

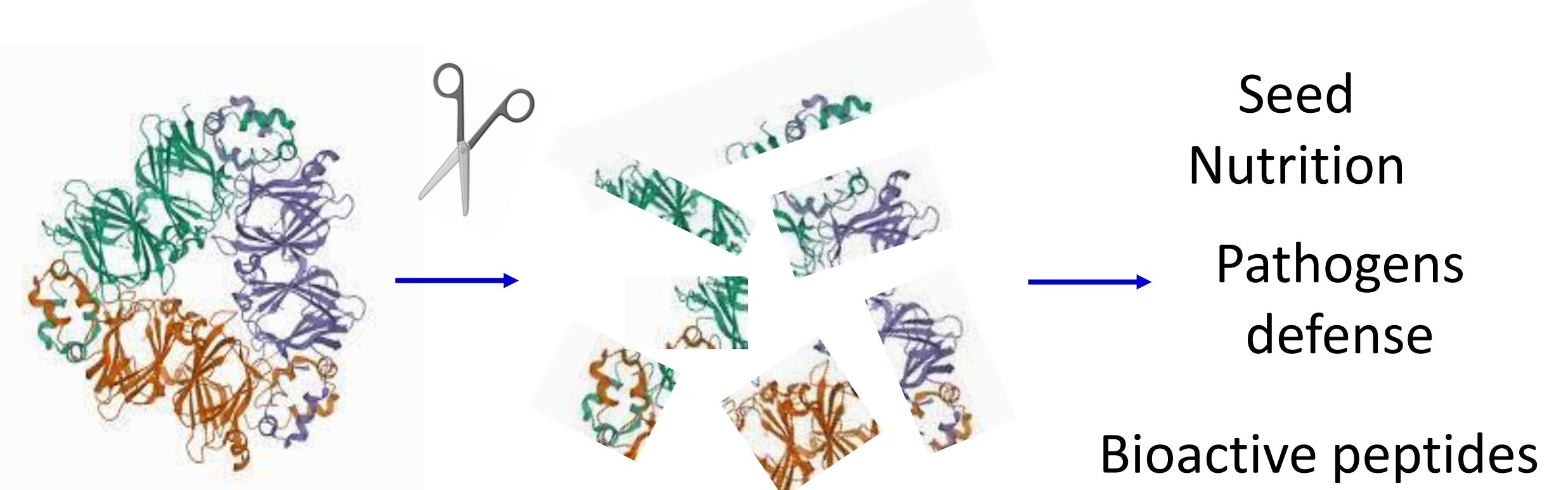
## BACKGROUND

Sprouting of legumes influence their nutritional quality. Seed storage proteins (SSP) are the nitrogen reserve that support seedling growth during first steps of germination. New findings indicate that several biological activities emerge after proteolytic breakdown, such as plant defense and antimicrobial properties, while bioactive peptide production, useful for human wellbeing, deserves investigations.



## AIM

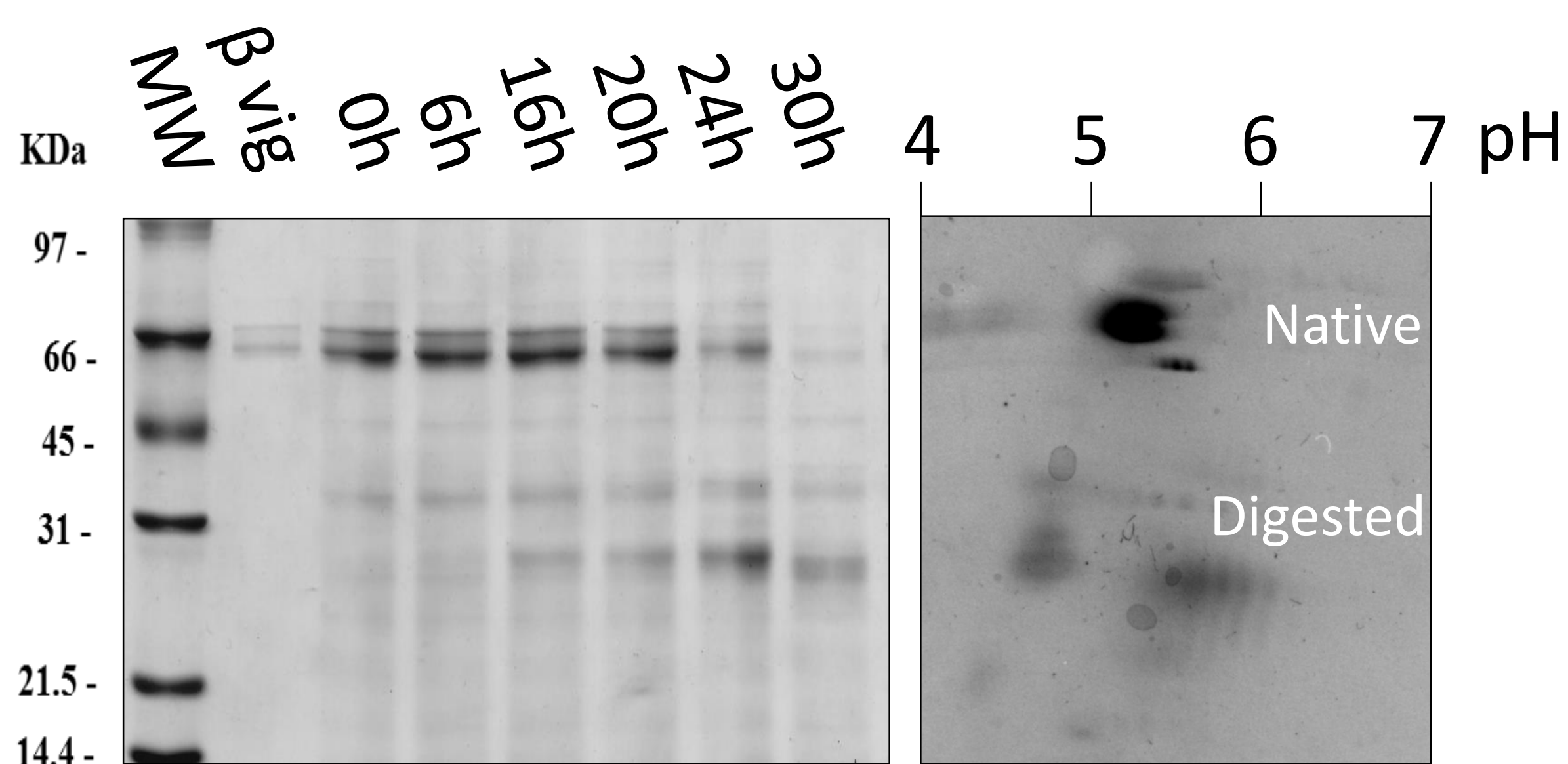
To study the proteolytic products originating from the major Cowpea storage protein  $\beta$ -vignin, after its treatment with endogenous proteases extracted from germinating seeds.



