

Gene cloning, characterization, and molecular simulations of a novel recombinant chitinase from *Chitinibacter tainanensis* CT01 appropriate for chitin enzymatic hydrolysis

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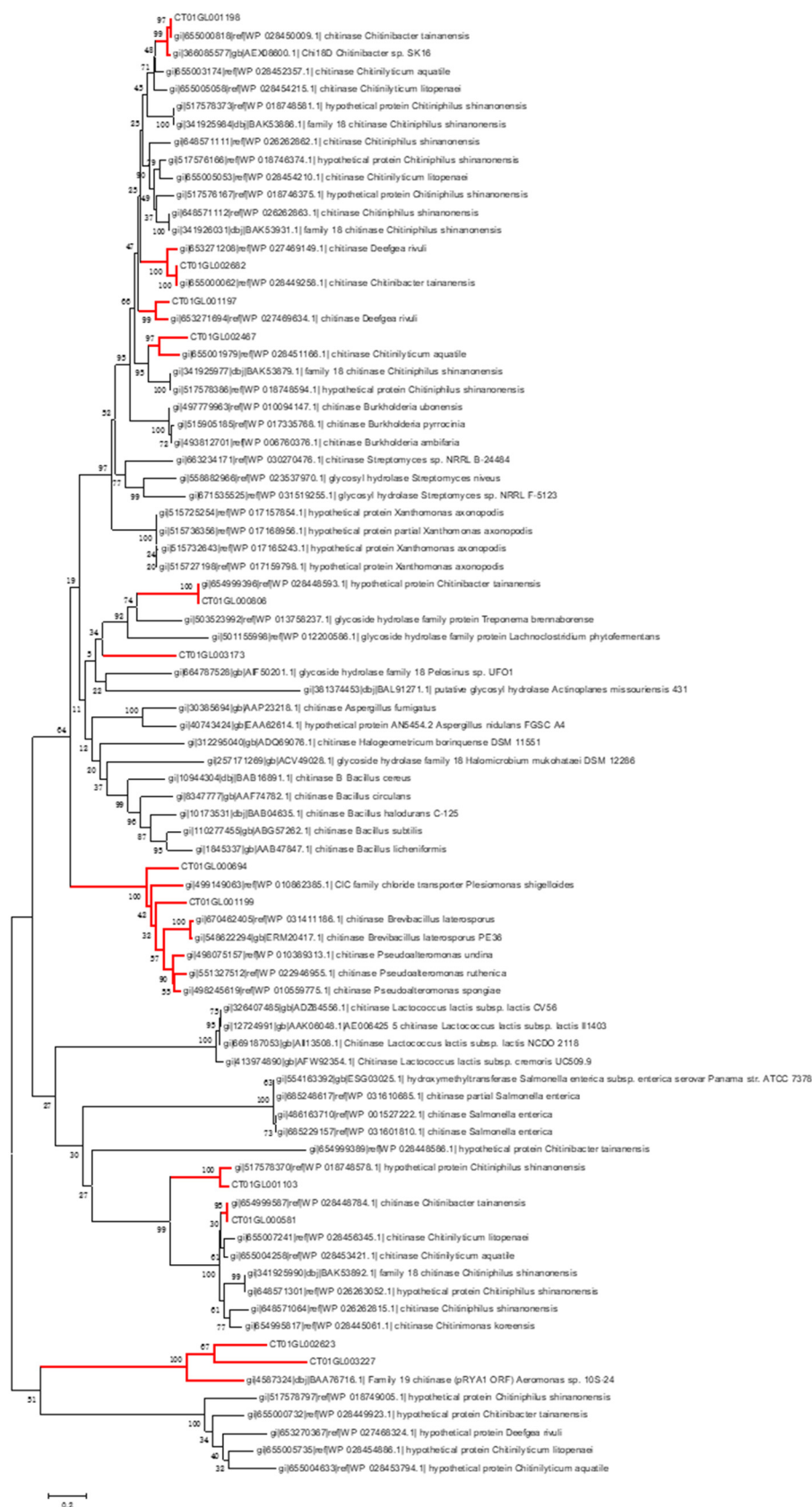


Figure 1. The phylogenetic tree with the 12 chitinase-encoding genes sequences of *Chitinibacter tainanensis* CT01 and the other chitinase genes sequences.

