Camel and Bovine Chymosin: the Relationship Between their Structures and Cheese Making Properties

Supplementary Material

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Chromatography

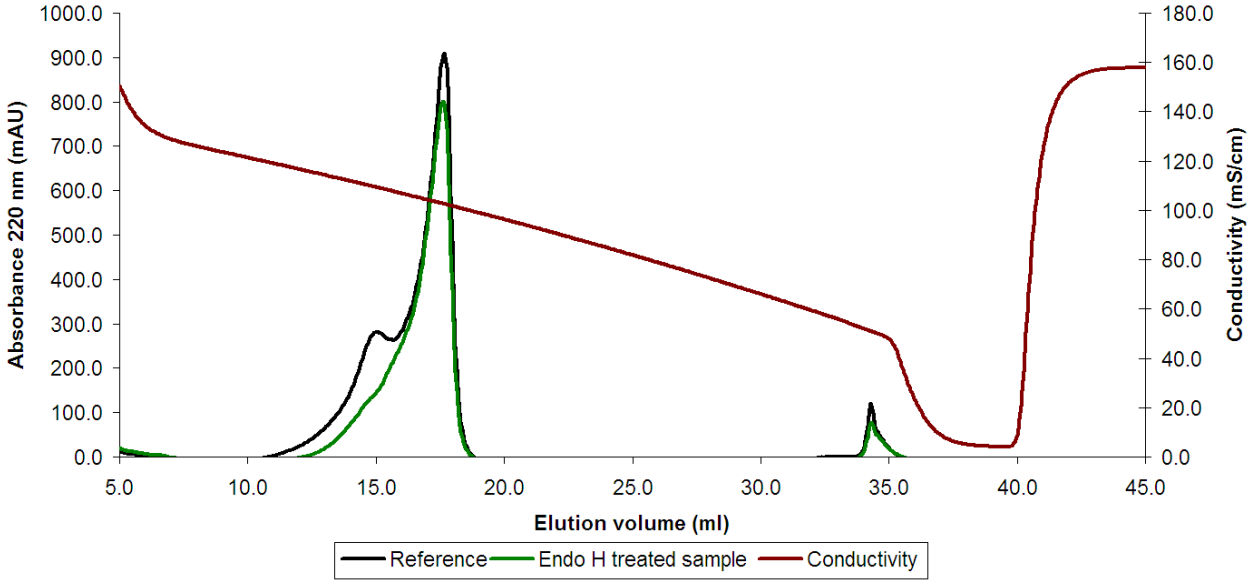
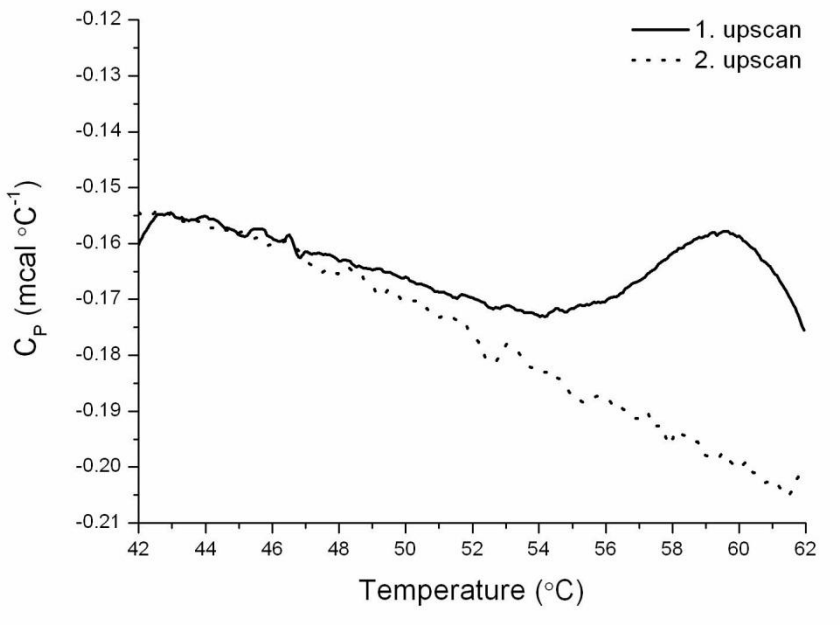


Figure S1. Representative chromatogram showing the FPLC separation of the commercial product of bovine chymosin against a salt gradient on a hydrophobic column. The black chromatogram shows the separated variants of the product. The green chromatogram shows the separation of the product pretreated with endoglycosidase H.

