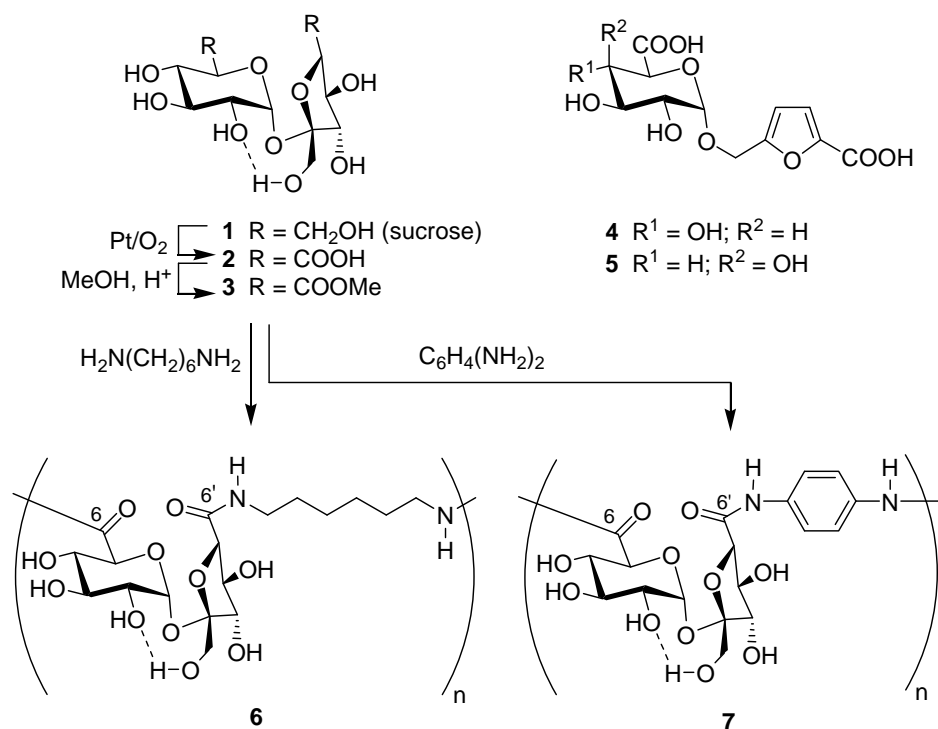


# NOVEL POLYAMIDES FROM DISACCHARIDE-DERIVED DICARBOXYLIC ACIDS

Eckehard Cuny, Frieder W. Lichtenthaler

Institut für Organische Chemie, Technische Universität Darmstadt,  
D-64287 Darmstadt, Germany, \*[cuny@punk.oc.chemie.tu-darmstadt.de](mailto:cuny@punk.oc.chemie.tu-darmstadt.de)

As carbohydrates represent 75% of the annually renewable biomass, their utilization for the generation of chemicals and materials that can replace those from fossil resources is a major challenge of green chemistry.<sup>1,2</sup> Polyamides being particularly attractive in this context, the disaccharide diacids **2** (from sucrose), **4** (isomaltulose), and **5** (melibiose) were evaluated as acid components after developing practical, large-scale adaptable protocols for their acquisition. Reaction of their dimethyl esters, e. g. **3**, with long-chain amines provides diamides with distinct liquid crystalline properties, whilst diamines such as hexamethylene- or phenylene-diamine lead to polyamides of type **6** and **7**. The potential application profiles of these products are being presented.



<sup>1</sup>Lichtenthaler, F. W.; Peters S., "Carbohydrates as Green Raw Materials for the Chemical Industry", *Comptes rendus Chimie* **2004**, *7*, 65-90.

<sup>2</sup>Lichtenthaler, F. W. "The Basic Sugars of Biomass: Availability, Present Non-food Uses and Potential Future Development Lines", in *Biorefineries—Industrial Processes and Products* (B. Kamm, P. Gruber, Eds.), Wiley-VCH, Weinheim, **2006**, Vol. 2, pp. 3-59.