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 M S H F N R F A V A A I P A A L M A V A S F S Y A A D A W K E G
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 A S T P T L W K L V A T G S A T P A P T A T P V T T A K P T T A
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 P T T A P T T A P T T A P T T A P T T G P V A G C G S V A A W N
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 D Q W G P W K Y E G E C G P A V T A T P T V A P T P T P V G M T
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 P A P T V A P T P T A V P T A A P T P V A T L A P G Q E V P P P
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 A Q A Q V G S Y F T Q W G V Y G R D Y Q V A D I I S S G A A Q Q
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 L T F I N Y A F G N I Y Q K N G G Y E C G I V N K L E P G A T D
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 S K W F S A A S K T D A L R K Q L V K S C I D I Y I K G N L P V
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 T V A P E D K Q N F T L L L A E F R K Q L D E L A A A N Q K K Y
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 Y L T V A I G V G R D K I E M T E P R E Y A R Y L D W I N M M T
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 aaaccagccgacaagtgtacggtgaccgcagcctggtgtcttactacaacaccgatgacgcagtgaaacctgtgatccaagctggcgatgaatccg
 K P A D K C Y G D R S L V S Y Y N T D D A V N L L I Q A G V N P
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 K K L V V G I P K Y G R G W T G V T N V N N G L Y Q K A T D A A
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 R G T Y E K G I E D F K V L K N A A G T V Y V H P V T K Q S Y K
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 S W S L D G D D S A A T L S K A M G K A R Q K G E L N S K L E G
 aagcctatcccataccctctctcggtctcgattctacgcgtaccggtcatcatcaccatcac
 K P I P N P L L G L D S T R T G H H H H H

Figure 2. Amino acid and DNA sequence of chitinase 1198.



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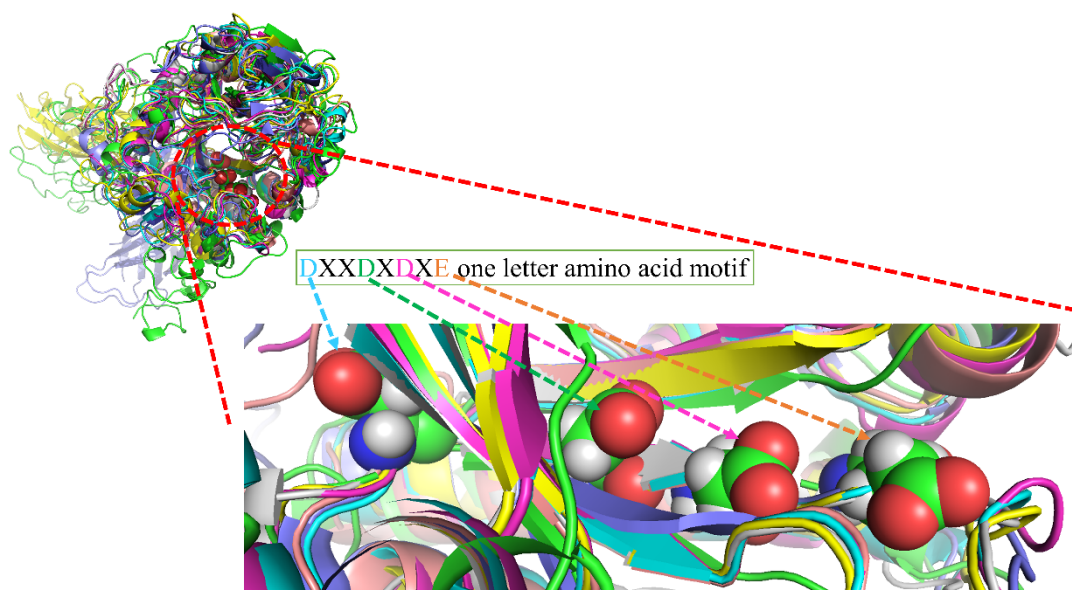


Figure 5. Comparing the Chi1198 3D structures (colored in green) with chitinases. from *Arthobacter* (PDB ID: 1KFW and colored in purple), (PDB ID: 4W5U and colored in gray), *Bacillus circulans* (PDB ID: 1ITX and colored in cyan), *Serratia marcescens* (PDB ID: 2WLY and colored in tints) and chitinase from nematophagous fungus (PDB ID: 3G6L and colored in blue).

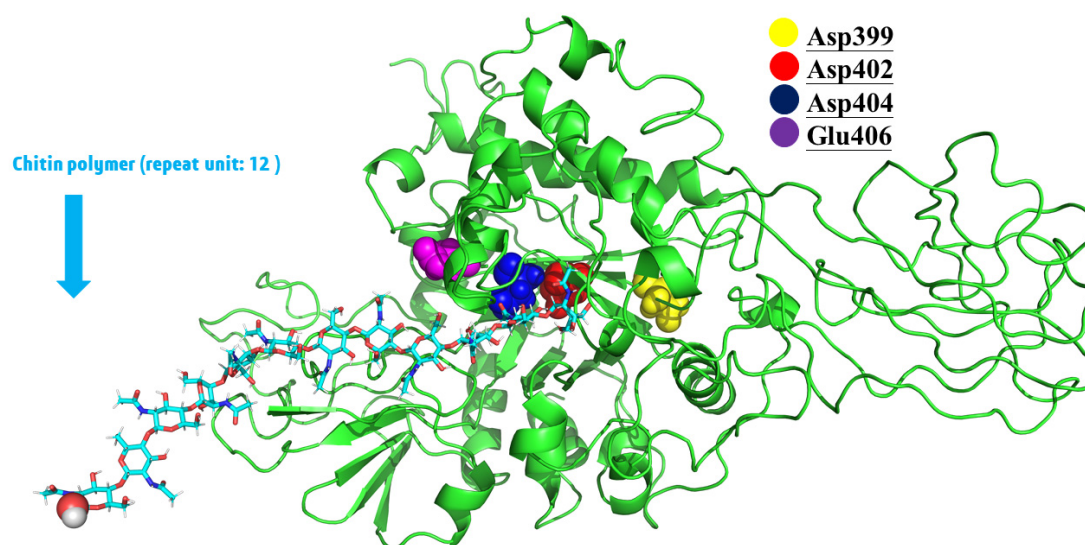


Figure 6. Chi1198 with chitin oligomers (repeat unit: 12) and Family 18 chitinase: DXXDXDXE amino acid motif. (The distance between the Asp404 of chitinase1198 and the nitrogen atom of the 2nd repeat unit from the nonreducing end).