19 **Differential Scannning Calorimetry**



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21 **Figure S2.** Raw DSC data for camel chymosin variant 5. The variants of bovine and camel chymosin
22 denatured irreversibly upon heating. An endothermic contribution from denaturation can be seen in the
23 first upscan after sample injection. This is absent in the second upscan.

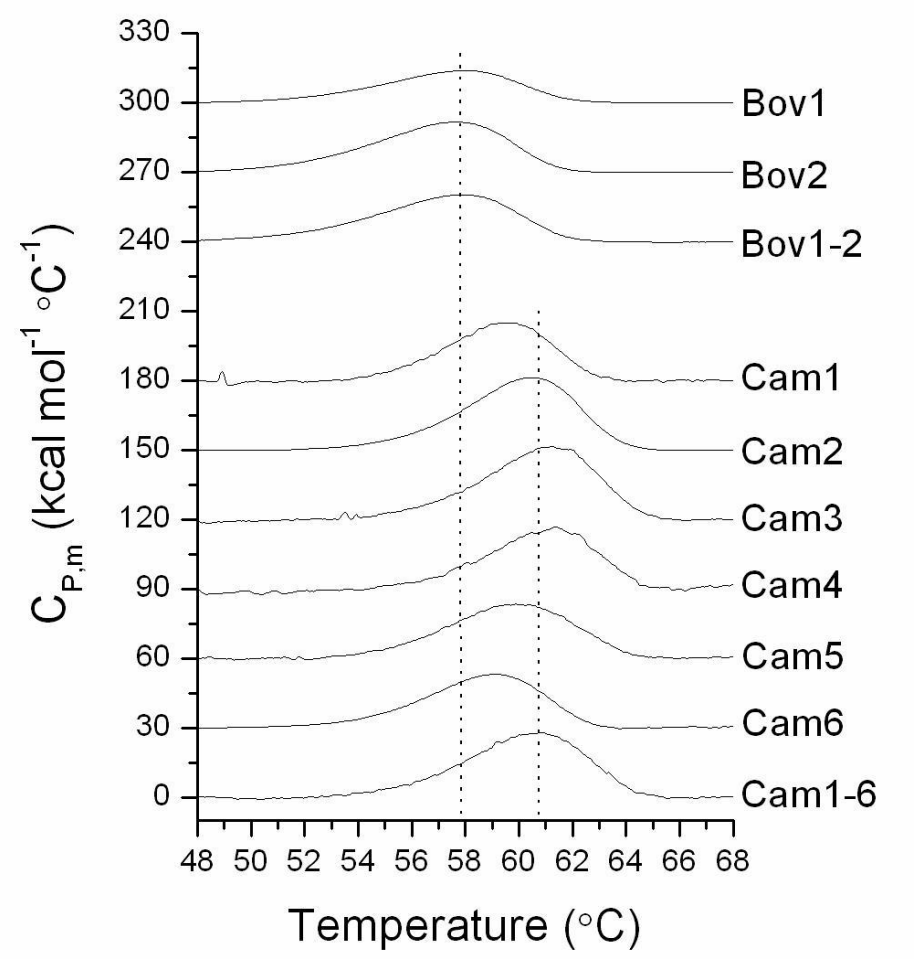
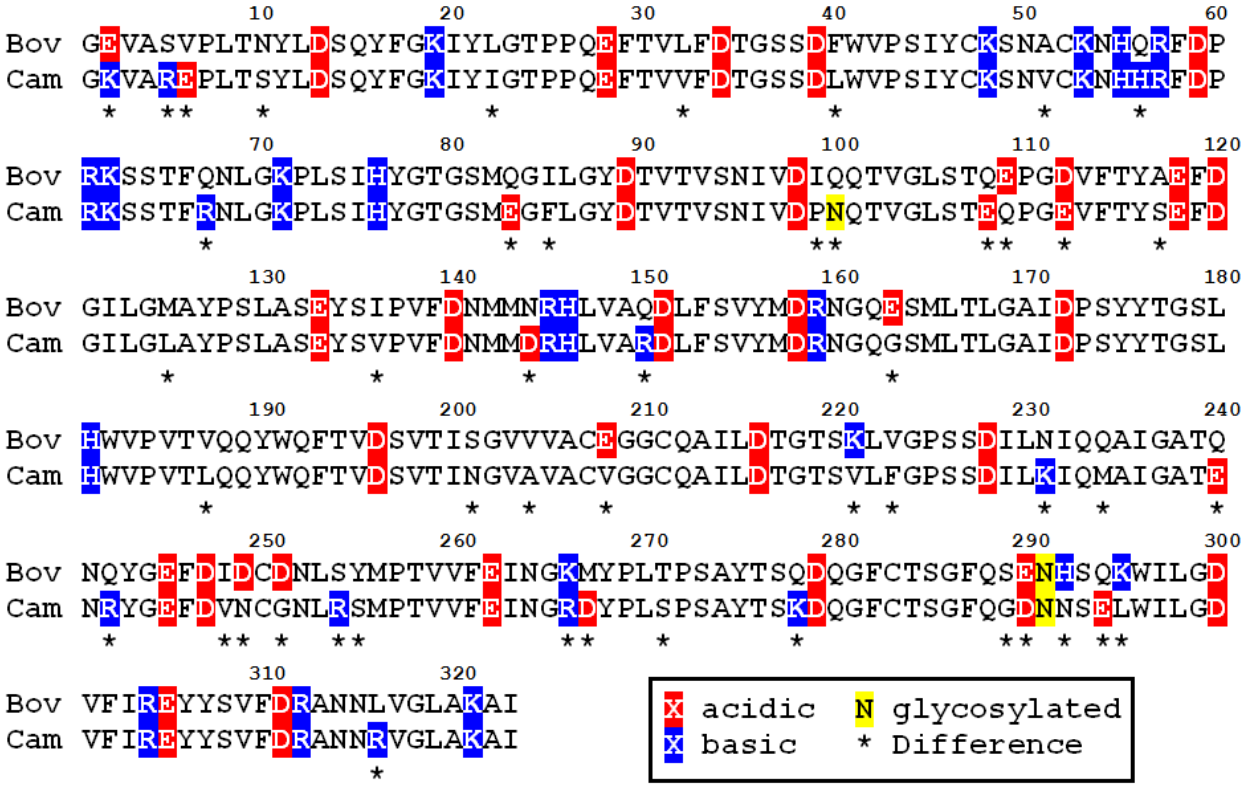


