It is worth stressing that for both of the varieties examined, very high efficiency (over 50%) of Cellulose I → Cellulose II transition was found in the case of a wide range of the concentrations applied, from 12.5 to 20%, and for a duration of the process of at least 5 minutes. This finding may be of considerable significance in the case of industrial utilisation of rapeseed straw for composite production, for example, with a polypropylene matrix.
Moreover on the basis of the degree of crystallinity of cellulose in rapeseed straw after alkali treatment, it was found that no degradation of lignocellulosic material occurred during the mercerisation process.

On the basis of the results presented in this study, it is possible to draw the following conclusions.

- There were significant differences in the influence of NaOH solution in phase transformations cellulose I → cellulose II on rapeseed straw compared with other lignocellulosic materials, like natural fibres and wood.
- From the point of view of industrial utilisation of the mercerisation process, it can be said that optimal conditions for the process occur at base solution concentrations ranging from 12.5 to 20%, with process continuing for at least 5 minutes.
- There were no structural differences found between various rapeseed straw varieties during the mercerisation process.
- On the basis of the degree of crystallinity of cellulose in rapeseed straw after alkali treatment, it was found that no degradation of lignocellulosic material in the above-mentioned conditions occurred.

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