

## SYNTHESIS AND PROPERTIES OF NOVEL COENZYME-Q DERIVATIVES OBTAINED FROM COENZYME Q-0

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Coenzyme Q-0 is an amphiphilic compound that is involved in the biosynthesis of Coenzyme Q-10 (CoQ10). CoQ10 transfers electrons along the ETC and protons across the inner mitochondrial membrane (IMM), while taking a crucial part in the oxidative phosphorylation processes. Our goal was to study the possible reaction of CoQ-0 with NaOH, and to learn about the properties of the new derivatives.

As main instrumental techniques to achieve the prevised goals we explored voltammetry, UV-vis spectrometry, electron paramagnetic resonance (EPR) nuclear magnetic resonance (NMR), and HPLC MS.<sup>1,2</sup> We have found that NaOH can induce cleavage of C-O bond of the metoxy (O-CH<sub>3</sub>) groups located at positions 2 and 3 on the quinone ring in the structure of Coenzyme Q-0. The newly created products have much stronger antioxidant properties than the native Coenzyme Q-0. Upon reduction, the novel derivatives are strong ligands for Ca<sup>2+</sup> and other double charged earth-alkaline cations. The new products obtained via alkaline reaction of Coenzyme Q-0 can be seen as compounds having a double role-antioxidants and metal-ligands. Experiments are in progress aimed to show the effect of the new Coenzyme Q-0 derivatives on living cells.

**Key words:** Coenzyme Q-0, antioxidants, metal ligands, voltammetry.

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