Figure S3. Melting curves of the variants of bovine (Bov1+2) and camel chymosin (Cam1+2+3+4+5+6), and the commercial products (Bov1-2+Cam1-6). For clarity, the curves are displaced in steps of 30,000 kcal / (mol · °C) along the vertical axis with respect to Cam1-6. The dashed lines indicate the melting point of the commercial products

Sequences

Pro-sequence

Mature sequence



Bovine κ-casein

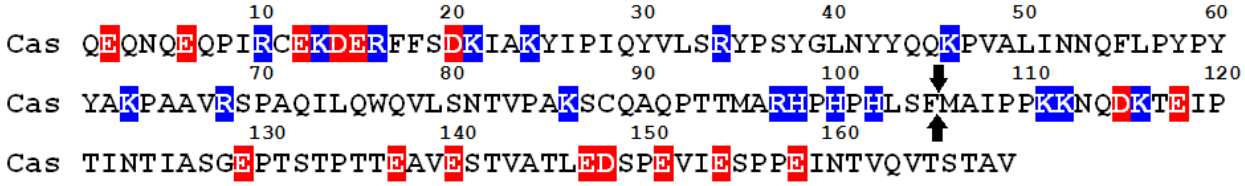


Figure S4. (top) Alignment of the sequences of the prosegment and mature protein of bovine and camel chymosin based on Uniprot entries P00794 and Q9GK11, respectively. (bottom) The sequence of bovine κ-casein based on Uniprot entry P02668. The *Phe105-Met106* bond cleaved by chymosin is marked with arrowheads.

