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Biochemical characterization, low-resolution SAXS structure and an enzymatic cleavage pattern of *Bl*Cel48 from *Bacillus licheniformis*

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ABSTRACT

Economic sustainability of modern biochemical technologies for plant cell wall transformations in renewable fuels, green chemicals, and sustainable materials is considerably impacted by the elevated cost of enzymes. Therefore, there is a significant drive toward discovery and characterization of novel carbohydrate-active enzymes. Here, the *Bl*Cel48 cellulase from *Bacillus licheniformis*, a glycoside hydrolase family 48 member (GH48), was functionally and biochemically characterized. The enzyme is catalytically stable in a broad range of temperatures and pH conditions with its enzymatic activity at pH 5.0 and 60 ºC. *Bl*Cel48 exhibits high hydrolytic activity against phosphoric acid swollen cellulose (PASC) and bacterial cellulose (BC) and significantly