

## Dissertation review

The following referee report was written on the basis of the assignment issued by doc. Ing. Petr Hlavacek, CSc, the dean of the Faculty of technology, Tomas Bata University in Zlin, Czech Republic. The doctoral dissertation, entitled "Planar articles for technical, biomedical and therapeutical applications" was submitted by Ing. Karin Novotna. The thesis supervisor was Prof. Ing. Lubomir Lapcik, Ph.D.

The dissertation is written in English, unfortunately its standard is quite low. The text comprises 149 pages altogether, divided into four main parts. The first part, entitled „Introduction“ reviews the history and economy connected to technical textiles. This short (ca. 5 pages only) part of the thesis provides very general information. At the end of the chapter, the aims of the experimental works are outlined. The experimental section of the dissertation is divided into three chapters with the structure resembling the structure of a scientific paper. Unfortunately, the text is often interrupted by the pages describing the theory of the used methods. For example, on p. 30-31 the synthesis of methacrylated HEMA polymer is described, then (p. 31-35) elementary theories of lyophilization and NMR are included, followed by the recipe for buffer preparation on the same page. Similar illogical text order can be found throughout the dissertation, which makes it difficult to read. Some information provided is inaccurate and/or too trivial – what is the point to state that e.g. „...real concentration was diluted, “Ethanol ... is one of the alcohols that is most often found in alcoholic beverages“ (I prefer other alcohols not to be there), ... zeta potential is almost negative or „potassium chloride is a metal halide composed of potassium and chlorine“? Sometimes, this problem can be found in the conclusion summarizing the results obtained by the author – e.g. „The measurement on UV VIS spectrometer determined that absorbance increases with increases solution concentration“. One wouldn't expect the opposite behaviour. A greater care should have been paid to the style of Figures and graphs. Some imperfections are probably caused by computer problem during the thesis printing (e.g. 1.18-1.24) but what about e.g. Fig. 3.19 or 3.22? The legends to figures are not satisfactory throughout the dissertation, as these should be standalone, i.e. understandable without the necessity to read in the main text.

### Questions:

1. In Fig. 2.2. the scale in the SEM picture is missing. Can you present this?
2. Which cellulose derivative you consider as most useful one for wound healing dressing application based on the basic physicochemical and physical property you determined?

Despite language, style and typographic imperfections it is obvious from the dissertation, that the author performed numerous original experiments using a wide range of techniques and evaluated their results in a satisfactory manner. The results were presented on international conferences. In conclusion, although I have reservations the submitted dissertation fulfills the criteria required and therefore, in accordance to relevant legal regulations (Law No. 11/1998, §44) I recommend the submitted doctoral dissertation to be defended.



Olomouc, May 17, 2011

Doc. RNDr. Tatjana Nevecna, CSc.