

EXTRACTION OF HYALURONIC ACID AND CHONDROITIN SULFATE FROM MARINE BIOMASS USING DEEP EUTECTIC SOLVENTS

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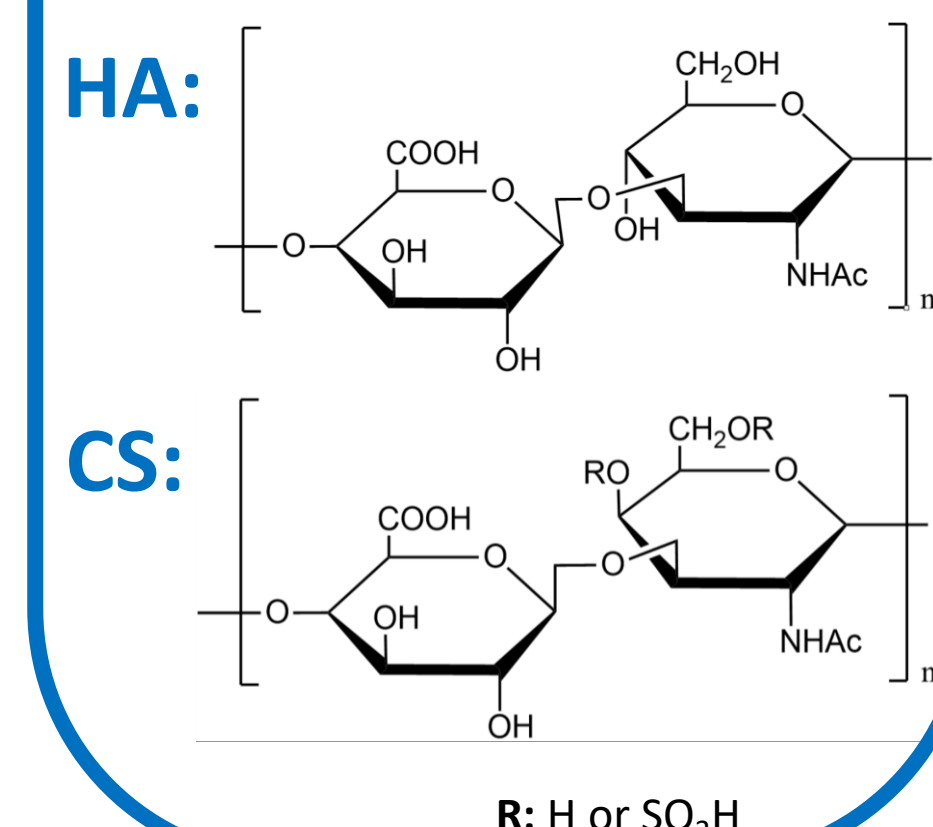
BACKGROUND

Deep eutectic solvents (DES) are prepared by heating and mixing two components at a specific molar ratio leading to a solvent with a lower melting point than that of the components used. DES are **novel, low-cost and green solvents** with simple production **for high purity extraction** applications to replace the use of time-consuming expensive conventional methods [1].

