Analytical tasks stemming from therapeutical prospects of electron deficient boron cluster compounds

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The existence, reactions, structures and properties of compounds occurring in nature, and their synthetic analogues are explainable by the idea of two-center two-electron bond. These families contain either electron exact or electron rich building blocks from the viewpoint of electron structure. Electron deficient building blocks have never been found in nature, and exist only in synthetic species. Boron cluster compounds (BCCs) create the most intensely investigated family of species with electron deficient cluster. Their existence has been explained by the accumulation of unique electron deficient bonds, which bind together three boron atoms or, sometimes, their substitutes, in clusters. Pronouncedly electron deficient clusters either determine or substantially affect properties of BCCs, and their prospects. Therapeutical prospects attract the highest attention now, and many compounds with boron clusters are synthesized as candidates for therapeutical uses. These compounds must pass through mandatory studies and checks, which require variety of chemical analyses, identically with other compounds. However, analytical methods do not exist for analyses of compounds with boron clusters. The pieces of knowledge from chiral separation of BCCs prove the dissimilarity of some analytical properties of species with and without boron clusters, and indicate the absence of criteria for the a priori estimation of different analytical properties for compounds with and without clusters. Thus, missing analytical methods cannot be derived from existing knowledge. Analytical research of BCCs motivated by their medical prospects is the best way to preventive elimination some obstacles, which may hamper medical uses of compounds with boron clusters.

Biography
Radim Vespalec has received equivalent to PhD from the Institute of Physical Chemistry, Academy of Sciences of the Czechoslovak Republic, Praha, in 27. He received the scientific degree from Technical University of Pardubice, and the pedagogical Assoc. Prof. Degree from Masaryk University Brno. He is Senior Scientist in the Institute of Biophysics. Web of Science reports his 80 scientific articles and also he has contributed to 3 monographs.

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