Version RED

4. Conclusions

This study demonstrated that an optimal ANN model can be applied to predict the Y_{GLC} under different operating conditions of both pretreatment and enzymatic hydrolysis. The model reliability was assessed through a sensitivity analysis (SA), which showed the need for a relatively low *S* and *A*, high L^{EH} and 72 h of enzymatic hydrolysis to obtain good values of Y_{GLC}. Experimental results clearly demonstrated that the least-reactive cellulose for enzymatic hydrolysis depended on *A* supporting the results from the SA. However, the adjustment of these operating parameters is not sufficient to reach optimal values of Y_{GLC}; the high viscosity of the pretreated substrates should be studied. This study confirmed close relationships between operating parameters in both pretreatment and enzymatic hydrolysis.

Version BLACK

4. Conclusions

This study demonstrated that a single Artificial Neural Network can be applied to predict the overall glucose yield under different operating conditions of both pretreatment and enzymatic hydrolysis. The reliability of the model was assessed through a sensitivity analysis, which showed the operating conditions needed to improve glucose yield: (i) relatively low initial biomass concentration and acid concentration, (ii) high enzyme concentration, and (iii) 72 h of enzymatic hydrolysis. In support of this conclusion, experimental results clearly showed that the least-reactive cellulose for enzymatic hydrolysis depended on the acid concentration. However, the adjustment of the operating parameters did not yet provide desirable values of glucose yield since the high viscosity of the pretreated substrates is still a challenge.