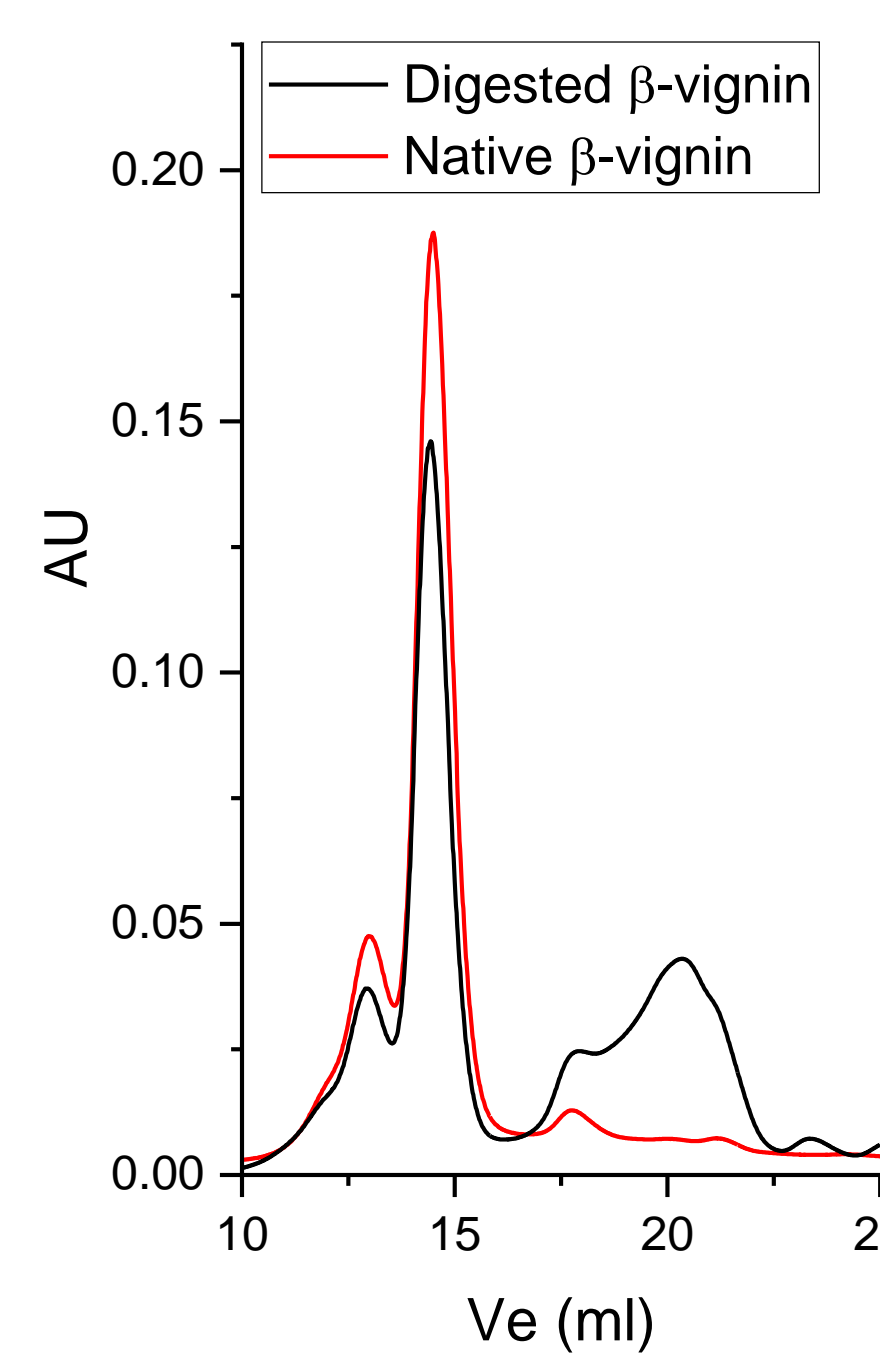
## RESULTS

**$\beta$ -vignin digestion gives rise to a resistant undigested core that remains associated in a quaternary structure identical to the native protein**

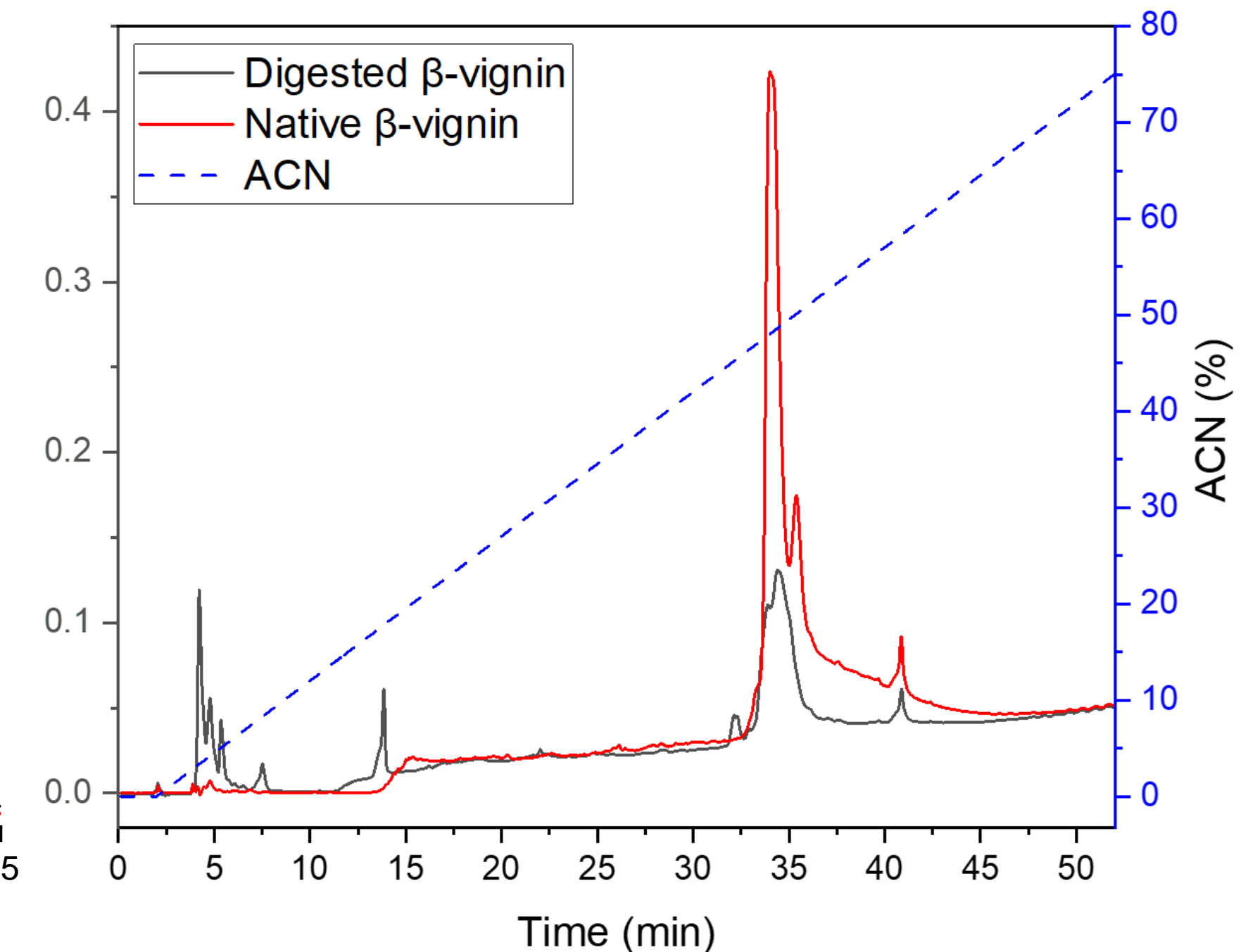
Limited proteolysis of purified  $\beta$ -vignin with 6 dai proteases