Mass spectra

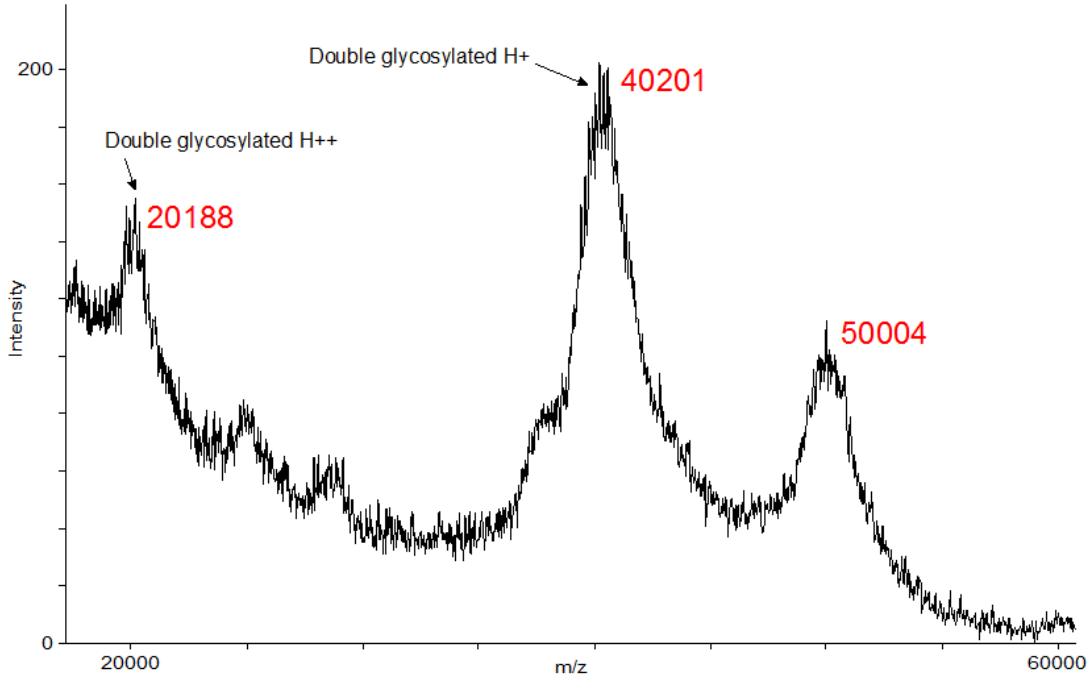


Figure S5. Mass spectra of camel chymosin variant 1.

