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## Introduction

Biomass is a potential renewable source of chemicals. In fast pyrolysis, biomass is decomposed into liquid, solid char and non-condensable gases. Pyrolysis liquid (bio-oil) is a dark brown liquid with a strong smoky odour, which contains more than 300 compounds, including aldehydes, ketones, carboxylic acids, phenols, sugars and lignins. Considering high carbonyl contents in bio-oil, the isolation of carbonyl compounds seems promising.

## Objective

Investigation of a feasible separation route to isolate carbonyl compounds from bio-oil, especially furfural, propionaldehyde, acetol and glycolaldehyde.

## Approaches

Carbonyl compounds could be recovered from bio-oil in several steps of reactive extraction (Figure 1). An investigation has to be done not only to the reactive extraction but also to the recovery of carbonyl compounds and the regeneration of the extractants (bisulfite and primary amines).

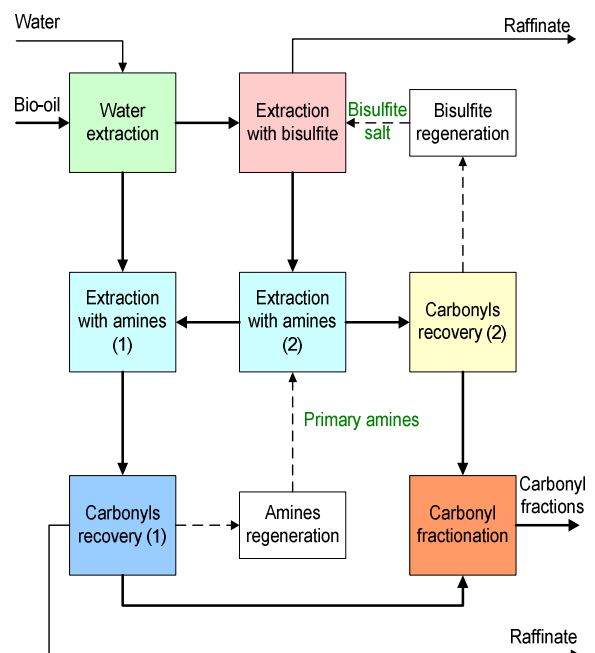


Figure 1 A proposed diagram of a carbonyls isolation process from bio-oil

## Project scope

- Water extraction of bio-oil
- Reactive extraction of carbonyl compounds from bio-oil with primary amines
- Back extraction of a mixture of carbonyl-amine complexes
- Fractionation of carbonyls product
- Conceptual process design

## Acknowledgement

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