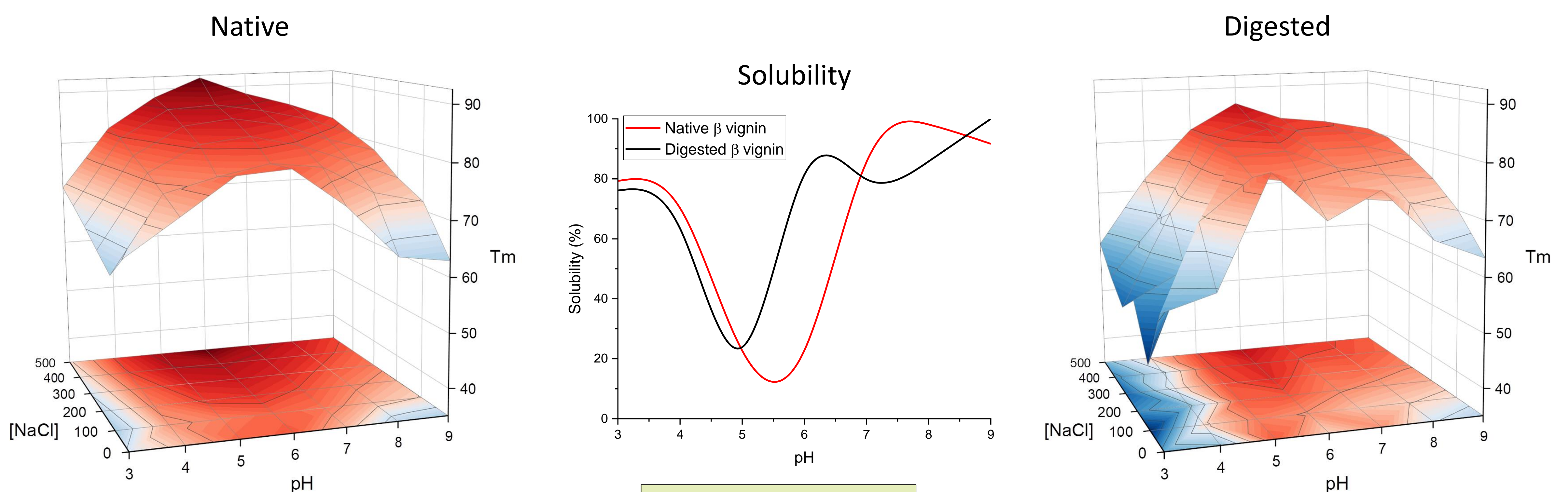
Superdex S200



RP - HPLC



**Digested  $\beta$ -vignin stability at different pH and ionic strength is lower than the native, but it is enough to allow a transient accumulation and reflects its solubility**

