**Table S1.** Primers used for amplification of gene fragments of cel6A. [a] Restriction sites are bold and underlined.

| Primer | Sequence | Restriction site [a] |
|---|---|---|
| P1 | 5'- CTA**CATATG**GCCAATGATTCCCCGTTTTACG-3' | NdeI |
| P2 | 5'- CACGCCT**AAGCTT**CCCAGTGC-3' | HindIII |
| P3 | 5'-CTT**AAGCTT**CTAGGCGATCGCCATCTCG -3' | HindIII |
| P4 | 5'- **CCATGG**CGGGCACCAACC-3' | Nco1 |
| P5 | 5'- **GGATCC**GTACGTACGTCGCCGTGCAC-3' | BamH1 |
| P6 | 5'- CT**GGATCC**AATGATTCTCCGTTCTAC-3' | BamH1 |
| P7 | 5'- **CATATG**ACGATCGCCAACGAGTGGAAC-3' | Nde1 |
| P8 | 5'- GGTCAG**CCATGG**CGCAGGTAAG-3' | Nco1 |
| P9 | 5'- CTA**CCATGG**GCCAATGATTCCCCGTTTTACG-3' | Nco1 |

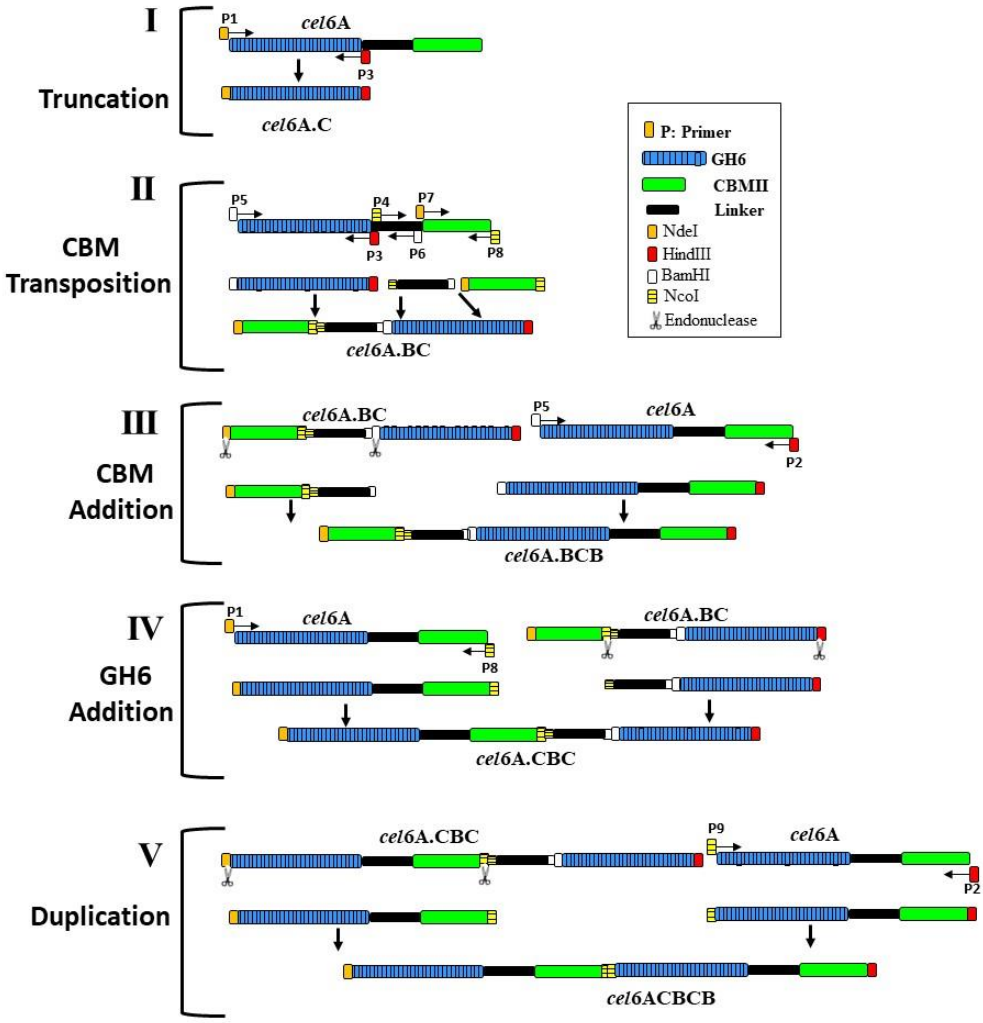


**Figure S1.** Schematic representation of engineering of *T. fusca* endoglucanase cel6A. (**I**) cel6A.C, (**II**) cel6A.BC, (**III**) cel6A.BCB, (**IV**) cel6A.CBC and (**V**) cel6A.CBCB.