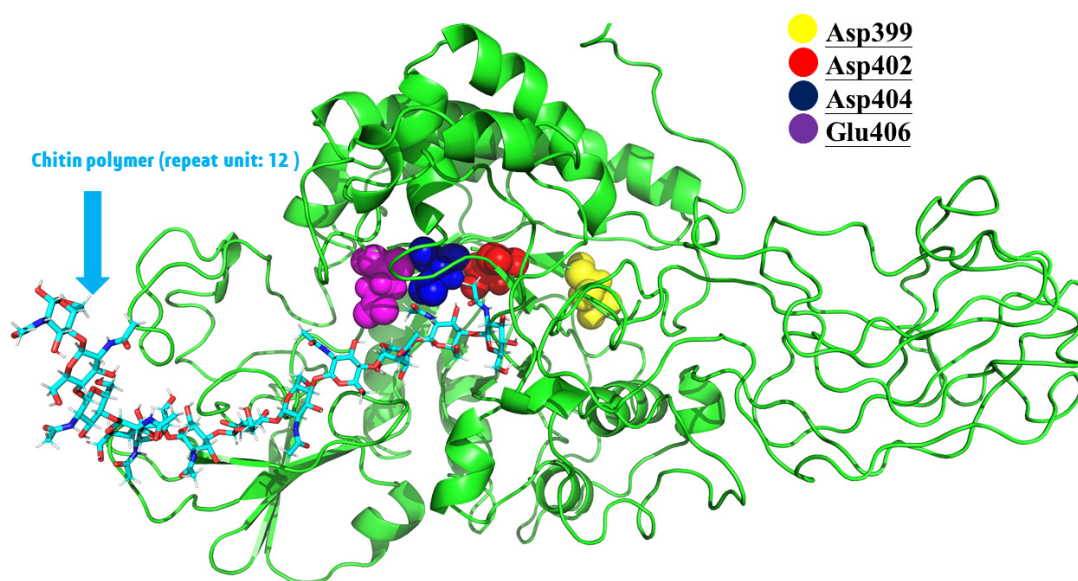


Figure 7. Chitinase 1198 with chitin oligomers (repeat unit: 12) and Family 18 chitinase: DXXDXDXE amino acid motif. (The distance between the Asp404 of chitinase1198 and the nitrogen atom of the 3rd repeat unit from the nonreducing end).

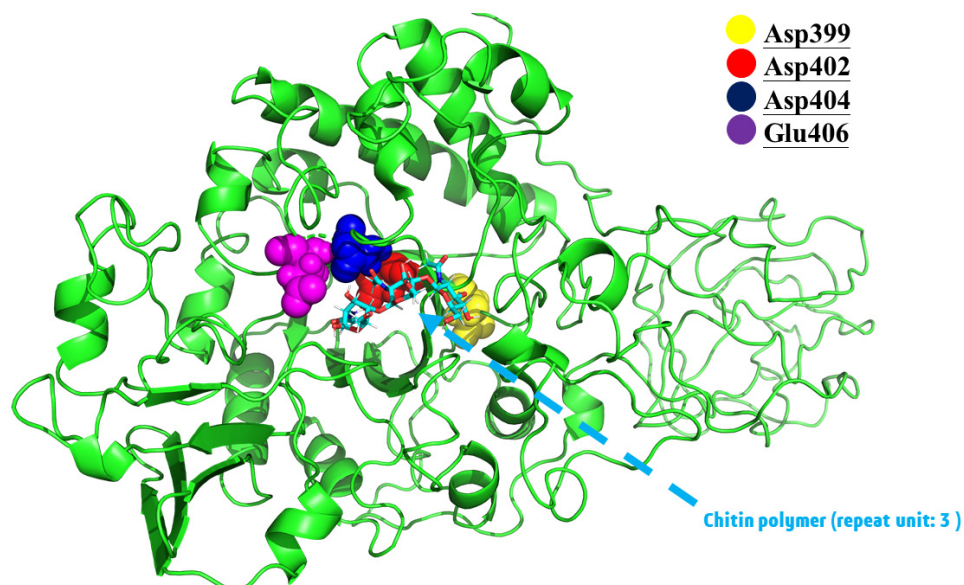


Figure 8. Chitinase 1198 with chitin oligomers (repeat unit: 3) and Family 18 chitinase: DXXDXDXE amino acid motif. (The distance between the Asp404 of chitinase1198 and the nitrogen atom of the 2nd repeat unit from the nonreducing end).