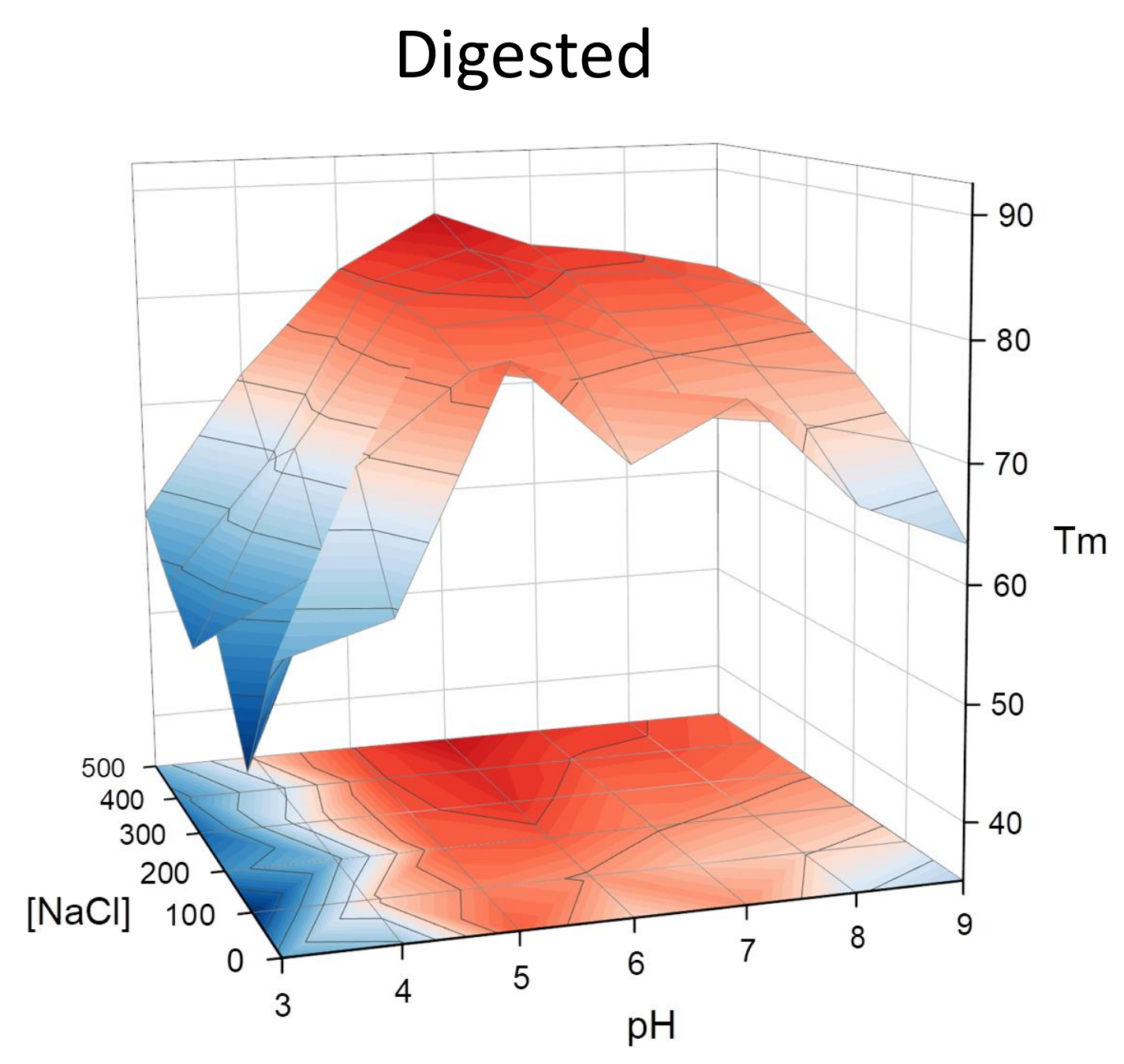
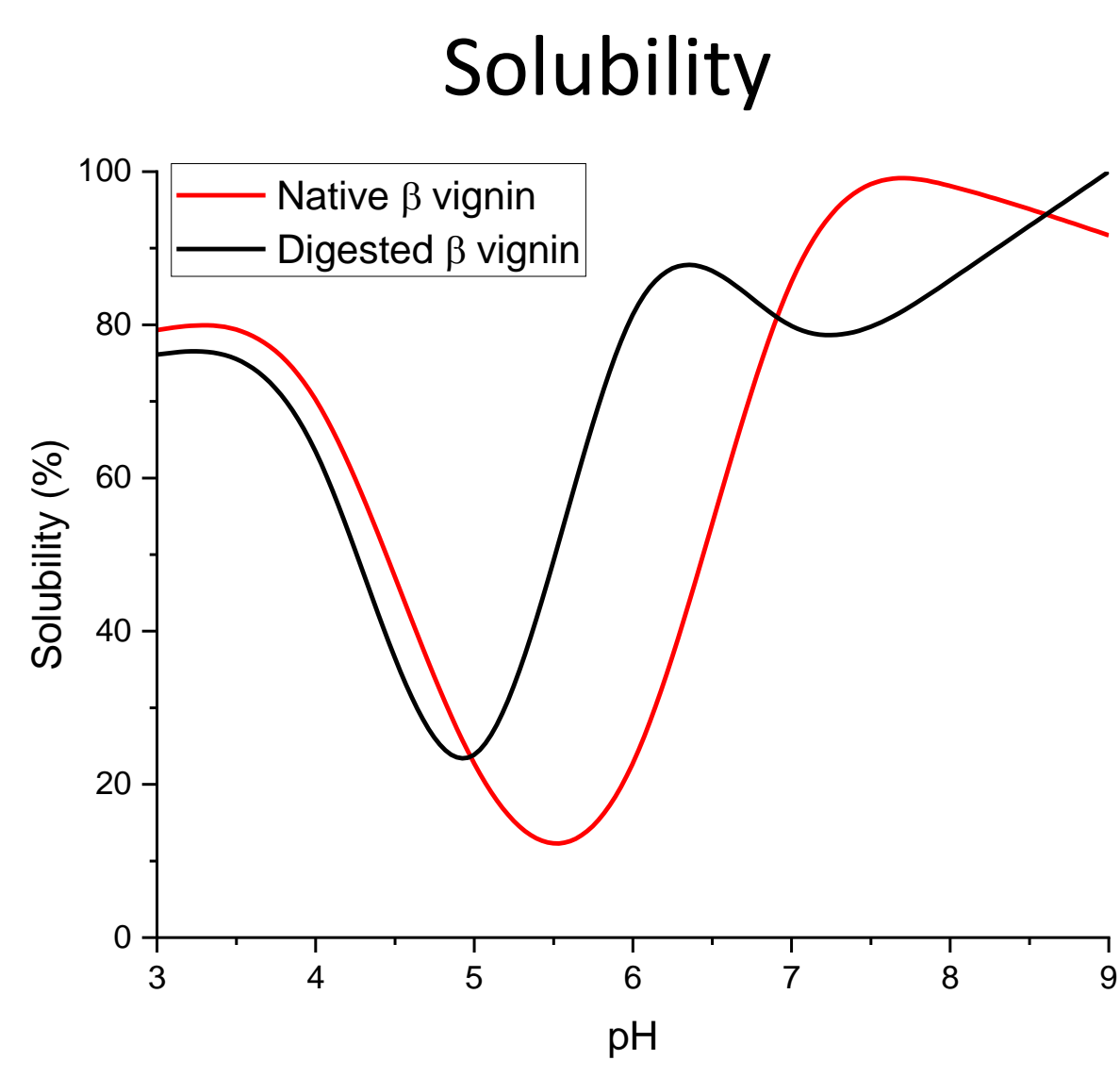
