

**EFFECT OF SOLID LOADING ON THE PRODUCT  
CHARACTERISTICS OF ORGANOSOLV PRETREATMENT FROM  
OAT HUSK**

**ABSTRACT**

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A high solid loading ratio on acid-assisted ethanol organosolv pretreatment was done for oat husk to produce a pure fraction of lignin and glucan with high recovery and high purity. The organosolv pretreatment in this study was conducted at 210°C for 90 minutes, using 50% ethanol (v/v) as the organic solvent. The pretreatment was assisted with oxalic acid that previously diluted in the solvent with concentration of 0.0077 % (w/v). Three different solid loading ratios (S/L ratio) were applied, which were 1:2, 1:1, and 2:1. Similar results were obtained for all ratio variation in term of lignin purity (69.72% - 73.29%) and recovery (64.40% - 73.40%). Meanwhile, for glucan purity and recovery, ratio of 1:2 reached the highest results, which were  $64.82 \pm 7.00\%$ , and  $104.84 \pm 6.45\%$ , respectively.

**Keywords:** lignin, glucan, cellulose, oat husk, organosolv pretreatment, solid loading ratio

**PENGARUH RASIO PADATAN PELARUT TERHADAP  
KARAKTERISTIK DARI PRODUK HASIL ORGANOSOLV  
PRETREATMENT PADA KULIT OAT**

**ABSTRAK**

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*Pretreatment* dengan pelarut organik dalam hal ini etanol (*organosolv pretreatment*) dengan *solid loading ratio* yang tinggi dilakukan pada kulit oat dengan maksud untuk menghasilkan fraksi murni dari glukosa (selulosa) dan lignin dengan tingkat perolehan dan kemurnian yang tinggi. *Organosolv pretreatment* pada percobaan ini dilakukan pada suhu 210°C, selama 90 menit, dengan menggunakan ethanol 50% (v/v) yang berperan sebagai solven organik, dan dibantu dengan penambahan asam oksalat dengan konsentrasi 0.0077 % (w/v). Tiga nilai *solid loading ratio* digunakan pada percobaan ini. Berbagai variasi rasio *solid loading* memberikan kemurnian lignin pada kisaran 69.72% - 73.29% dan perolehan lignin pada kisaran 64.40% - 73.40%. Sedangkan, rasio 1:2 memberikan kemurnian dan perolehan *glucan* tertinggi, yaitu  $64.82 \pm 7.00\%$  dan  $104.84 \pm 6.45\%$ .

**Kata kunci:** lignin, glukosa, selulosa, kulit oat, *organosolv pretreatment*, rasio *solid loading*