

Chitosans prepared from the scorpion *Buthus atlantis*: influence of the morphological part and the N-deacetylation process on their characteristics

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INTRODUCTION & AIM

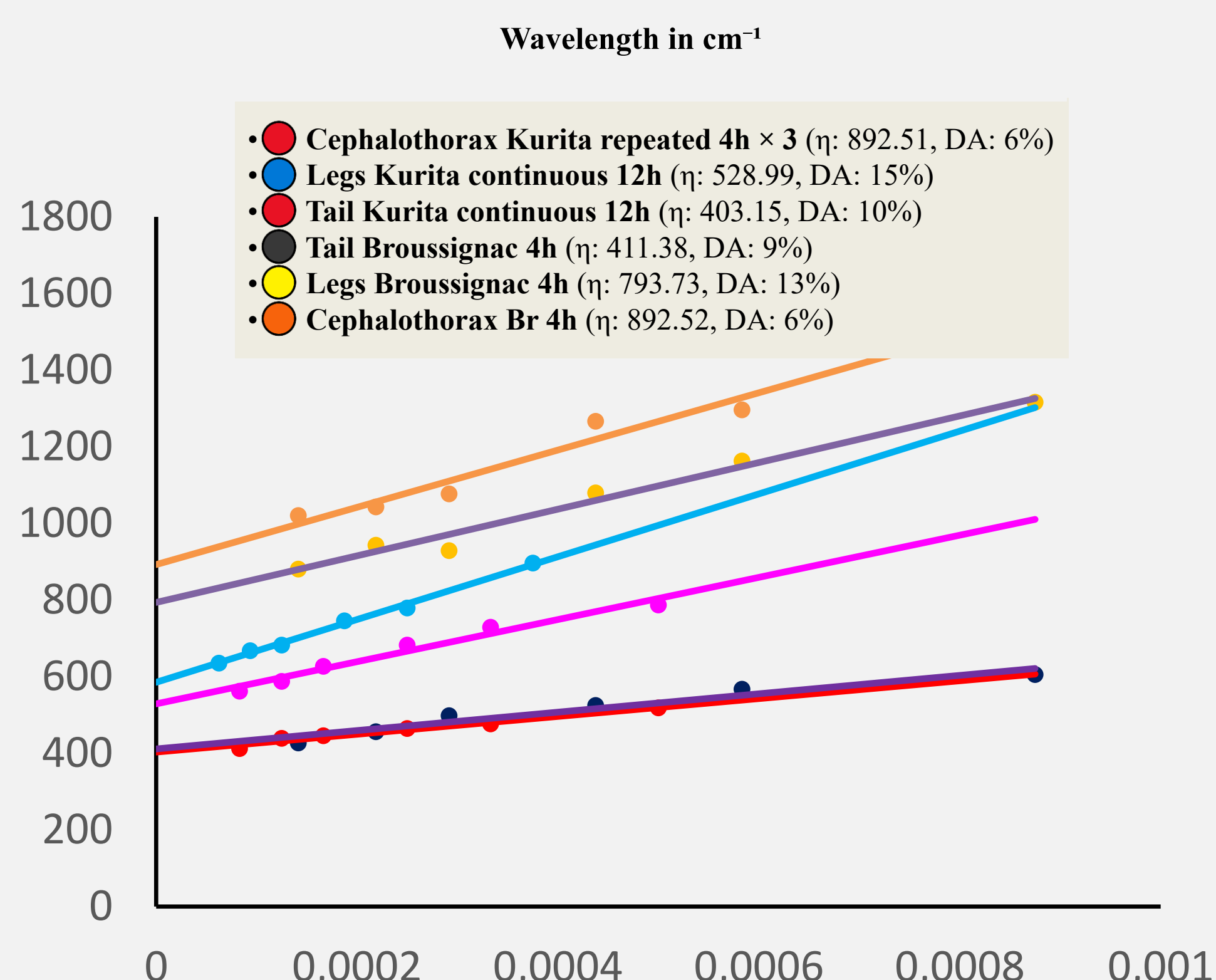
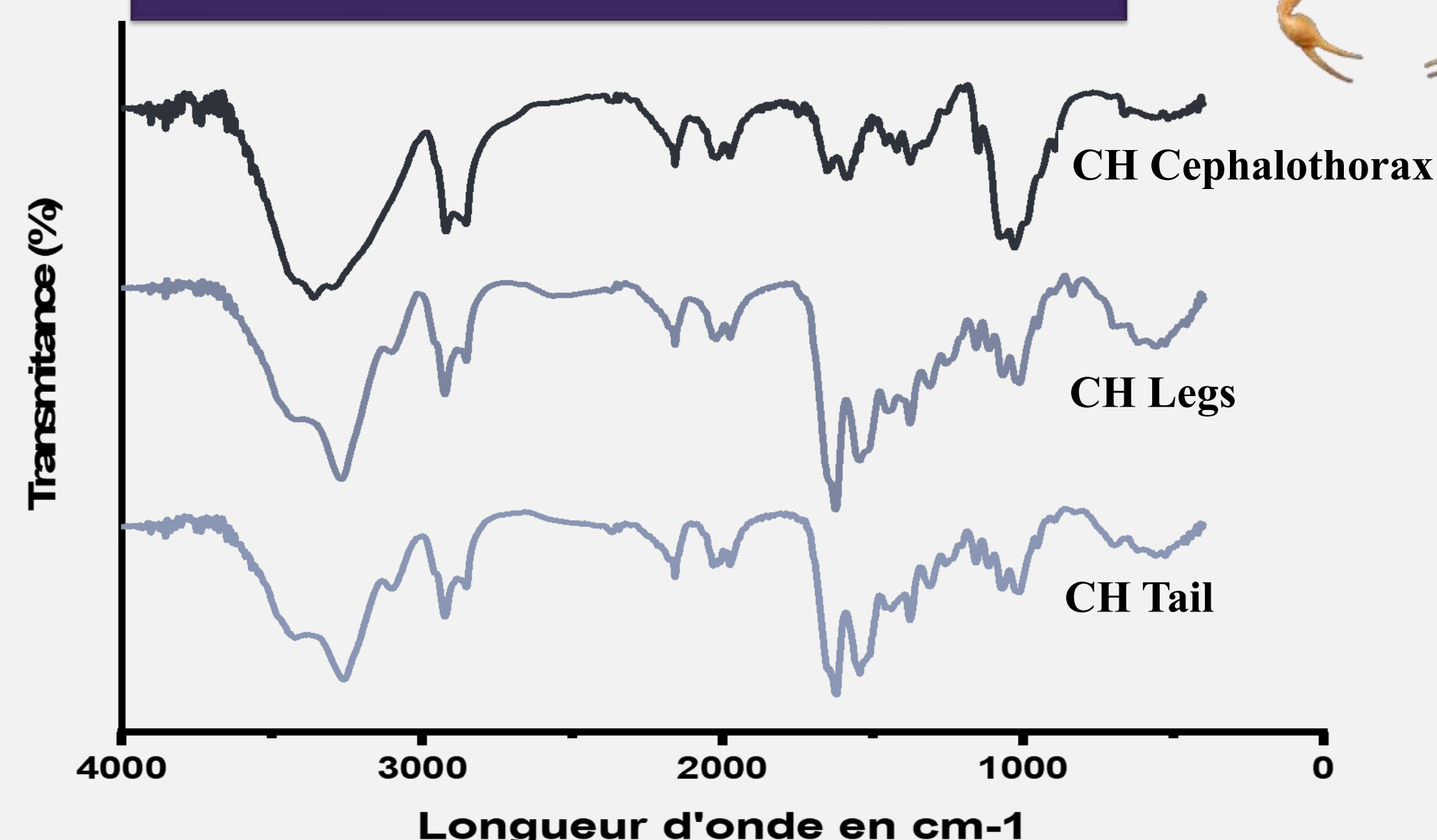
Chitosan, derived from chitin, is a biopolymer with numerous applications due to its physicochemical properties. The scorpion *Buthus atlantis* represents an interesting local source of chitin. This study explores the influence of the morphological part of the scorpion and the N-deacetylation process on the characteristics of the prepared chitosan.

