

*Lilyana Vladimirova, Valeri Kochev. A POTENTIOMETRIC ASSESSMENT OF IRON RELEASE DURING THE FERRITIN REDUCTION BY ASCORBIC ACID*

Possibilities for quantitative determination of the iron mobilization connected with the ferritin reduction *in vitro* by exogenous ascorbic acid (Vitamin C) are investigated in the work. The iron-storage protein was incubated with the excess of reductant in aerobic conditions without the presence of complexing agents in the medium. The release of  $\text{Fe}^{2+}$  was let to go to completion and the overall content of the  $\text{Fe}^{2+}$  in the solution was evaluated with the aid of potentiometric titration, using  $\text{Ce}^{4+}$  as an oxidizing titrant. The results suggest a moderate iron efflux under the action of the chosen reducing agent. While such a reduction of the protein mineral core by dihydroxyfumarate greatly contributes to the iron mobilization, the ferritin behavior to vitamin C seems to be different. Although these two compounds possess similar hydroxyl groups, determining their redox and acid-base properties, they differ significantly in structure, which could be the base for explanation of the specificities in their interaction with the ferritin. Potentiometric titration seems to be a reliable tool for the evaluation of the amount  $\text{Fe}^{2+}$  present in the solution as a result of the reduction of ferritin's mineral core.

**Keywords:** Ferritin, Ascorbic acid, Redox reactions,  $\text{Fe}^{2+}$ , Potentiometric titration,  $\text{Ce}^{4+}$ .

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