Full Paper _____ *Thematic Section:* Physico-Chemical Research.
Registration Code of Publication: 13-34-6-130 *Subsection:* Biochemistry.
Publication is available for discussion in the framework of the on-line Internet conference "*Butlerov readings*".
http://butlerov.com/readings/
Contributed: July 7, 2013.

Electro-kinetic properties of chlorophyll in aqueous solutions of 1-, 2- and 3-charged cations

© **Ekaterina Yu. Rodionova**,[1+] **Irina B. Dmitrieva**,[2*+] and **Alexander S. Chukhno**
Department of Physical and Colloid Chemistry. St. Petersburg State Chemical-Pharmaceutical Academy. Professor Popov St., 14. St. Petersburg, 197376. Russia. Phone: +7 (812) 234-11-38.
E-mail: rodionova_e_y@mail.ru, irina@dmitriyev.ru, alex-chuhno@yandex.ru

*Supervising author; +Corresponding author

Keywords*: chlorophyll, electro-kinetic properties, microelectrophoresis, isoelectric point.*

Abstract

By the method of microelectrophoresis research into electro-kinetic properties of chlorophyll aqueous dispersions depending on the adsorption duration and the composition of the aqueous phase (pH, the presence of cations of potassium, sodium, magnesium, iron(II) or iron(III)) has been conducted. Their isoelectric point pH_{IEP} = 3.3 ± 0.1 has been defined. It is established that the effect of singly- and doubly-charged cations corresponds to their charge and the position in the lyotropic series. In the aqueous dispersions of chlorophyll in the presence of these cations there is observed an abnormal dependence of electro-kinetic potential of the ionic strength of the solution. Trivalent iron cations cause overcharging of chlorophyll particles and offset of isoelectric point in the alkaline region as compared to the cations of sodium, potassium, magnesium and iron(II).