

Structural characterization and moisture sorption analysis of encapsulated DPP-IV inhibitory peptides

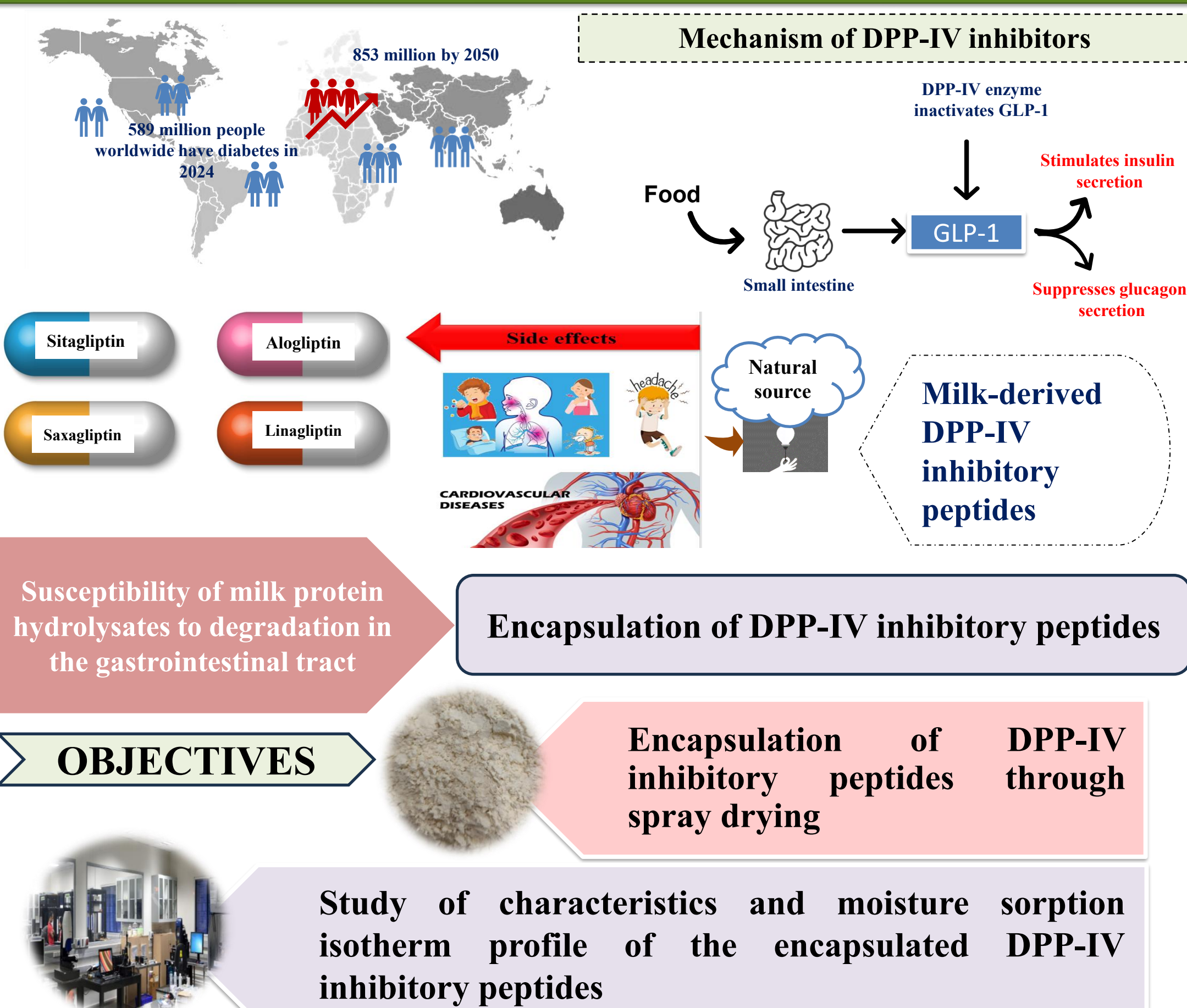