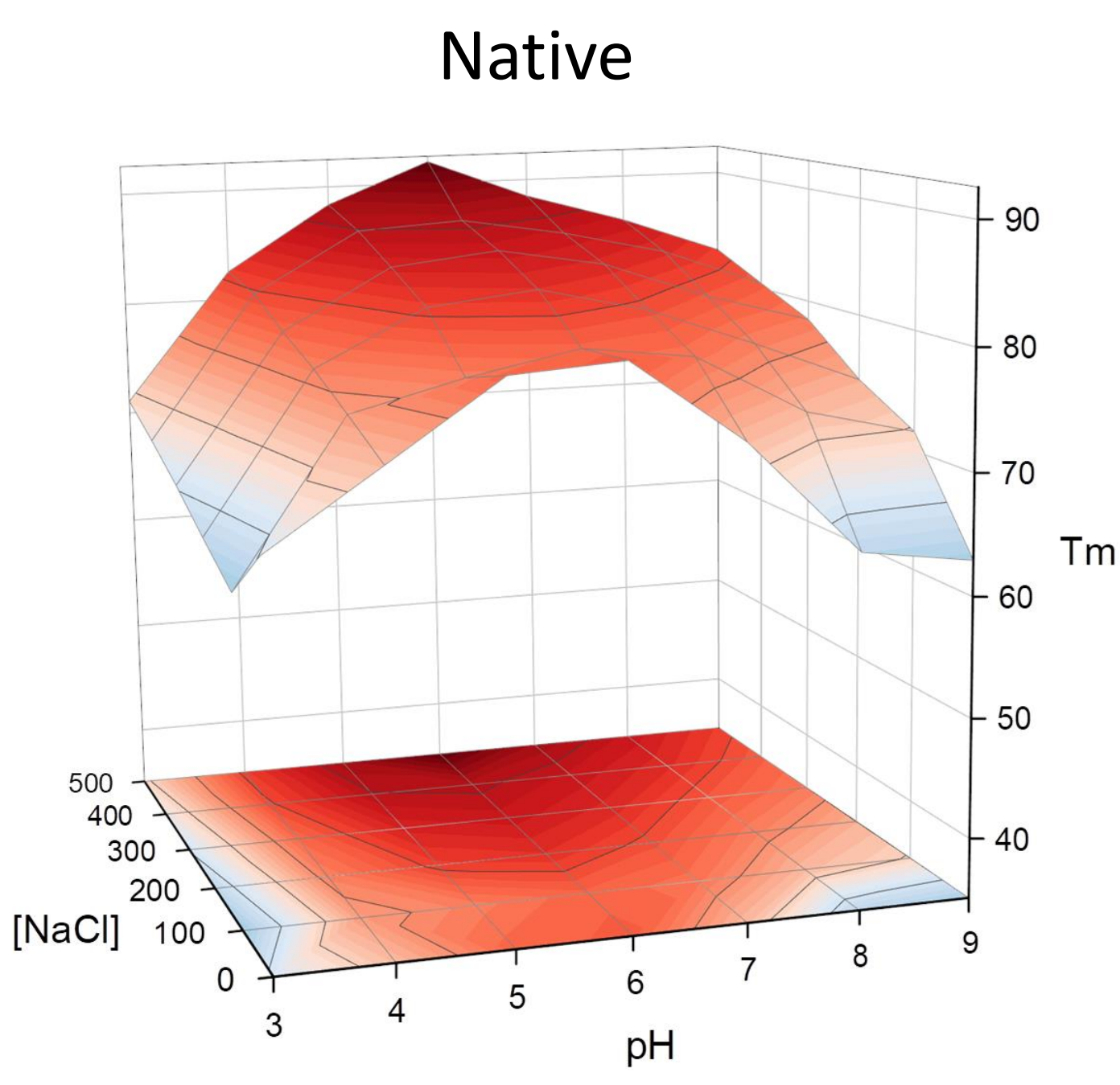
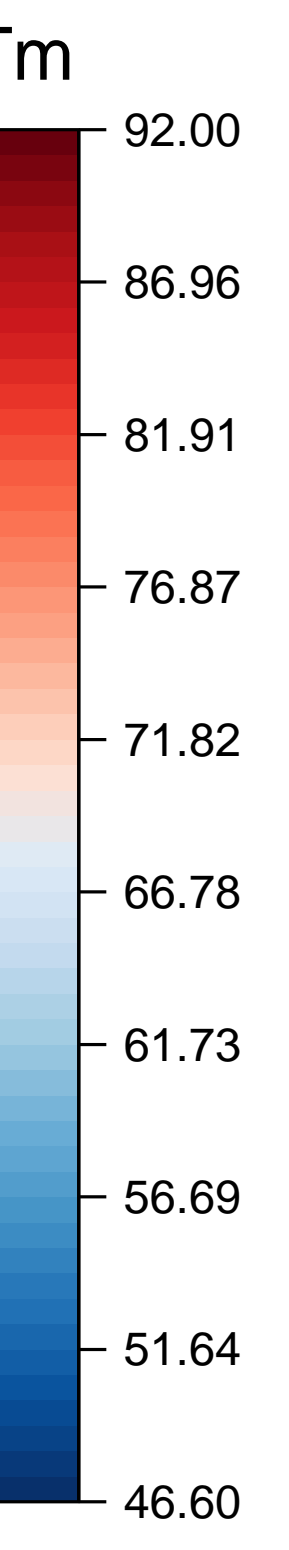
