DEVELOPMENT OF A MARINE COLLAGEN HYDROGEL FOR 3D PRINTING

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The development of biosourced materials compatible with 3D printing holds promise for innovative biomaterials and addresses both medical and environmental matters. Our study aimed at assessing the potential of pure marine collagen formats from a fishing industry byproduct as a matrix for bioink formulation. Both native and denatured formats of fish skin collagen were studied as candidates for 3D printing of an organ shaped construct. Hydrogels were prepared and their rheological properties assessed. They were printed using a simple mechanical extrusion 3D printer at low temperature to prevent the denaturation of the native collagen. Proof of concept was successfully obtained and a short overview of the opportunity of complementary crosslinking of the hydrogels unlocked new perspectives for the development of bioinks.

Biography

Mathieu Loste Berdot has completed his Engineering Degree in Polysaccharides and Biomaterials Science from the International School of Paper, Print Media and Biomaterials of Grenoble National Polytechnic Institute and received a Double Degree in Chemical Engineering from KTH Royal Institute of Technology, Stockholm. He is a PhD student working with the University Grenoble Alpes Institute and the New Zealand Institute for Plant and Food Research Ltd on the development of a marine collagen scaffold cross-linked with nano cellulose for 3D printing and tissue engineering.

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