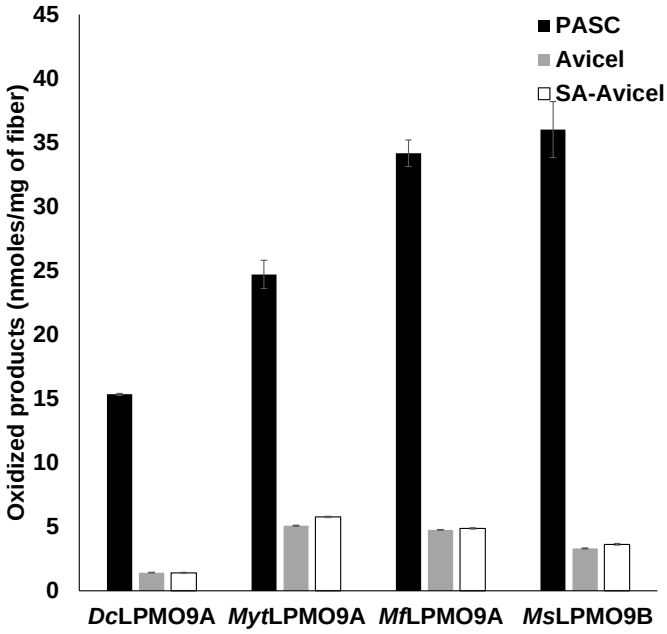

Regioselectivity	C1	C1	C1	C1
CBM	-	-	+	+

Figure S1: Activity of 5µM C1 LPMOs after 16 h on PASC (0.1 %), Avicel (1 %) and SA-Avicel (1 %) with 1 mM ascorbic acid as an electron donor. For each substrate, *T. reesei* cellulase cocktail was used to convert all C1-oxidized products into cellobionic acid and quantified as the total C1-oxidized ends generated (nanomoles per mg of starting fiber). Total oxidized ends were obtained by quantifying cellobionic acid by HPAEC-PAD against a standard curve. Every bar is the average of three independent assays measured singly by HPAEC-PAD, with error bars indicating the standard error of the mean.