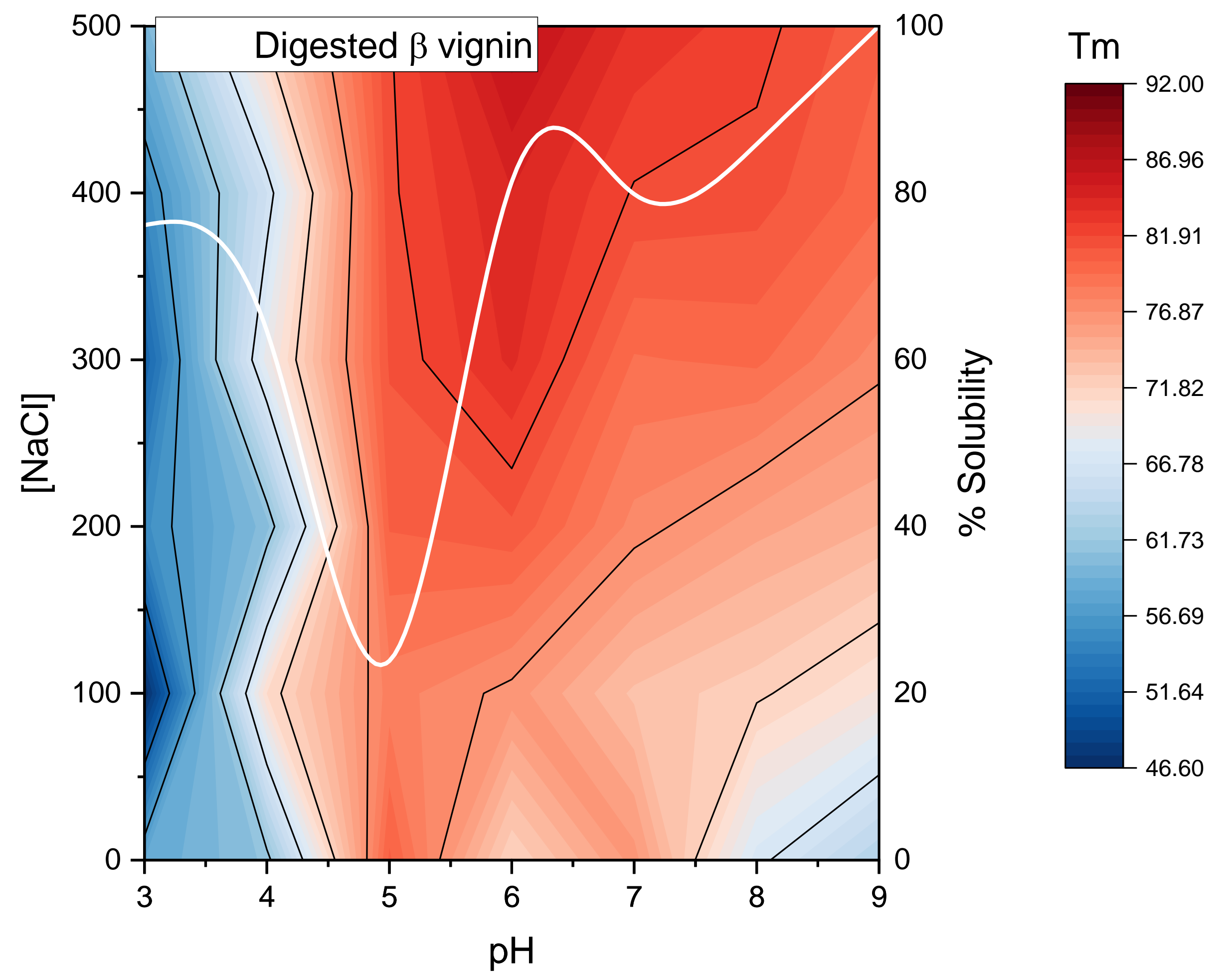
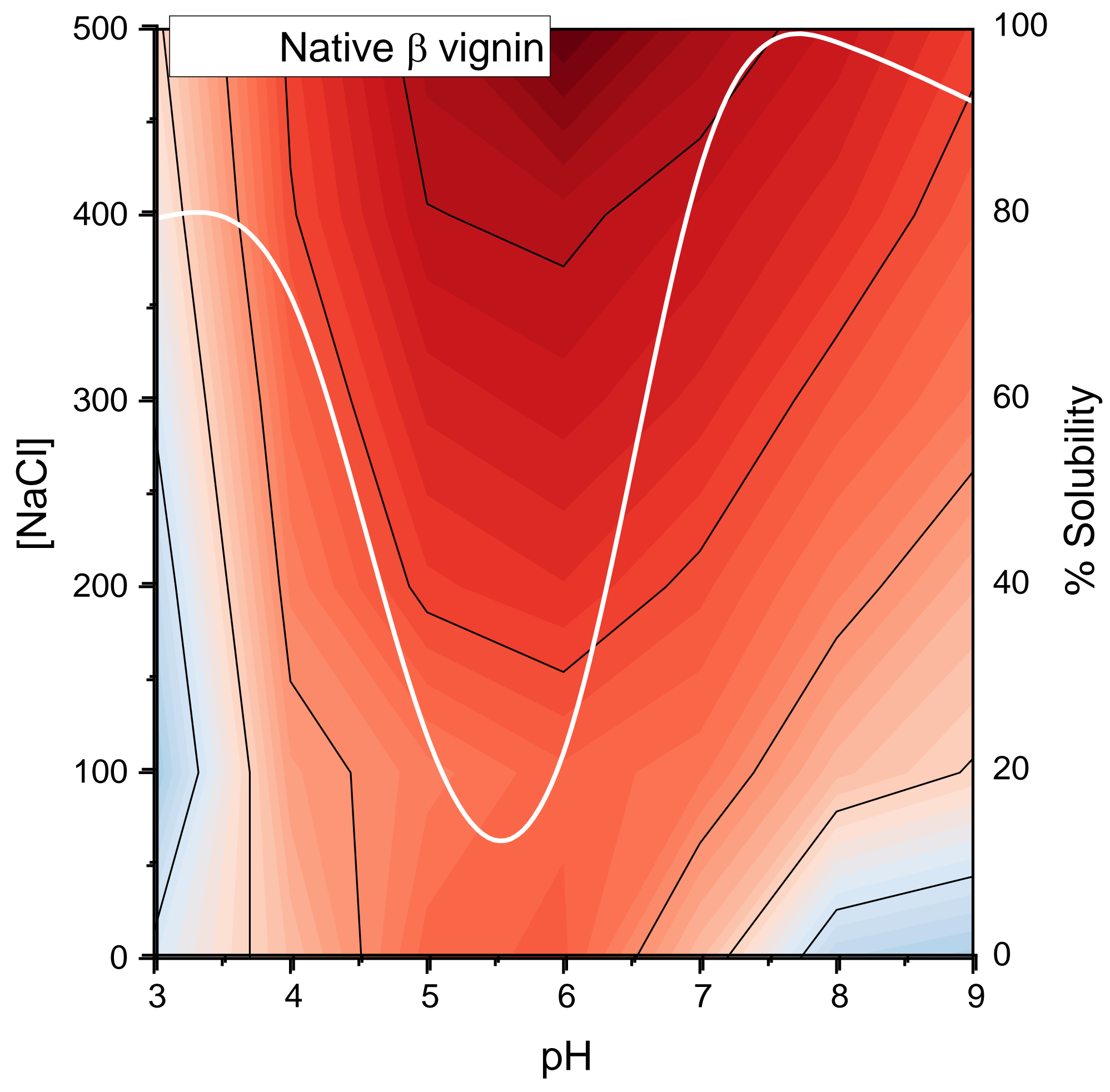