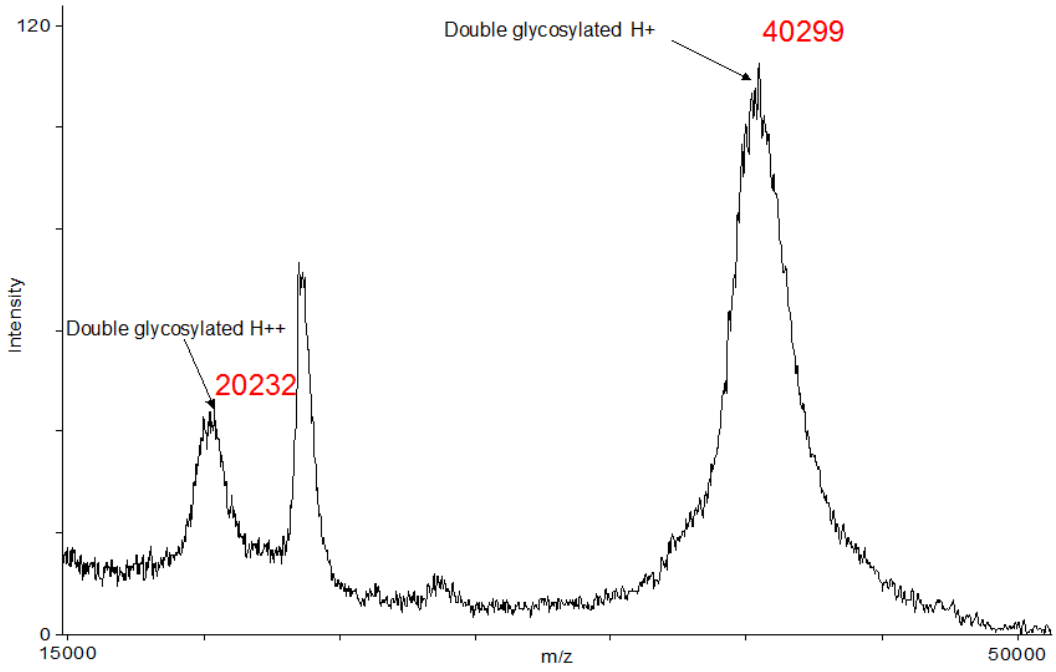


Figure S6. Mass spectra of camel chymosin variant 2.

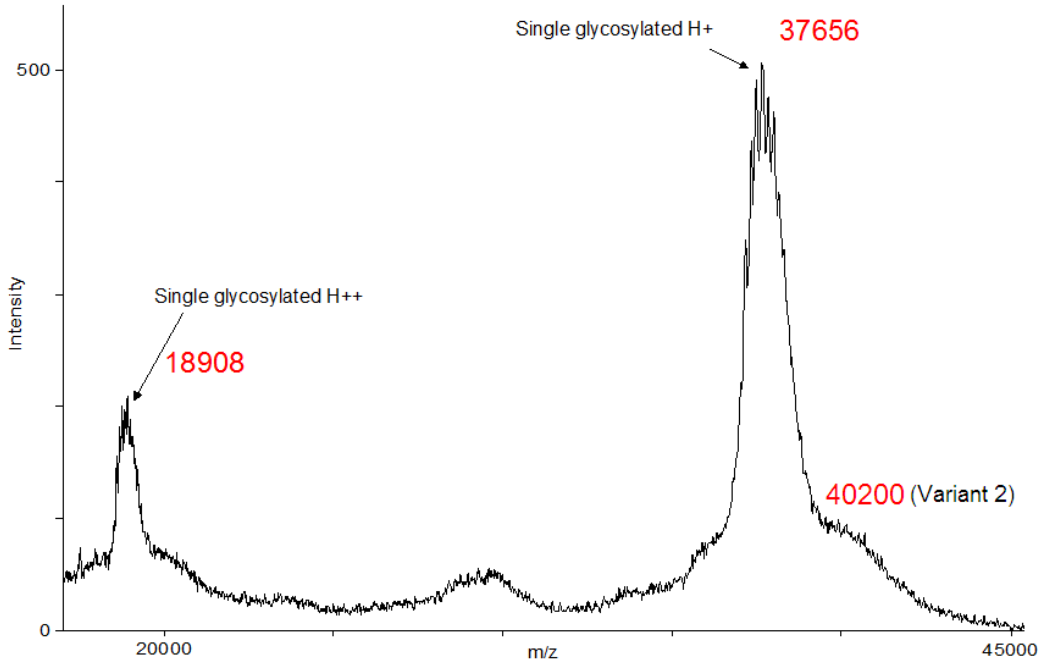


Figure S7. Mass spectra of camel chymosin variant 3.

