

**Guðný Eygló Baldvinsdóttir****MS-ritgerð:** Optimization of antimicrobial chitosan coating for silicone

Höfundur: Guðný Eygló Baldvinsdóttir fæddist þann 12. nóvember 1994 í Reykjavík og ólst upp á Siglufirði. Hún er dóttir hjónanna Baldvins Steinars Ingimarssonar og Hrefnu Katrínar Svavarsdóttur. Guðný lauk stúdentsprófi af heilbrigðisfræðisviði við Menntaskólann á Akureyri vorið 2014 og hóf nám í Lyfjafræði haustið 2015. Á meðan námstímanum stóð starfaði hún sem sumarstarfsmaður hjá Siglufjarðarapóteki og sem aðstoðarlyfjafræðingur í Apótekanum Austurvegi. Eftir útskrift mun Guðný starfa sem lyfjafræðingur hjá Apótekanum.

Stuttur útdráttur úr ritgerð: Implant related infections are a significant healthcare issue that contributes to the current increase in nosocomial infections. The most effective way to counter implant-related infections is to prevent them from happening in the first place. This can be achieved with antibacterial, biocompatible coatings that resist bacterial adhesion, colonization, and biofilm growth.

The current project focused on developing antimicrobial coatings, based on chitosan, for silicone elastomers, a common material in implants and other medical devices. Chitosan is a natural amino polysaccharide that is both antimicrobial and biocompatible, ideal qualities for a coating agent.

The motivation for this study was previous work done under the supervision by Professor Már Mátsson. The new coating procedure gathered from that work were optimized and its efficiency confirmed with ninhydrin assay. The coating's chemical structure was studied with FT-IR spectroscopy. A new possible way to activate the silicone surface was also tested with good results.

Another aim of this study was to develop an assay to measure bacterial contamination of silicone elastomers to investigate antimicrobial properties of coated surfaces. An ideal method was found but has yet to be tested on coated material.