Thematic Section: Chemistry of Renewable Natural Raw Materials. **Full Paper**
Subsection: Vegetable Pigments. *Registration Code of Publication:* 10-19-2-1
Publication is available for discussion in the framework of the on-line Internet conference "*Butlerov readings*".
http://butlerov.com/readings/
Contributed: March 29, 2010.

Phytogenous betalaine pigments: isolation, structure and chemical properties

© **Salima T. Minzanova**,[1a]*+ **Vladimir F. Mironov**,[1] **Olga V. Tsepaeva**,[1] **Alexandra B. Vyshtakaluk**,[1b] **Anton Z. Mindubayev**,[1] **Lubov G. Mironova**,[1c] **Genrietta R. Petrova**,[1] **Farida H. Ziatdinova**,[1] **Vladimir V. Zobov**,[1,2d] **Alexandr I. Konovalov**,[1] **Marat S. Gins**,[3] **Valentina K. Gins**,[3] and **Petr F. Kononkov**[3]

[1] *Laboratory for chemical-biological research study. Institution of Russian Academy of Science. A.E. Arbuzov Institute of organic and physical chemistry. Kazan scientific center of Russian Academy of Science. Arbuzov St., 8. Kazan, 420088. Republic Tatarstan. Russia. Phone: +7 (843) 272-73-84. Fax: +7 (843) 273-22-53. E-mail:* [a)] *minzanova@iopc.ru,* [b)] *egrad@hitv.ru,* [c)] *mironov@iopc.ru,* [d)] *zobov@iopc.ru*

[2] *Department of applied ecology. Kazan (Privolzhsky) Federal university. Kremlevskaya St., 18. Phone: +7 (843) 231-53-57.*

[3] *All-Russian scientific-research institute for selection and seed-farming of green crops RAAS p/o Lesnoy gorodok. Moscow region. Odintsovo district, 143080. Russia. Phone: +7 (495) 599-24-42. Fax: +7 (495) 599-22-77.*

*Supervising author; +Corresponding author

Keywords: *betalaine pigments of plants, amaranth, beetroot, spectrophotometry UV-VIS Lambda 35 (Perkin-Elmer), NMR ^{13}C and IR spectroscopy.*

Abstract

The way of isolation of amarantine from *Amaranthus tricolor* plants of the grade "Valentina" has been practiced; the conditions of extraction have been optimized; and the structural features of amarantine have been investigated with the use of modern physical-chemical methods of research (NMR 13C, IR spectroscopy, MALDI TOF). Work on processing plants of amaranth of the new grade "Valentina" has been carried out for the first time, and on the basis of the performed research it is possible to recommend using the plants *Amaranthus tricolor of the* grade "Valentina", as well as table beet root (*Beta vulgaris*), as a potential source of food dye - amarantine, not toxic for the human organism.