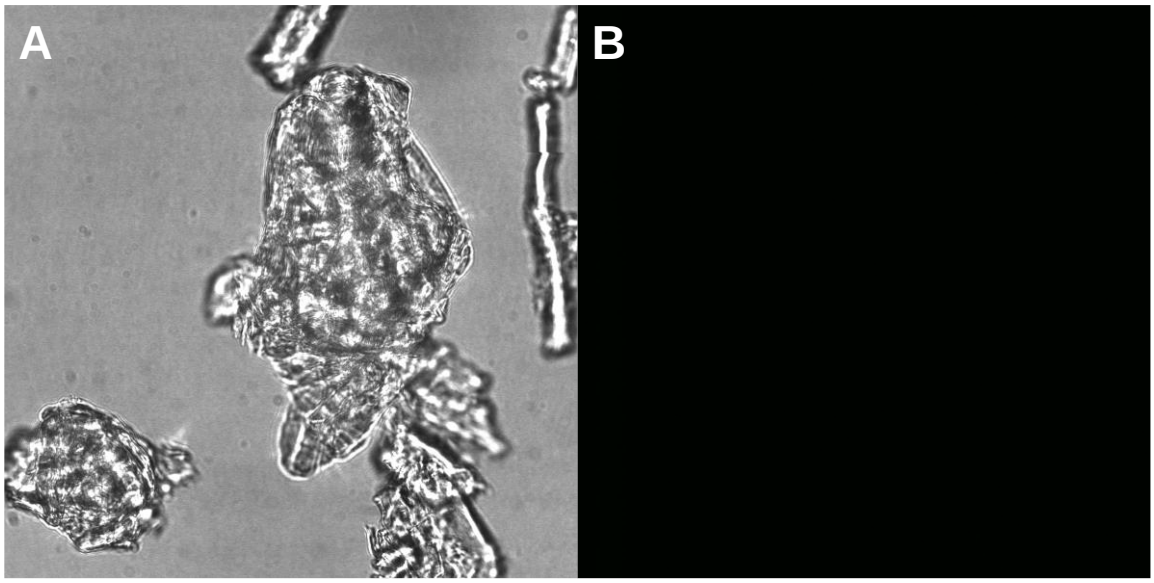

Figure S2: Brightfield (A) and confocal (B) images of untreated SA-Avicel labelled using rhodamine chloride. SA-Avicel and 1 mM of gallic acid was incubated at 50 °C for 24 h with 1 %. Insoluble products were separated, labelled with fluorescent dye, and visualized using a confocal microscope.

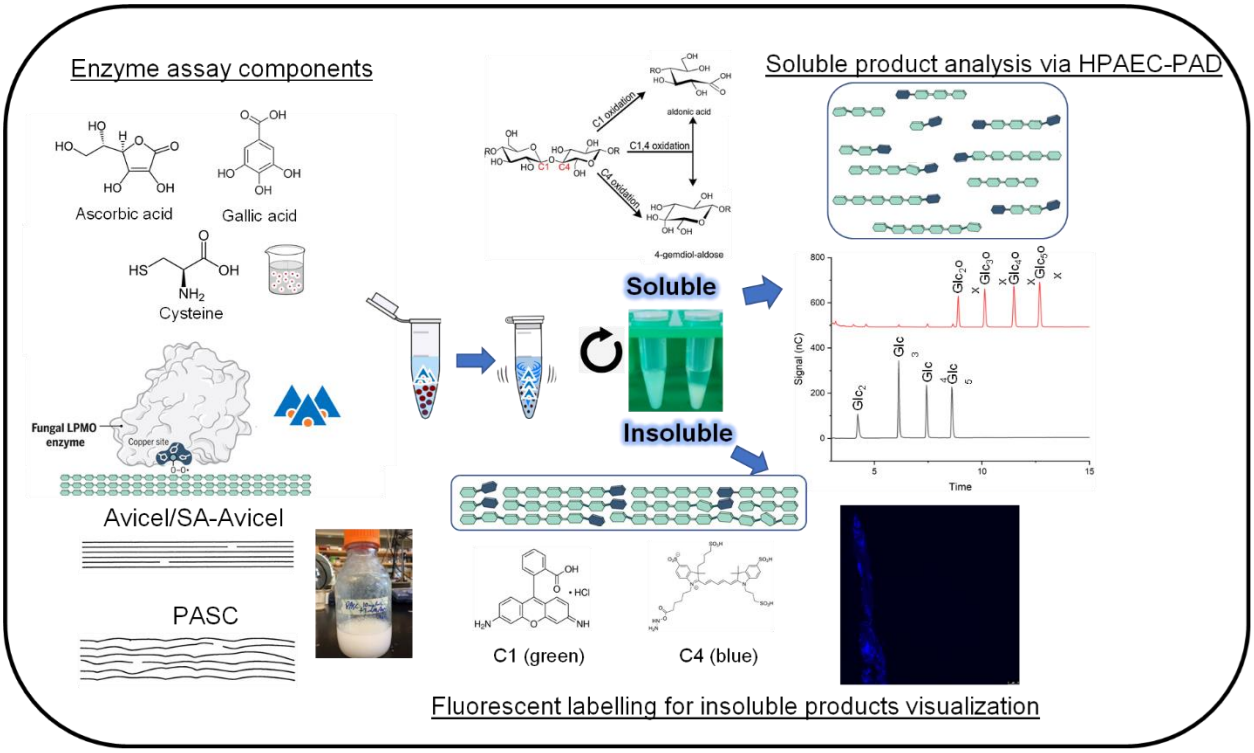

Figure S3: Process schematic for LPMO treatment of cellulose and subsequent soluble and insoluble products analysis