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Title: Optimisation of the extraction and purification of chondroitin sulphate from head by-products of Prionace glauca by environmental friendly processes.

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Abstract: The goal of the present work was to optimise the different environmental friendly processes involved in the extraction and purification of chondroitin sulphate (CS) from Prionace glauca head wastes. The experimental development was based on second order rotatable designs and evaluated by response surface methodology combined with a previous kinetic approach. The sequential stages optimised were: 1) the enzymatic hydrolysis of head cartilage catalysed by alcalase (55.7°C/pH 8.2); 2) the chemical treatment of enzyme hydrolysates by means of alkaline-hydroalcoholic saline solutions (NaOH: 0.54 M, EtOH: 1.17 v, NaCl: 2.5%) to end the protein hydrolysis and to precipitate and selectively redissolve CS versus the peptidic material and 3) the selective purification and concentration of CS and the concomitant protein permeation of extracts which were obtained from previous treatment using ultrafiltration and diafiltration (UF-DF) technologies at two different cut-offs.