

**Supporting Information for**  
**Assessment of co-production of ethanol and methane from *Pennisetum***  
***purpureum*: effects of pretreatment, process performance and mass balance**

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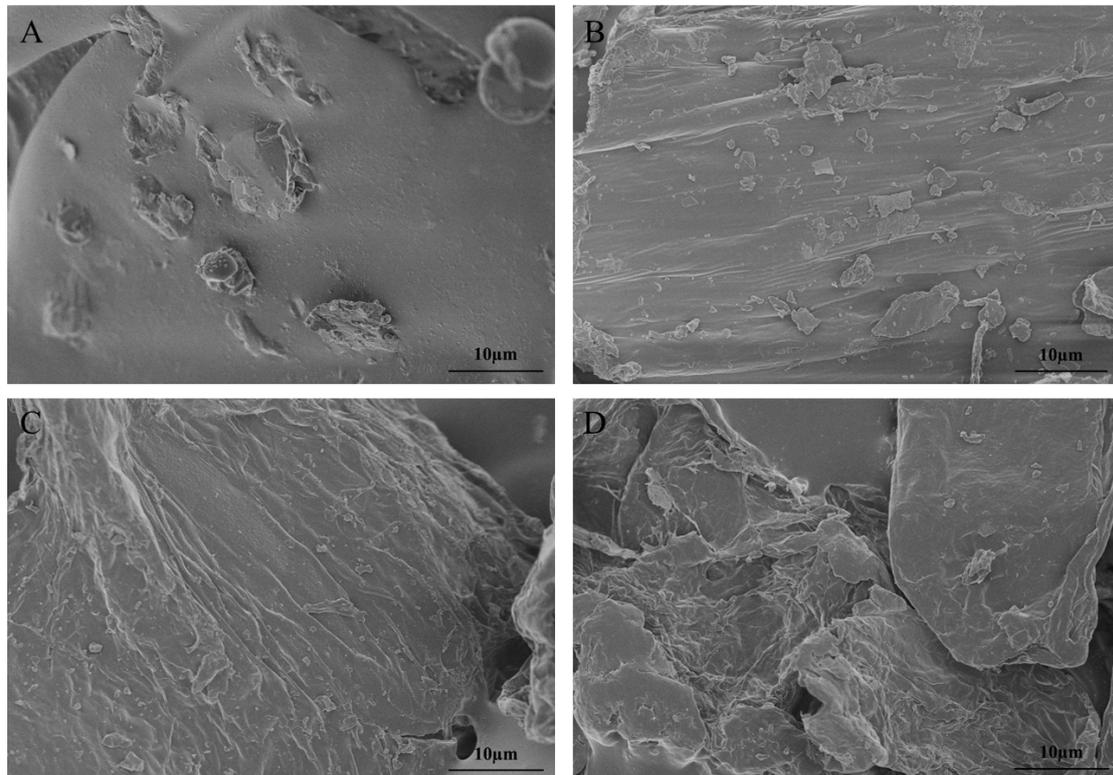
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### Surface structure Characterization of untreated and pretreated *Pennisetum purpureum*

Coated with gold in a high-resolution sputter coater (Cressington 108 Auto), the attached samples (both untreated and pretreated samples) were examined using a scanning electron microscope (JSM-6510, JEOL) operated at 5 kV.



**Figure S1.** SEM (Scanning electron microscope) images of untreated and pretreated *Pennisetum purpureum*. A: untreated sample; B: ensiling treated sample; C: NaOH treated sample; D: ensiling-NaOH treated sample. Bar = 10  $\mu\text{m}$ .

**Figure S1 (A, B)** shows that the surface structure of the untreated and ensiling treated sample is smooth and orderly, respectively. However, this surface structure became rough and irregular after NaOH pretreatment as shown in **Figure S1 (C, D)**.