



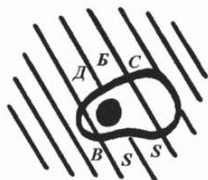
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Regional Biophysics Conference 2012

Kladovo-Belgrade, Serbia

September 03-07, 2012

BOOK OF ABSTRACTS



Organized by Biophysical Society of Serbia



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International Union for Pure and Applied Biophysics



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<http://rbc2012.biofizikasrbija.com/>

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Cyclic voltammetry in diagnosis of ALS

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The diagnosis of amyotrophic lateral sclerosis (ALS) based on ALS functional rating score (ALSFRS) is often shown to be unreliable and false. On the other hand, it is a fact that MRI studies of a brain of ALS patients show the presence of iron deposits in precentral gyruses of gray matter (PGGM), meaning that blood-brain barrier is compromised. Therefore, various studies have been performed with the goal to detect excess of iron in the cerebrospinal fluid (CSF) of ALS patients (e.g. EPR detection of ·OH radicals as products of Fenton reaction after supplementation of H₂O₂ to the CSF). Unfortunately, no acceptable correlation could emerge, probably caused by the presence of a range of iron complexes in CSF. Therefore, a different approach to detect iron states in CFS is required. The aim of this work was to determine if there is a specific feature in CSF that distinguishes patients with ALS from those with purely motor peripheral neuropathy (PN) and healthy control subjects. CSF obtained from ALS patients and normal controls were analyzed using the technique of cyclic voltammetry. The results show that, at potential of 1.1 - 1.2 V vs. Ag/AgCl electrode, for the ALS patients, the plateau appeared and the potential of oxygen evolution was shifted toward more positive values. These voltammogram features were not present for the control patients. The cyclic voltammetry is fast and inexpensive technique and showed to be promising candidate for evaluating new biomarkers for ALS.