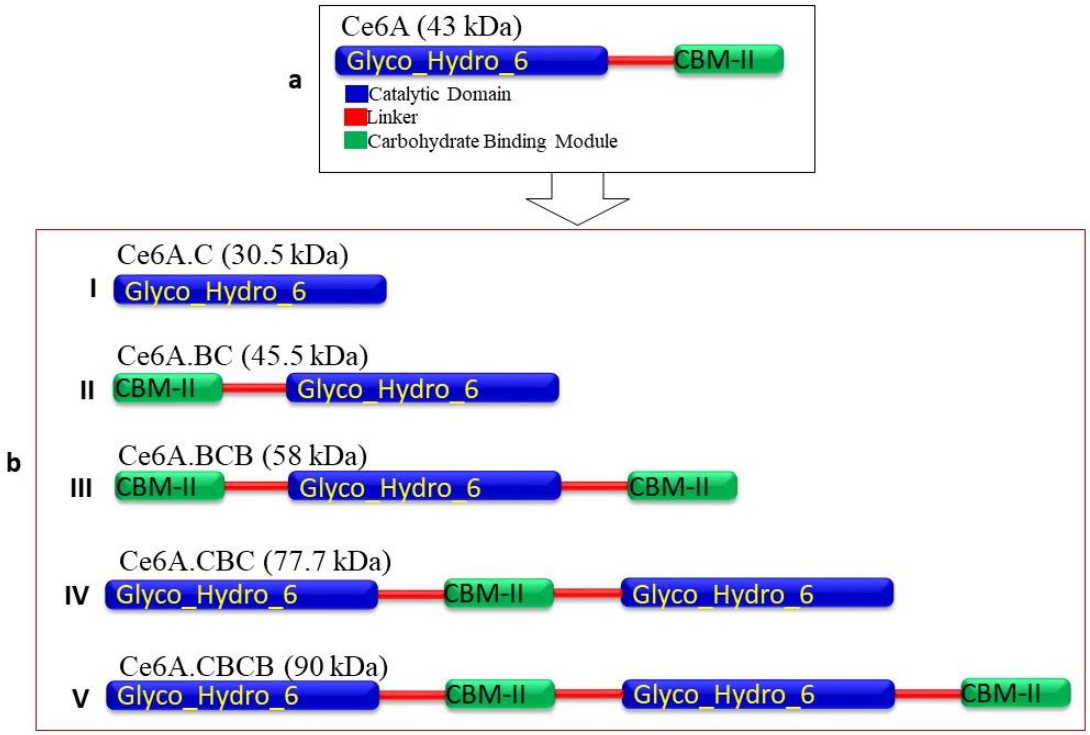


**Figure S2.** Schematic representation of *T. fusca* endoglucanase cel6A modular architecture, (**a**) Native cel6A, (**b**) Engineered cel6A variants; truncated (cel6A) without non catalytic domain, non-catalytic domain to N-terminus (cel6A.BC), non-catalytic domain to both N- and C- termini of catalytic domain (cel6A.BCB), catalytic domain to both N- and C- termini to the non-catalytic domain (cel6A.CBC) and duplication of native cel6A endoglucanase with their respective protein size.

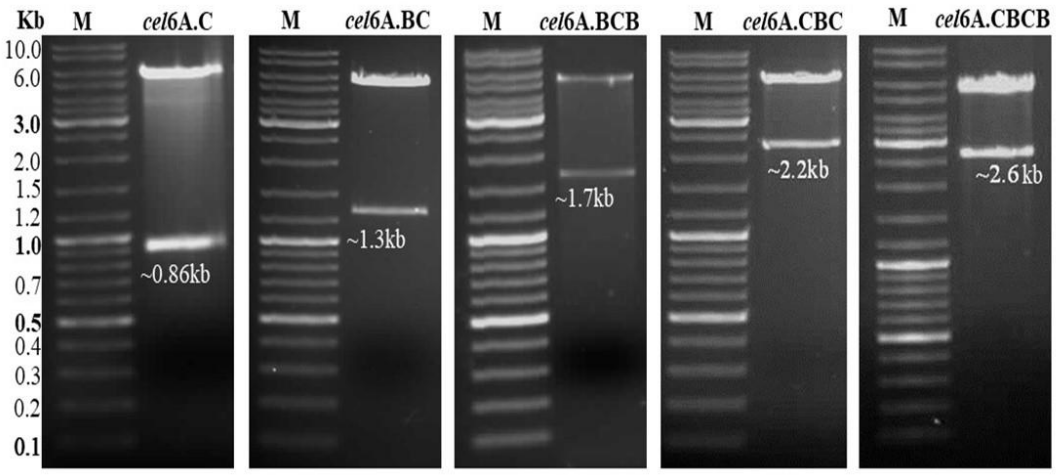


**Figure S3.** Agarose (0.8%) gel showing restriction maps generated by digestion of pcel6A.C, pcel6A.BC, pcel6A.BCB, pcel6A.CBC, and pcel6A.CBCB with NdeI and HindIII restriction endonucleases. M: 1Kb DNA ladder.