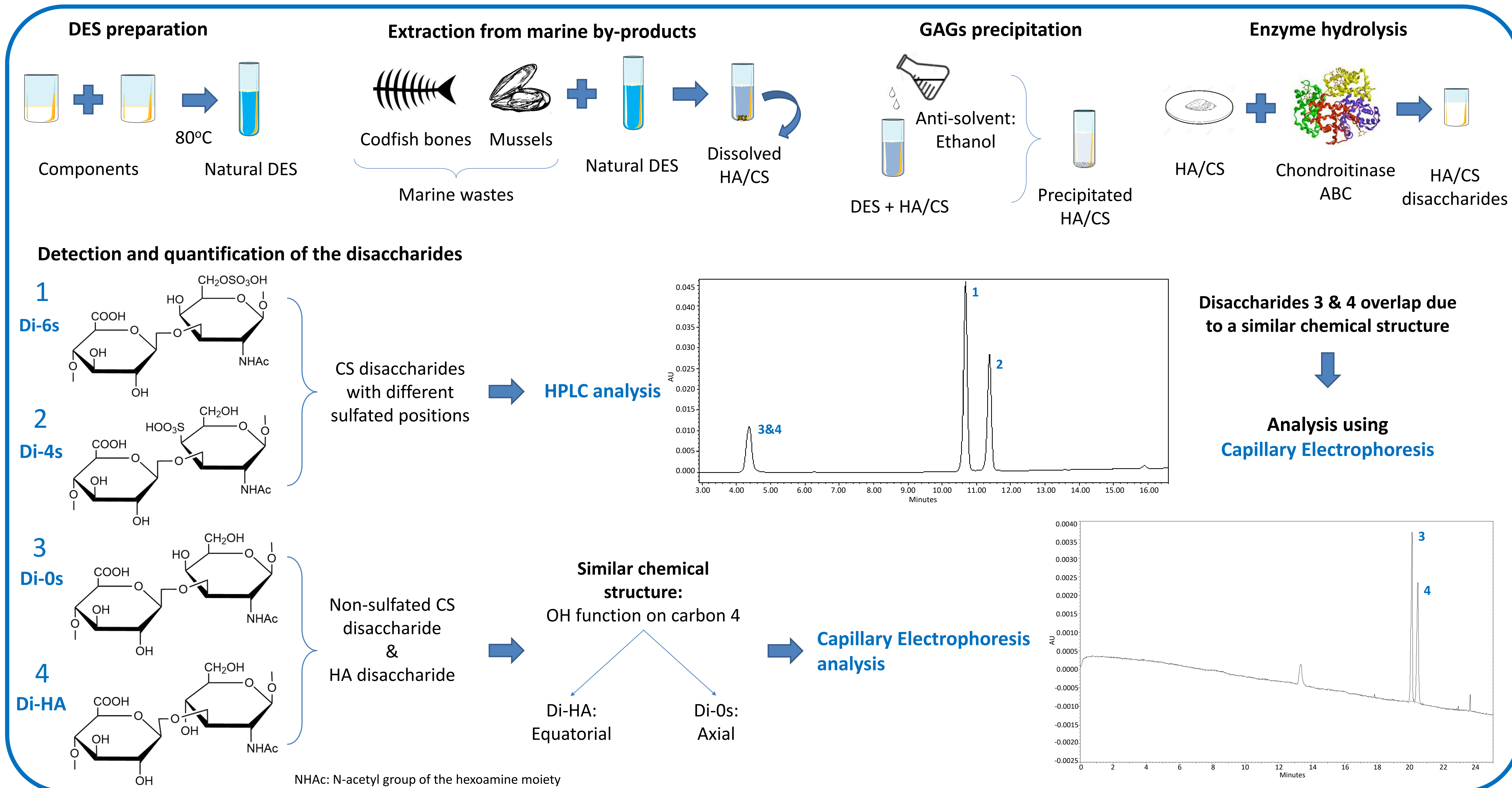
The extraction of bioactive polymers from **marine by-products** as a cost-effective and abundant sources is highly investigated due to its **economical and environmental benefits**. Glycosaminoglycans, including **hyaluronic acid (HA)** and **chondroitin sulfate (CS)**, are polysaccharides used in **medicine, biotechnology and cosmetics** due to their **biocompatibility, viscoelasticity and immunostimulatory effects** [2]. Thus, it is essential to extract HA and CS **using natural green DES** while maintaining their **high quality and purity** to perform optimum exploitation of marine wastes.

AIM

HA and CS isolation from codfish bones and mussels using terpene based-DES.



METHODS



RESULTS

	Concentration in codfish bones (µg/g raw material)			
	DES 1	DES 2	DES 3	DES 4
Di-6s	14.0	21.9	32.3	-
Di-4s	37.9	49.6	40.6	54.4

	Concentration in mussels (µg/g raw material)			
	DES 1	DES 2	DES 3	DES 4
Di-6s	33.4	31.2	10.6	56.7
Di-4s	37.2	47.6	-	63.0

CONCLUSION

DES are effective compounds for the extraction of valuable biopolymers HA and CS. The isolated HA and CS are quantified using HPLC and Capillary Electrophoresis. Terpene based-DES are shown to be promising DES combinations for HA and CS extraction.

REFERENCES

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- [2] Kovensky J, Grand E, Uhrig ML. Applications of Glycosaminoglycans in the Medical, Veterinary, Pharmaceutical, and Cosmetic Fields. *Ind Appl Renew Biomass Prod.* 2017;135-64. doi:10.1007/978-3-319-61288-1_5.