

July 05-07, 2018  
Berlin, GermanyArch Chem Res 2018, Volume 2  
DOI: 10.21767/2572-4657-C3-009

## FRACTIONATION OF ACIDS, KETONES AND ALDEHYDES FROM ALKALINE LIGNIN OXIDATION SOLUTION WITH SP700 RESIN

**Elson D Gomes**

Faculty of Engineering of University of Porto, Portugal

The separation of the products from the alkaline wet oxidative depolymerization of lignin is currently very laborious, generally, requiring several steps of solvent extraction and precipitation. The separation of the different species is achieved by adsorption with nonpolar SP700 resin, which is able to fractionate the complex solution in families of chemicals namely phenolic acids, aldehydes and ketones. The main fractions obtained during adsorption, desorption with water followed by desorption with ethanol are very distinct in composition; the first is richer in vanillic (VA) and syringic (SA) acids, the second, mostly vanillin (V) and syringaldehyde (S) and the third one concentrates acetovanillone (VO) and acetosyringone (SO). Fractionation can be adjusted by choosing the pH of the feed mixture; here it was studied in the

range of 9 to 12. Depending on the fixed feed pH, the recoveries of aldehydes (V+S) in the water desorption step were almost complete (>80% at pH 10 or above,) with only traces present in the fraction desorbed with ethanol. It was found that pH 12 was better for concentrating aldehydes and ketones at the same time, and that pH 10 (Figure 1) was better at maximizing the fractionation of aldehydes and ketones since the majority of aldehydes desorb in the water phase (87%) while there is also a decrease on the amount of the ketones desorbed (from 53% to 25%). Ketones desorb preferably in the ethanolic phase [1].

elson@fe.up.pt  
arodrig@fe.up.pt