

A novel technology for automatic testing of the screen printed electrodes

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Screen printed electrodes (SPEs) have been serving as a platform combining electrochemistry and nanotechnology in area of sensors and biosensor for couple of decades. When the current application requires to use miniaturized analyzing system the using of the SPEs is often the choice. Many different concepts and constructs with different materials have been reported [1], however, one may ask a question what is the real potential of this platform? Each analytical method needs to meet one parameter before we can call it “analytical method” and further we can start to compare in between. This parameter is called repeatability. Does the use of the SPEs as a platform suffer from the lack of repeatability? How can we easily estimate the repeatability of SPEs? Manual testing means to carry out hundreds of measurements. This brings many types of unavoidable errors [2].

Since we believe in the future of the SPEs as a platform for sensing and further for robust point of care testing (POCT) and other applications, as environmental or emergency, we designed and successfully tested automatic bench top device for SPEs testing, which is shown below. This platform will be discussed including advantages and further steps in development of this instrument.

References

1. Arduini, F., et al., *Electrochemical biosensors based on nanomodified screen-printed electrodes: Recent applications in clinical analysis*. *Trac-Trends in Analytical Chemistry*, 2016. **79**: p. 114-126.
2. Mohamed, H.M., *Screen-printed disposable electrodes: Pharmaceutical applications and recent developments*. *Trac-Trends in Analytical Chemistry*, 2016. **82**: p. 1-11.

Figures



Figure 1. Fully automatic bench-top device for testing of SPEs driven by a tablet PC with user friendly SW (on left). SPEs in specially designed container preventing scratching of the active side and pins of the SPEs (on right).