## CONCLUSIONS

- The presence of a stable intermediate of proteolysis suggests a biological function
- Potential interest for a plant biodefence purpose
- Potential interest for a human well being related bioactivity
- Most acid fragment of digested  $\beta$ -vignin is predicted to be an amyloid protein -> Amyloid formation was recently described for SSPs









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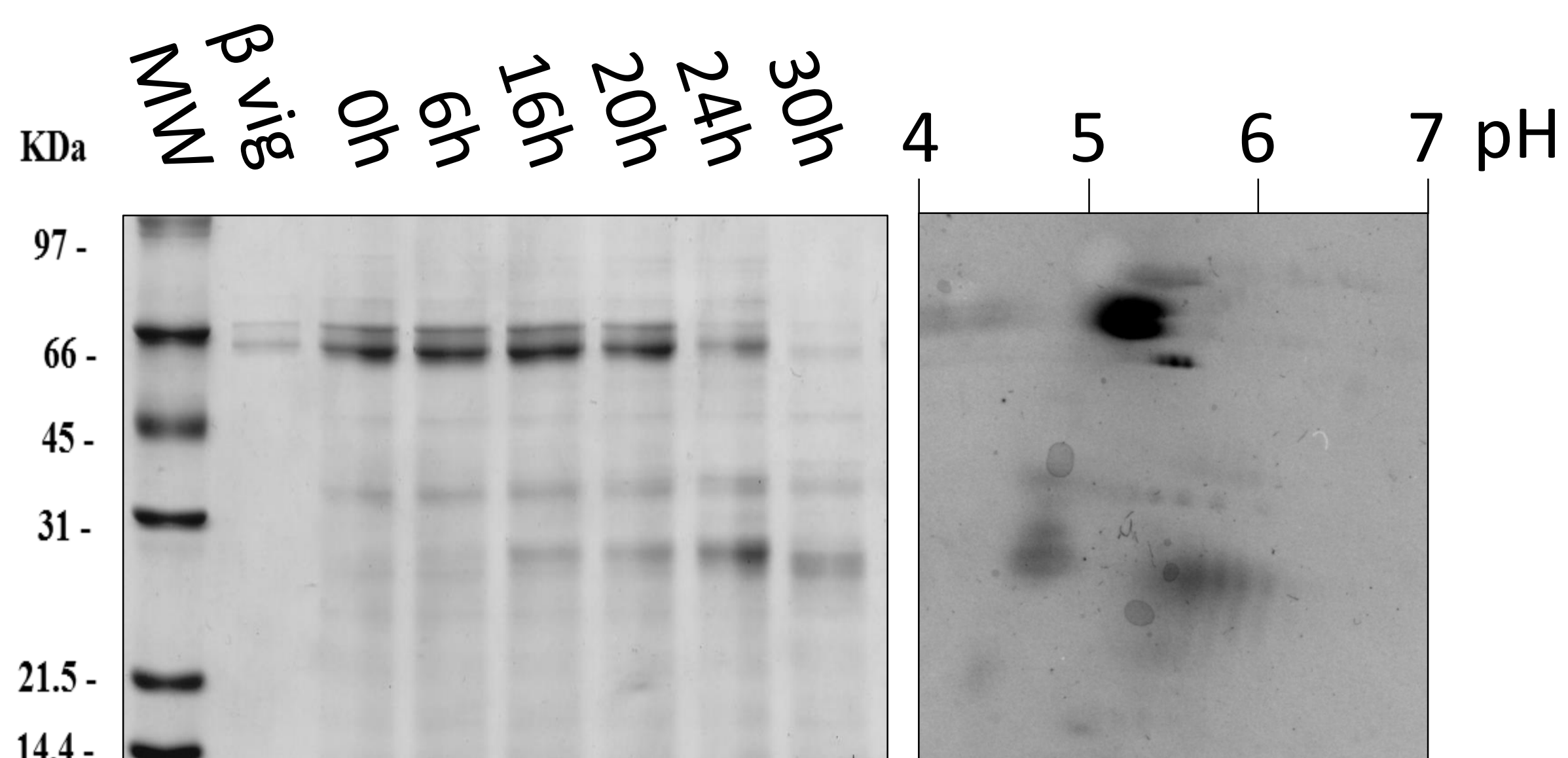
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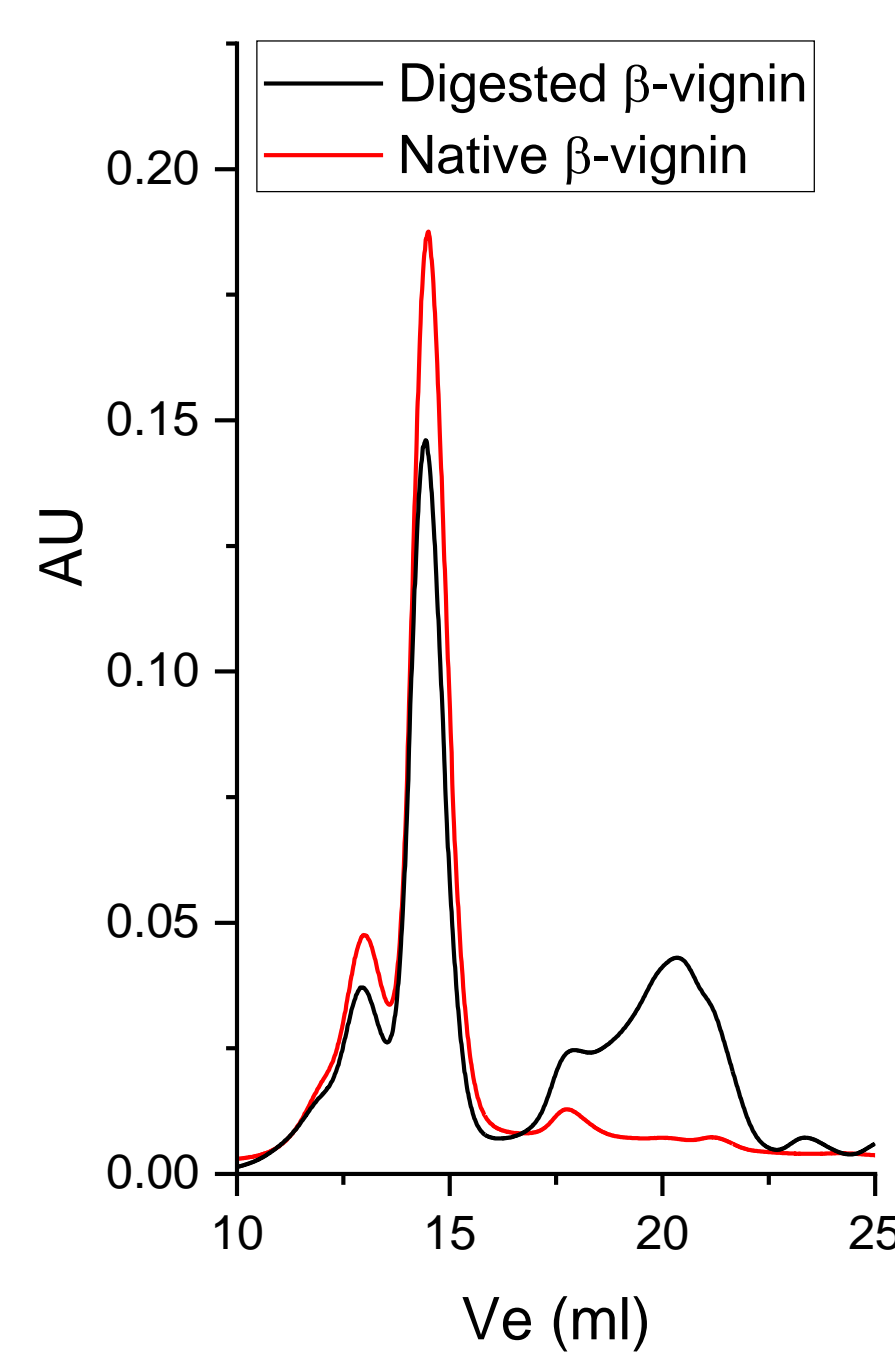


