# Title: 3D Printed Levan Scaffolds for Cardiac Regeneration

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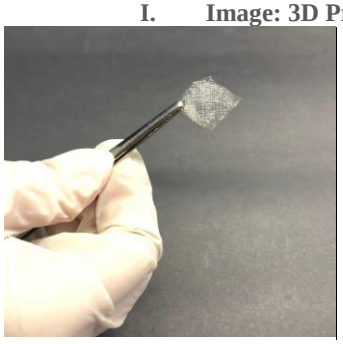
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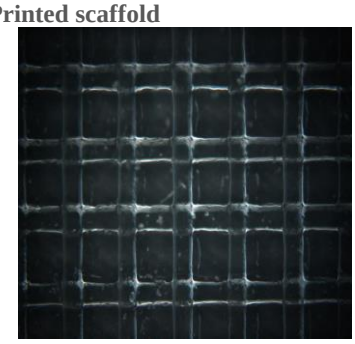
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**Keywords: Halomonas levan, glycan, 3D bioprinting, scaffold, cardiac tissue engineering**

There is a clear need for novel scaffolds in cardiac tissue engineering due to the current problems such as deficit of donor tissues, immune rejection, anticoagulation therapy, and limited durability of vascular implants. Recent advances in this field have applied 3D bioprinting as an advanced fabrication technique to produce biocompatible materials, cells and supporting components with great promise for artificial organ printing and regenerative medicine applications (Duan, 2016, Li et al., 2014). Glycans like alginate and cellulose are commonly used for cardiac tissue engineering applications. As such, levan polysaccharide has been gaining escalating attention due to its distinguishing properties like high biocompatibility, strong adhesively and amphiphilic nature (Öner, Hernández and Combie, 2016). Levan is a fructose based homopolysaccharide, a fructan, and the sulfated derivative of levan produced by *Halomonas smyrnensis* cultures, *Halomonas* levan, has been shown to be a very promising biomaterial for cardiac tissue engineering applications (Gomes et al., 2018, Erginer et al., 2016). This study aims to elucidate the potential of *Halomonas* levan sulfate as a biomaterial in 3D bioprinting technique for cardiac tissue engineering purposes. For this, glycan-based scaffolds were produced with levan and other glycans such as alginate and the scaffolds were characterized comprehensively for their morphological, mechanical, surface and biological properties.

## I. Image: 3D Printed scaffold





## II. Reference:

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## III. Biography:

Edina Eminagic is 26 years old master student at Bioengineering Department, Marmara University, Istanbul, Turkey. She finished bachelor at Genetics and Bioengineering Department of International University of Sarajevo, Bosnia and Herzegovina. She is now doing her reseach in the area of tissue enginnering as a part of the team of Industrial Biotechnology and Systems Biology Lab.

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