



# Producing biochars with greater surface activity through alkaline pre-treatment of feedstocks

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## Introduction

- Surface activated biochars act as useful filtering materials for waste water streams.

## Objectives

- To produce biochars from pine and eucalyptus feedstocks with a high surface charge using alkaline tannery waste as the activating agent.
- To increase the ammonium sorption on biochars from waste water streams.
- To prepare biochars with slow release fertilizer characteristics.



# Results

- Specific surface area of the treated chars decreased with alkaline treatments
- ECEC and acidic functional groups increased
- $\text{NH}_4^+$  sorption increased with activation.
- Desorption was low, especially in treated biochars.
- Other mechanisms of  $\text{NH}_4^+$  retention might occur, in addition to cation exchange reactions.

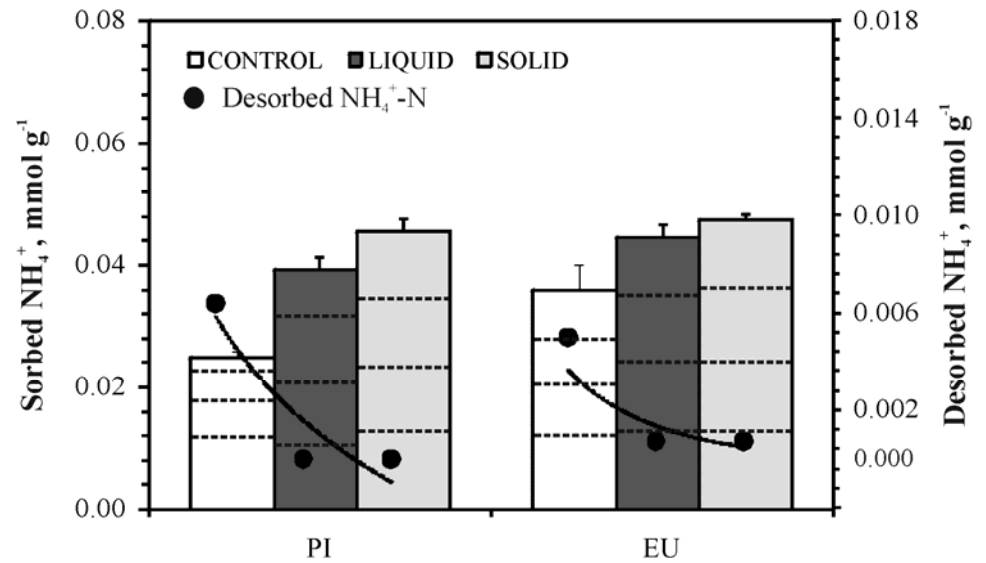
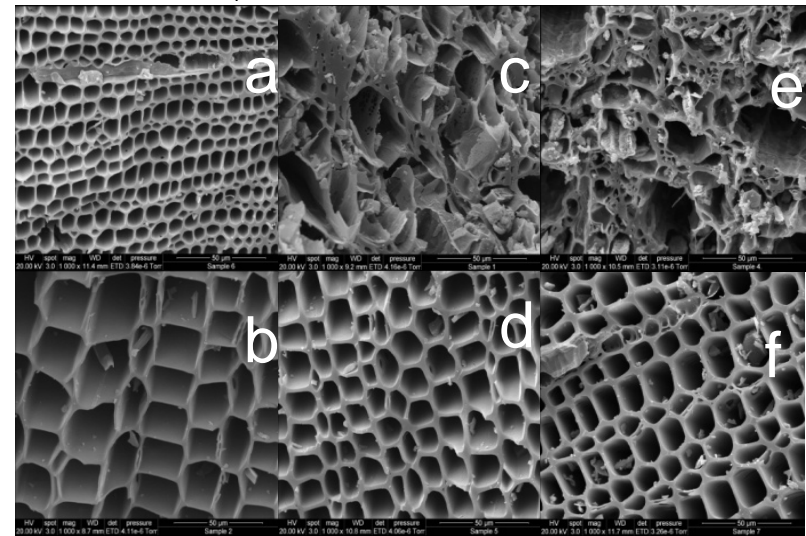


Fig. 1  $\text{NH}_4^+$ -N sorption in the biochars considered in this study n(bars);  $\text{NH}_4^+$ -N desorption study (points)



a. EU control, b. PI control, c. EU pre-liquid, d. PI pre-liquid, e. EU pre-solid, f. PI pre-solid

Fig. 2 Scanning Electron Microscopy (SEM) pictures of different chars



**THANK YOU!!!**

[www.biochar.co.nz](http://www.biochar.co.nz)