## RESULTS

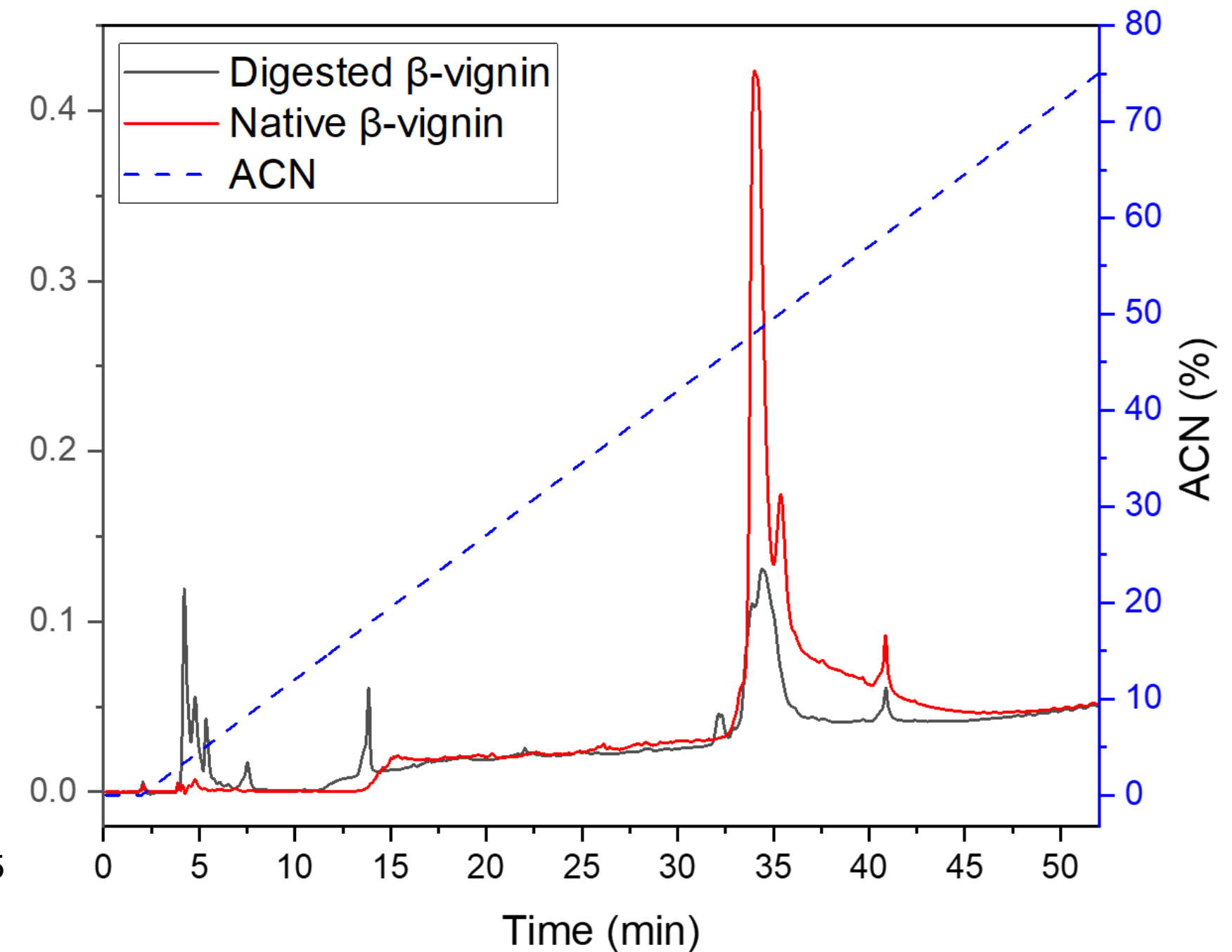
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Superdex S200

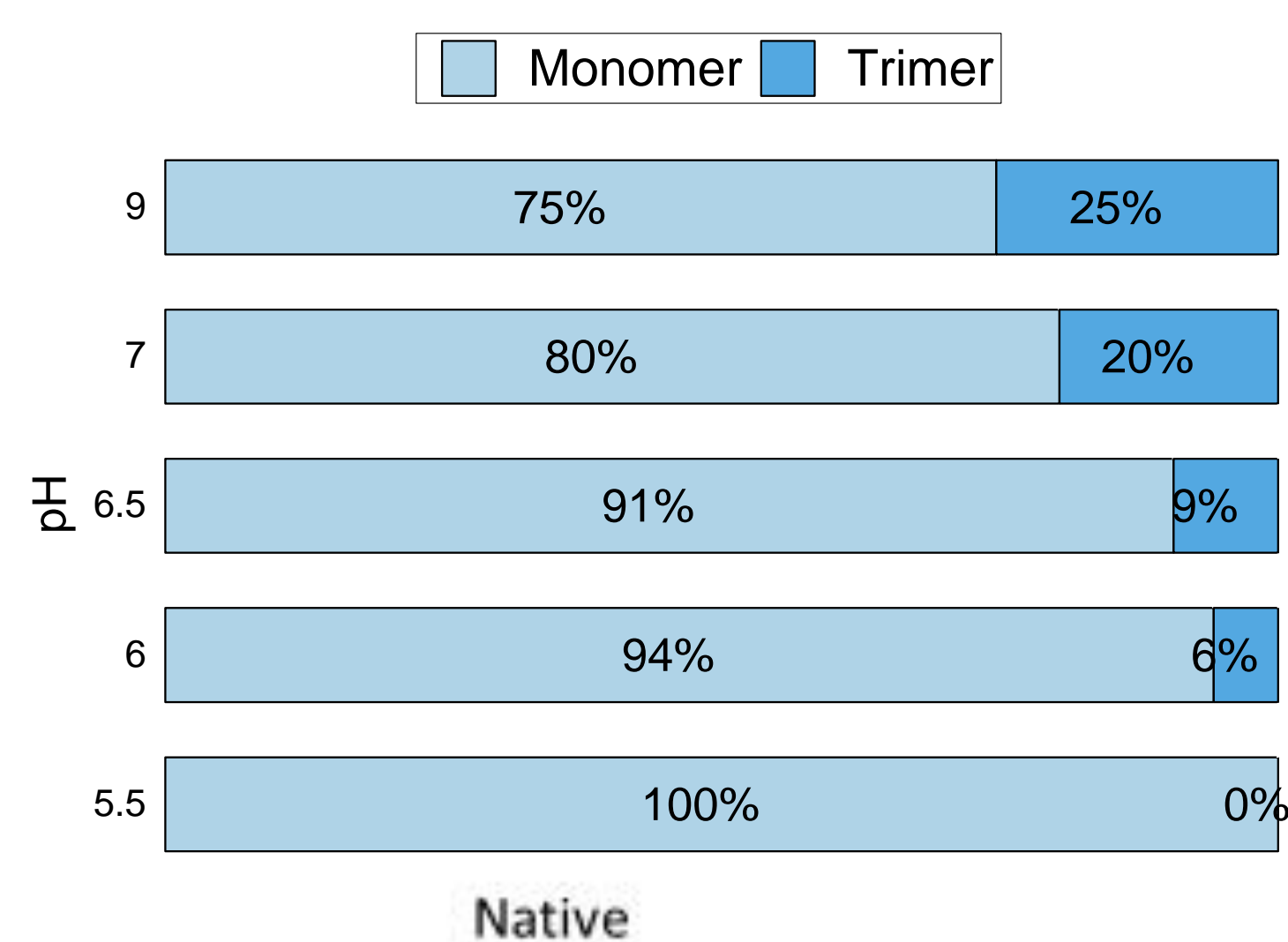


RP - HPLC



$\beta$ -vignin digestion gives rise to a resistant undigested core that remains associated in a quaternary structure identical to the native protein

Oligomerization of the native protein was studied as a function of pH



Solubility was compared at different pH

