Name: Ing. Jan Hadrava Date: 03.06.2015

Opponents report

Type of thesis:	Bachelor thesis
Thesis title:	Cork waste for removal from aqueous solution
Written by (author):	Daniel Cava Barrocal
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Opponent:	Ing. Jan Hadrava

Summary:
In the introduction the student acquaints reader with the issue of content of metals and metalloids in water and their impact on the environment. The basic remediation methods, benefits, effectiveness and cost are discussed. Furthermore, the student discusses the use of biosorption as a remediation method. The student introduces suitable biosorbents, assessing the influence of the origin and processing of the materials on the sorption behavior of the final product. Afterwards copper and chromium and their use in industry, the impact on the environment and humans, and the possibility of their removal are discussed.
In Chapter 3 the experimental part is described, summarizing the properties of cork and biochar, the methodology of its processing and the experimental and analytical methods used in the study. The student discusses the results and impact of the fundamental conditions on sorption behavior of copper and chromium. In particular the influence of pH, particle size of the biosorbent and type of the biosorbent including comparison between theoretical kinetic models and the experimental results.
The bachelor work is well arranged, comprehensive and compliant with the assignment.

Comments:

- no incremental numbering of references
- Tab. 1, the type of biosorbent should be given for each value of the specific surface area
- Tab. 2, what is the rest up to 100% in the composition of cork, percentages are mass or molar?
- Page 18, ultrapure water is too simple term, better is indicate conductivity of water
- Why the two different particle sizes of cork were studied? It is not in assignment.
- Conclusion: Why Langmuir model does not fit the experimental data of Cr(VI) biosorption?

Final report: I evaluate this work as an excellent and I recommend it for the final defense.