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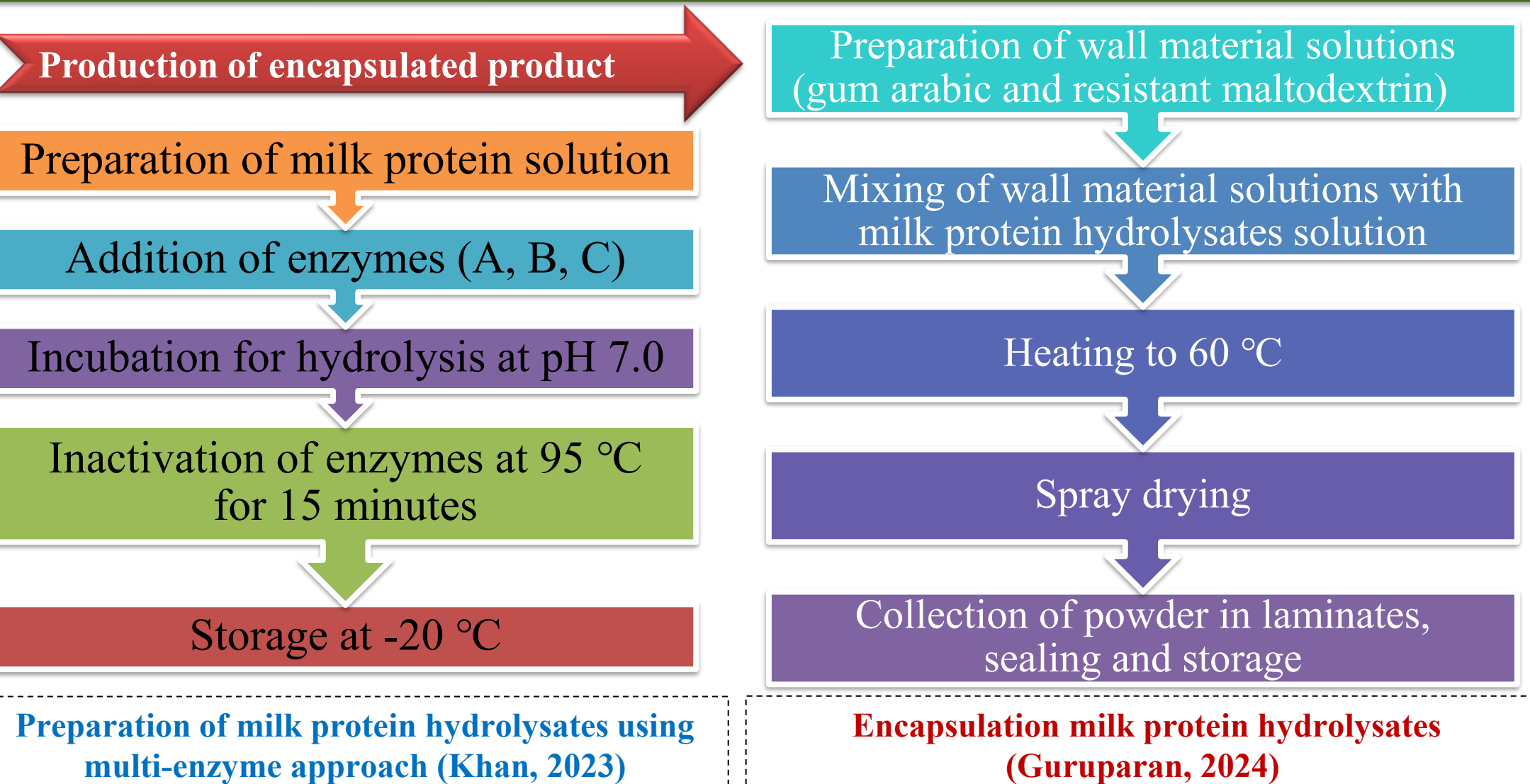
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INTRODUCTION & AIM



