

# VPLIV RAZLIČNIH NAČINOV PREDOBDELAVE SUROVE CELULOZE NA UČINKOVITOST ENCIMSKE HIDROLIZE

## THE EFFECT OF DIFFERENT METHODS OF RAW CELLULOSE PRETREATMENT ON THE EFFICIENCY OF ENZYMATIC HYDROLISIS

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**INVESTIGATION** of the effect of different pretreatment methods of raw cellulose on enzymatic hydrolysis efficiency;

**4 types** of cellulose microcrystalline cellulose, cellulose of **conifers** (*pinus Pacifico*), **hardwood** (*deciduous Bukocell*) and **eucalyptus** (*Eucalyptus Santa Fe*);

**3 methods** of pretreatment:

- the pretreatment with the ionic liquids - [BMIM]Cl,
- the pretreatment with the H<sub>2</sub>O<sub>2</sub>,
- and autoclaving with the solution of NaOH;

**ENZYMATIC HYDROLYSIS:** batch reactor system Easymax 102 (Mettler Toledo), 24 h at temperature of 45 °C and a rotational speed of the stirrer 200 min<sup>-1</sup>, between 0,5 and 1 mL of the enzyme cellulase, and 50 mL of acetate buffer with pH = 5.



Fig. 1: Batch reactor system Easymax 102 (Mettler Toledo).

The highest **CONVERSION** of cellulose was achieved by pretreatment with the ionic liquid.

Conversion → **INCREASED** from 10 to 62 %.