Study of Diluted Meldonium Solutions by Surface Enhanced Raman Scattering Spectroscopy

N. Khinevich [1],

S. Zavatski [2],

H. Bandarenka [3],

V. Belyatsky (Foreign) [4],

E. Galyuk (Foreign) [5],

O. Ryneiskaya (Foreign) [6]

2019

1, 2, 3 Applied Plasmonics Laboratory, Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus

4, 5, 6 Foreign (Belarusian State Medical University, Dzerzhinski Ave. 83, 220116 Minsk, Belarus)

Keywords: Surface enhanced Raman scattering, Meldonium, Silvered porous silicon, Micromolar concentration.

Abstract: Silvered porous silicon was utilized as an active substrate for a detection of small amounts of meldonium by surface enhanced Raman scattering (SERS) spectroscopy. We were able to detect the meldonium in its water solutions at the concentrations of 10−2–10−6M. Immersion

of the silvered porous silicon in the meldonium solutions at the 10−4M concentration and lower led to the dimers' formation. At the concentrations larger than 10−3M, a greater contribution to the enhancement of the Raman intensity was caused by a chemical mechanism while the smaller amounts were detected mostly due to an electromagnetic mechanism.

This article published in: Study of Diluted Meldonium Solutions by Surface Enhanced Raman Scattering Spectroscopy / N. Khinevich [and others] // International Journal of Nanoscience. – 2019. – Vol. 18, Nos. 3 & 4. – P. 1940054. – https://doi.org/10.1142/S0219581X19400544.

Internet link to the article:

https://www.worldscientific.com/doi/10.1142/S0219581X19400544.