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České Budějovice, January 27, 2020

Supervisor's Assessment of Lorenz Karl's Bachelor's Thesis "Characterization of the Recombinant Proteins SER 3 and BARN".

The bachelor thesis of Lorenz Karl is a part of our project on research of bioadhesives and silk proteins. A few years ago, we described a number of lepidopteran silk proteins in several species and found that some of them have strong bioadhesive properties. The work of Lorenz is the first attempt to produce one of these proteins in bacterial expression system and characterize it. Lorenz also expressed a cement protein from a barnacle as a control. Lorenz optimized the production of both adhesives in *E. coli LE21*, verified their sequence using mass spectroscopy, isolated sufficient amounts of these recombinant proteins for tests of their ability to adhere to hydrophobic Petri dishes and examine, whether the coated dishes can support growth of adherent cells *in vitro*.

Lorenz mastered a number of basic methods of molecular biology - including bacterial transformation, protein electrophoresis, measurement of protein concentrations, insect tissue culture etc. His results confirm that both of the recombinant proteins, *B. mori* sericin 3, as well as barnacle cement, can serve as good supports for the growth of adhesive cells in culture. His work is a result of honest effort and takes our research on bioadhesives a step further.

Lorenz is a nice and quiet person, who always very friendly and communicative. He showed a lot of patience while optimizing the bacterial expression. His work meets the demands placed on quality bachelor thesis and I recommend it for defense.

Michal Žurovec