METHOD

Chitin was extracted from the different parts of the scorpion and subjected to N-deacetylation reactions using NaOH (Kurita method) in aqueous solution and KOH (Broussignac method) in anhydrous solution. The resulting chitosans were characterized by FTIR, XRD, SEM, and proton NMR analyses.



RESULTS & DISCUSSION



Morphological part	Characteristics of the starting chitins				Chitosan						
	Chitin content %	Mv g/mol	Icr	Form of chitine	Desacetylation						
					Broussignac 4h			Kurita			
					Yield %	Mv g/mol	DA %	Duration	Yield %	Mv g/mol	DA%
Tail	18,3	450 400	54	α	74,7	78 988	9	12h	70,3	191 542	10
Cephalothorax	16,5	1 169 200	42	α	64,7	218 690	6	4h×3	65,7	273 757	7
Legs	24	745 338	50	α	69,4	125 617	15	4h×2	71,2	134 963	14

CONCLUSION

From now on, it is possible that the morphological parts of the scorpion provide chitosans with controlled characteristics, depending on the intended application.

REFERENCES

- Tolaimate, A., Desbrieres, J., Rhazi, M., & Alagui, A. (2003a). Contribution to the preparation of chitins and chitosans with controlled physico-chemical properties. *Polymer*, 44(26), 7939–7952. <https://doi.org/10.1016/j.polymer.2003.10.025>
- BROUSSIGNAC, P. (1968). Un haut polymère naturel peu connu dans l'industrie, Le chitosane. (*Chim. Ind.*).