

EUROPEAN FOOD AND NUTRITION CONGRESS & WORLD COLLOID CONFERENCE

October 25-26, 2018
Vienna, Austria

Analysis of adonitol as a resource for future sustainable consumer product

Put Usaphea Vanna
Elon University, USA

Crude oil is a naturally unrefined source of energy that is converted into a more usable energy source such as gas and fuel. People depend on it in their everyday life. The process to get crude oil from underground and to convert crude oil into a usable product is very long. It is time consuming and one day, it will be running out. Since crude oil exists in a finite amount, there needs to be a replacement. Alternating resources that are unlimited should be determined to replace crude oil. Obviously, one of the resources is sugar. Sugar is everywhere in nature and can be found in living tissues. It also can be produced and there are many types of sugar: glucose, fructose, and etc. The focus of this research is to determine whether sugar, a

renewable resource, can be used to replace crude oil as the starting materials for consumer products. We will explore the efficiency of adonitol (a C₅ sugar) as a building block for the formation of a five-membered or six-membered ring. One aspect of the study is investigating the preference for which size ring will form as both have consumer application. Our hypothesis is based on previous studies of six-carbon sugar utilizing the B(C₆F₅)₃ and allyltrimethyl silane catalysts, where a five-membered ring is preferentially formed. We will analyze and characterize the product of our reaction by proton, carbon, COSY, and HSQC NMR spectroscopy.

pvanna@elon.edu