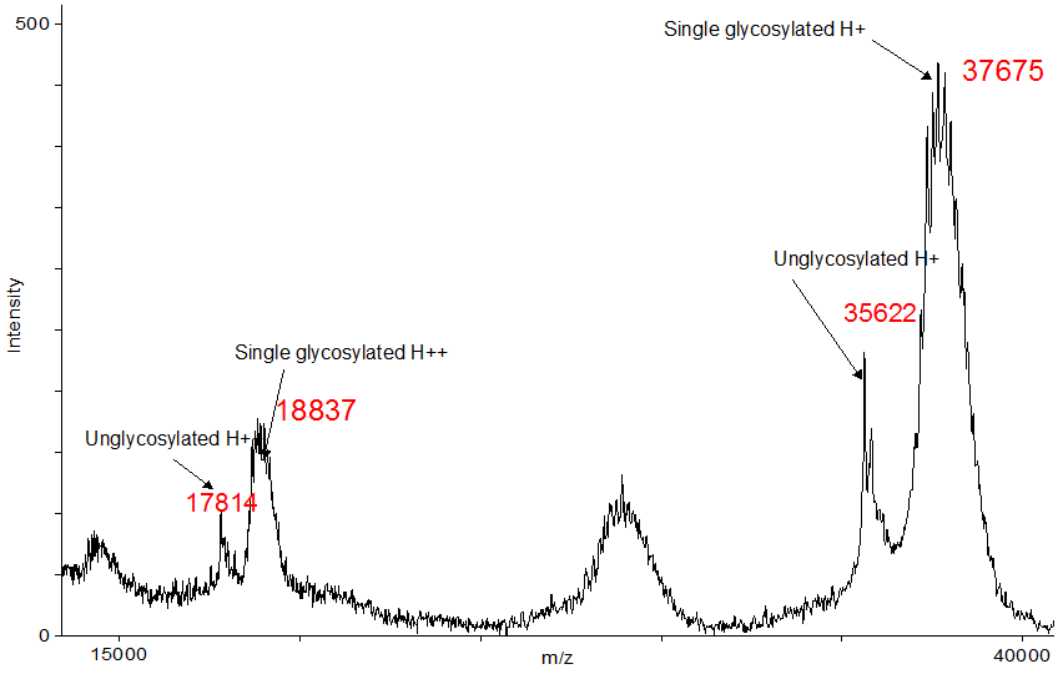


Figure S8. Mass spectra of camel chymosin variant 4.

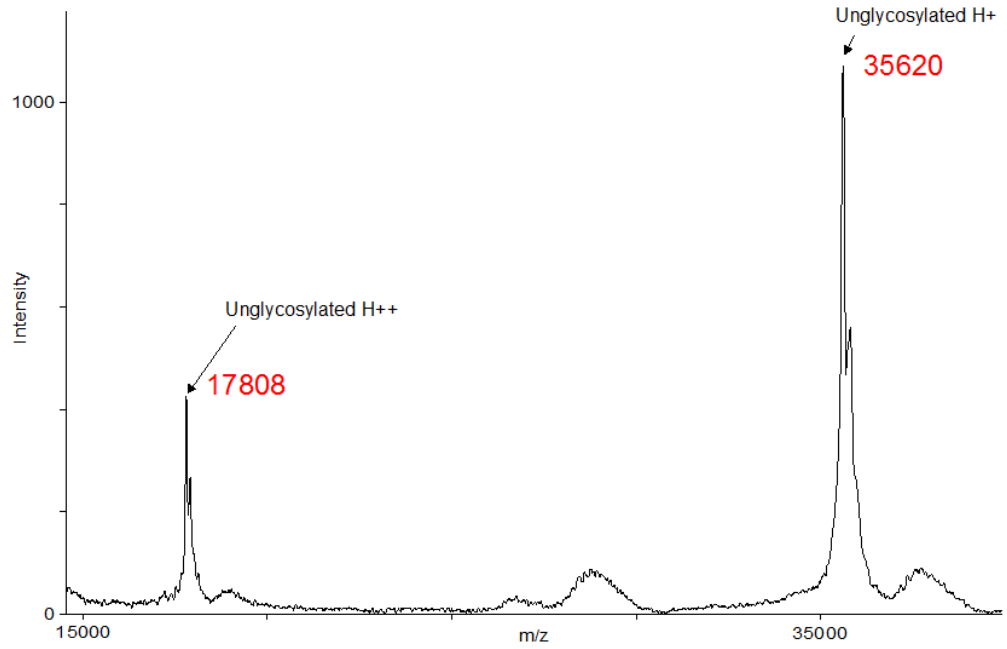


Figure S9. Mass spectra of camel chymosin variant 5.

