

# EFFECT OF HIGH HYDROSTATIC PRESSURE (HHP) ON CELLULOSE HYDROLYSIS AND CELLULASE ACTIVITY

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**P**lant biomass can be used as a source of fermentable sugars, especially glucose. This biomass contains lignin, cellulose and hemicellulose mostly. Thus, to provide accessibility for the enzymes through the lignin network, pretreatment is necessary to obtain efficient hydrolysis of hemicellulose and cellulose to fermentable monomeric sugars. Lignocellulose enzymatic conversion is based on large amounts of cellulase used for the hydrolysis of cellulose. Cellulase is produced by a range of cellulolytic fungi and bacteria in nature and used for a number of industrial purposes. High hydrostatic pressure (HHP) has a potential for food preservation purposes and it can inactivate enzymes and/or increase their activity. Aim of this study is to observe different effects of HHP on cellulose hydrolysis and cellulase activity. The effects of different HHP parameters (100 and 500 MPa pressure) at 30°C for 5 and 15 min on cellulose hydrolysis were studied. The results showed that high pressure application increased the cellulase activity. On the other hand, there was no significant difference between 100 and 500 MPa. HHP treatment with longer time increased the cellulose hydrolysis and cellulase activity. In addition amount of the glucose obtained from hydrolysis of cellulose when high pressure was applied to both cellulose source and enzyme solution together was found to be higher than when HHP was solely applied on enzyme.

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