



## **APLIKACE ELEKTROCHEMICKÝCH METOD PRO STANOVENÍ FYZIOLOGICKY ZAJÍMAVÝCH LÁTEK**

Submitted by **RNDr. Jan Hrbáč, Ph. D.**

“Oponentský posudek habilitační práce”

The habilitation work of Jan Hrbáč is divided into two parts. The first part deals with the “quantification of the overall reactive oxygen species scavenging capacity of biological fluids tissues, and food“. In his habilitation work Jan Hrbáč first introduces that topic in 5 pages and then adds 5 key papers summarizing his achievements in that field. Apparently this research branch was triggered by a 10 month stay of Dr. Hrbáč in the laboratory of prof. R. Kohen at the School of Pharmacy, Hebrew University of Jerusalem, Izrael. There is no doubt that the research described in those papers is of international quality, which might be documented by rather high impact factors of the used journals. The most comprehensive and impressive paper out of those contributions is certainly the publication appeared in *FREE RADICAL BIOLOGY AND MEDICINE* (impact factor 2006 = 5.4) which gathered since 2000 already 33 citations. It is also apparent that Dr. Hrbáč was able to keep this high quality standard in that research branch after getting independent from prof. R. Kohen. Again that statement might be documented by scientometric criteria. The second part of his habilitation work is dealing with “amperometric sensors” for hydrogen peroxide and nitric oxide. The “hydrogen peroxide” part is described in a one page introduction to this topic and one key paper in this field published in the *Journal Electroanalysis* (IF = 2.4). Dr. Hrbáč is in that paper first and corresponding author which documents that this paper is intellectually as well as experimentally “his” paper. In contradiction to the parts described above the “nitric oxide”

part of this habilitation work is described in much greater detail: In about 15 pages Dr. Hrbáč does not only give an overview on the already existing methods, but also gives details on the construction of a microelectrode, development of software for the used potentiostat, pretreatment and modification of electrodes, and the performed in vivo measurements. Here two publications summarizing those achievements are added, and again Dr. Hrbáč is acting there as the first and corresponding author.

In summary Dr. Hrbáč shows that he has built up two different research branches and is able to contribute in both directions on an international level. Apparently, the development of “amperometric sensors” described in his work is exclusively his “own” research field, which in my eyes is a necessary pre-requisite for obtaining the habilitation. In total Dr. Hrbáč is co-author of 17 publications in journals with impact factors, 6 publications in non-impacted journals, and one book chapter.

Concluding there is no doubt that Dr. Hrbáč is fulfilling not only in terms of publications the criteria of needed 20-25 publication for a successful habilitation procedure at the “Přírodovědecká fakulta“ of the University Olomouc, but also is an independent scientist who is able to formulate scientific questions and answer those questions experimentally.

In summary, I strongly recommend to accept the submitted thesis as a part of the habilitation procedure.

Praha, 16.06.2008

Martin Hof