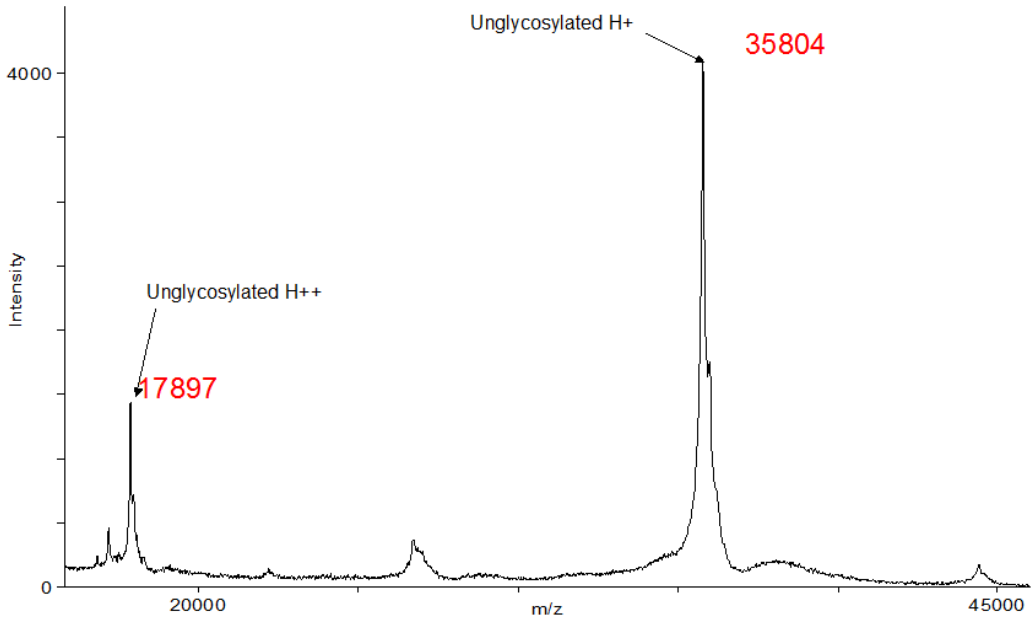


Figure S10. Mass spectra of camel chymosin variant 6.

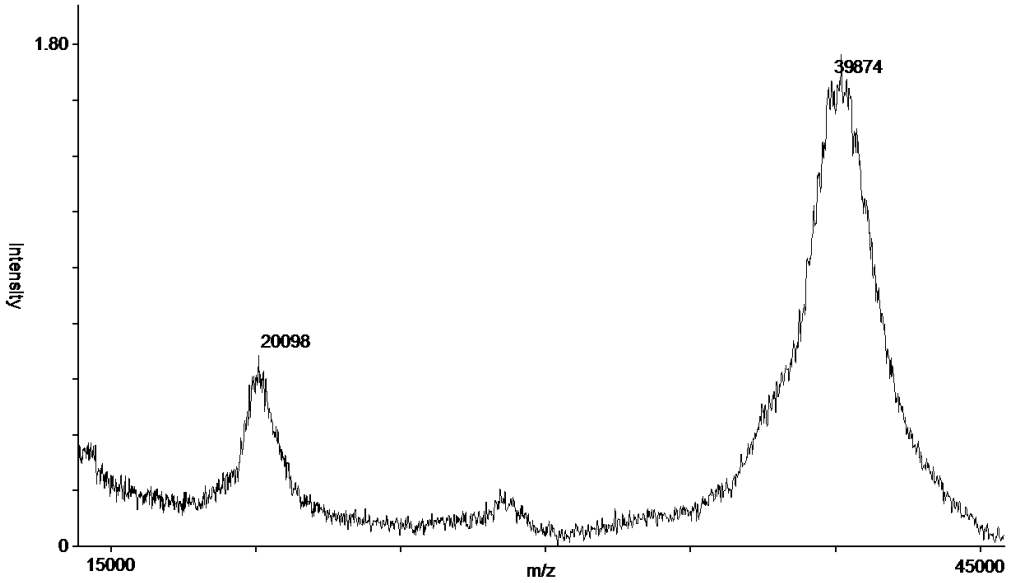


Figure S11. Mass spectra of crystals of camel chymosin variant 2.