



Přirodovědecká
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Faculty
of Science

Jihočeská univerzita
v Českých Budějovicích
University of South Bohemia
in České Budějovice

Supervisor's opinion on bachelor thesis

Author of the work: Jan Tlačil

Title of the work: DETERMINATION OF POLYOLS IN *BOMBYX MORI* LARVAE BY GC-MS MEASUREMENT

Supervisor department: Biology Centre of the Czech Academy of Sciences, Institute of Entomology, Laboratory of analytical biochemistry and metabolomics, České Budějovice

Jan Tlačil performed experiments in the framework of his bachelor's work in the Laboratory of analytical biochemistry and metabolomics, Biology Centre of the Czech Academy of Sciences, Institute of Entomology, České Budějovice. But its environment he has already recognized as an enthusiastic secondary school student many years ago, during his successful work in the field of chemistry (SOČ, Secondary Schools Specialized Competition, he took second place in the regional part).

The first experiments of his bachelor thesis he has done already in March 2017. The original aim of his work was, compared to the lengthy two-stage derivatization used in our laboratory for years, to develop a simpler yet robust method of silylation of polyols in insect samples. The student tested several different silylation reagents and procedures, looked for the most suitable derivatizing vessels, vials, solvents and reagents, as he faced dirty blanks. He helped our laboratory by testing different ways of modifying used vials and found an optimal procedure to minimize the occurrence of undesirable peaks in blank samples (silylation and warming at 450°C for two hours). Unfortunately, during the experiments, it turned out that developing a completely new, shorter, less laborious and robust method is not possible during the bachelor thesis. That is why we have changed the subject in agreement with the head of the laboratory, we have suggested to partially validate the existing method for another type of insects than that had been studied in the previous years. Jan has done a lot of experimental work, spent many days in our lab about last year's vacations. He developed the calibration dependencies of the studied substances in water and after addition to real insect extracts. Because of the different contents of the individual polyols, the GC-MS method had also to be optimized. We were looking for the optimal masses for each substance and emission current for abundantly occurring substances. Jan was hardworking, diligent, always

prepared, he worked with great interest and thoughtfulness. Unfortunately, due to study responsibilities, it was not possible to process a large amount of data until the spring of this year. The processing of large data obtained by two used method was very comprehensive. During his work, Jan proved the ability to successfully work with literature, to choose the essentials in the text.

Obviously, we underestimated the time-consuming nature of writing, therefore the thesis suffers from shortcomings that the reviewer describes in his statement. Despite a number of legitimate reviewer' objections and comments, I believe that the student has mastered the work on experiments and data processing excellently, and mistakes in his written work do not prevent him from successfully defending his bachelor thesis. I recommend the thesis for the defence.

In České Budějovice,

13 June 2018

Helena Zahradníčková

