

# SUSTAINED RELEASE OF LIGNIN MODEL COMPOUND DEHYDROGENATE POLYMER (DHP) FROM ALGINATE BEADS

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○ **OBJECTIVES:** In our previous work, we have shown that synthesized DHP has antibacterial and antibiofilm properties, and in combination with alginate has good potential for wound treatment. The objective of this paper was to study the sustained release of DHP from low and medium viscosity alginate beads.

○ **RESULTS:** Figure 1 shows release profiles of DHP from low and medium viscosity alginate beads. Low viscosity alginate showed slightly faster DHP release (~5%) compared to medium viscosity beads. After an initial burst release in the first hours, microbeads allowed slow and continuous release of DHP. After 24 hours 35% (for low) and 40% (for medium viscosity alginate) of entrapped DHP was released, suggesting that the time of monitoring should be prolonged. Fitting experimental data into different mathematical models for drug release kinetics, the highest value of correlation coefficient ( $R^2$ ) was obtained for the Korsmeyer-Peppas model. The  $n$  value was smaller than 0.5, indicating that the DHP release can be characterized as quasi-Fickian diffusion.

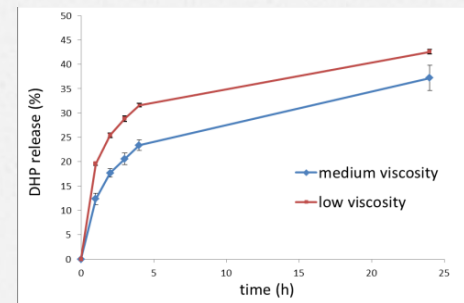


Fig. 1. Release profiles of DHP from alginate beads (low and medium viscosity)

○ **CONCLUSIONS:** The obtained results showed that alginate beads could be suitable for sustained DHP release. Prolonged release of antibacterial compound is beneficial for maintaining antimicrobial capacity, so it can be concluded from this study that DHP- alginate beads have good potential as chronic wounds healing agent.