METHOD



Characterization of encapsulated product

Fourier-Transform Infrared Spectroscopy (FTIR)

Scanning Electron Microscopy (SEM)

Differential Scanning Calorimeter (DSC)

Moisture sorption behavior of encapsulated product

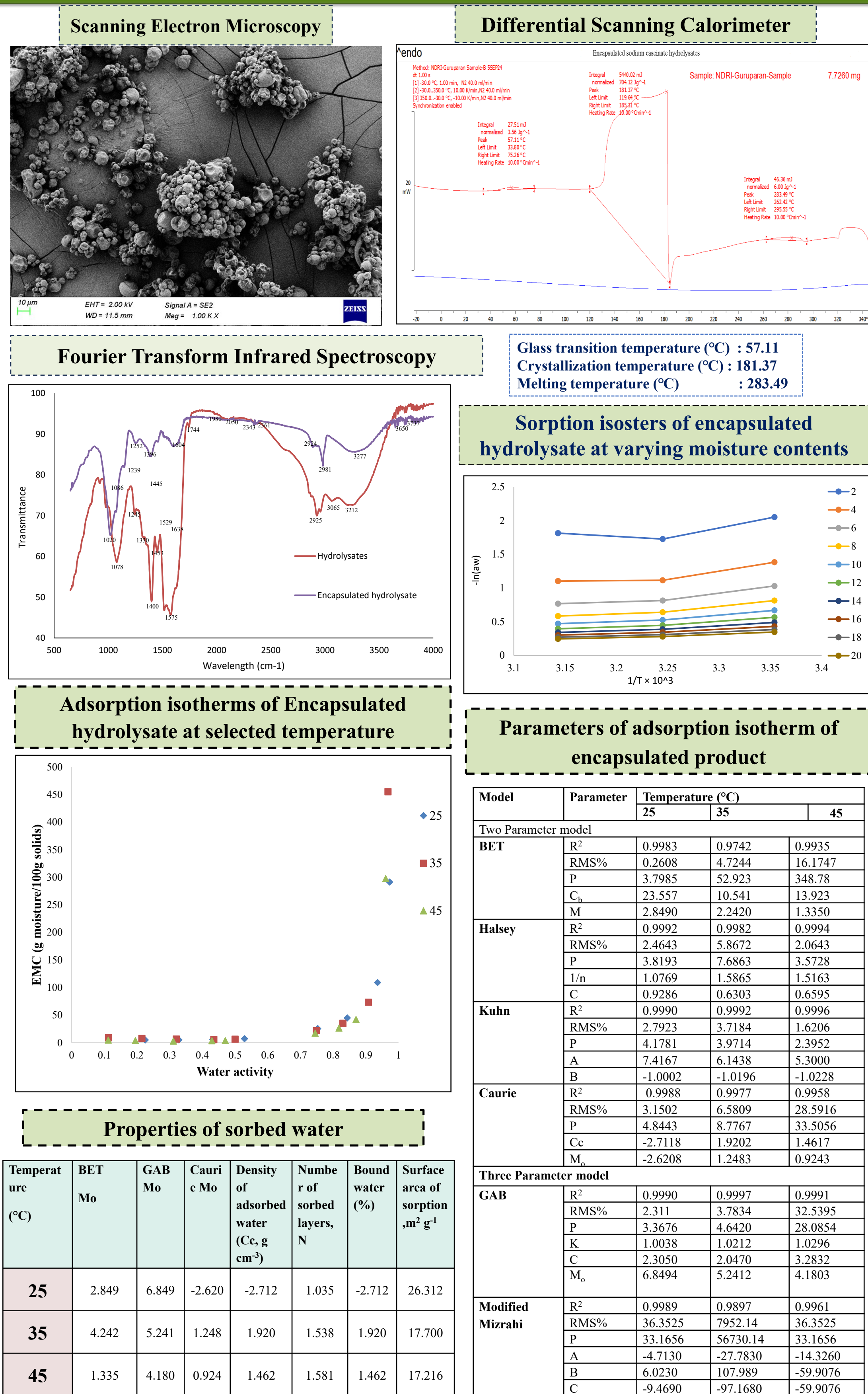
Samples were weighed at 2 days interval until equilibration

Gravimetric method
 a_w from 0.11 to 0.96
At temperatures of 25, 35 and 45°C

The accuracy of fit of models were determined by computing the % P (Relative Mean percent deviation) and R^2 (Coefficient of determination)

The sorption data was evaluated for best fit sorption models
BET, GAB, Kuhn, Halsey, Caurie and modified Mizrahi

RESULTS & DISCUSSION



CONCLUSION

- The current encapsulation method successfully encapsulated peptides and was confirmed with characterization techniques
- Encapsulated powder showed low Tg and very high EMC at higher RH showed the hygroscopic nature
- The Kuhn, Halsey and GAB mathematical models showed the best fit based on RMS% and P values
- The isosteric heat of sorption showed independence of product to different temperatures
- Due to the hygroscopic nature of encapsulated DPP-IV inhibitory peptides, it is necessary to enhance the reduction of hygroscopicity using various bulking agents

FUTURE WORK / REFERENCES

- Storage and shelf-life studies
- in vitro* and *in vivo* validation
- Formulation applications
- Scale-up and commercial potential