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PhD project title: Development of biomimetic and biobased products for aesthetic medicine

Research summary: This project is based on the use of polysaccharides and macromolecules extracted from fish waste to produce biomedical and cosmetic products. The project will involve in extractive study and the realization of formulations based on protein/polysaccharides able to form stable biomimetic structure traceable to normal extracellular matrix of skin tissue. These structures will be formed by polyelectrolyte associations in aqueous solutions, avoiding the use of organic solvents, toxic crosslinkers and use of low temperature for extracted method, using mainly dynamic physical interactions. The formulation study will cover preparations for wound healing application, comparing functionality, structure, stability, potential application and possible industrial scalability, safety and effectiveness of treatment. The evaluation will be done about result obtained from in vitro, ex vivo and in vivo studies, respecting the principles of 3R.

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