Transformation of aromatic biorefinery products into building blocks for fine chemicals

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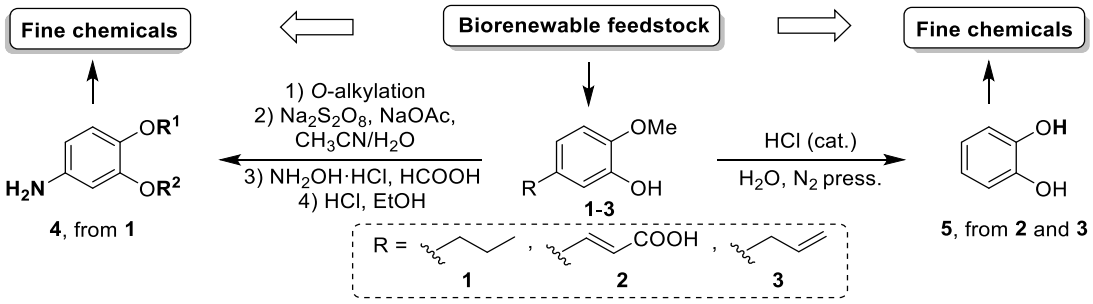
With the decline of petroleum feedstock and the necessity to reduce CO_2 emission, society must innovate to discover more sustainable means to meet the needs of an ever expanding world population, e.g. by the manufacture of products based upon renewable resources. Traditionally, arenes (i.e. BTX aromatics) are obtained by catalytic cracking and reforming of petroleum. World's most abundant renewable source of arenes is lignocellulose, which delivers monomers such as 4-propylguaiacol (**1**) via reductive catalytic fractionation [1]. Other interesting sources of arenes are ferulic acid (**2**), found in rice bran, and eugenol (**3**), the major constituent of clove oil [2]. Efficient synthetic methods in accordance which as many principles of green chemistry as possible, making use of cheap reactants and reagents, and avoiding waste intensive purifications (e.g. chromatography) are required to transform these biorefinery products into valuable building blocks for the chemical industry.

In this lecture, new dealkylation methods of these *C*-substituted guaiacols will be shown. A new approach to synthesize useful 3,4-dialkoxyanilines **4** from **1** with overall yields up to 65% will be described [3]. These products **4** serve as precursor for the synthesis of several pharmaceuticals and agrochemicals. Next, an efficient conversion of substrates **2** and **3** into catechol (**5**) will be disclosed [4]. **5** is a major commodity chemical which finds a wide range of applications (i.e. anticorrosion agent, antioxidant, chelating agent, detergent) and as a raw material for the synthesis of pharmaceuticals, pesticides, flavours, fragrances and polymers.



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