

Influence of phytochemically produced gold and silver nanoparticles on PCR efficiency

Ya.V. Pirko, I.A. Danylenko, A.I. Yemets, Ya.B. Blume

*Institute of Food Biotechnology and Genomics, Natl. Acad. of Sci. of Ukraine,
Osypovskogo str., 2a, Kyiv- 04123, Ukraine*

E-mail: yarvp1@gmail.com

Polymerase chain reaction (PCR) is one of the most used method in modern molecular genetics. Also PCR is one of the main tools for diagnostic of many diseases. Therefore, improving the sensitivity and efficiency of PCR is an important task of modern molecular diagnostics and biomedicine. There are some publications that nanoparticles of metal (silver or gold) can influence on PCR. It can be use in biomedical analysis [1, 2]. Among the physical, chemical and biological methods of nanoparticles synthesis the biological method (using microorganisms, cell culture, plant tissue or phytoextracts) is simple and environmentally safe [3, 4].

The silver and gold nanoparticles from solutions of AgNO_3 and NaAuCl_4 using the phytoextracts from plants (*Magnolia denudata* and *M. stellata* and the mix of *Thea sinensis* var. *sinensis* + *Thea sinensis* var. *assamica*) were synthesized. The solutions with obtained during the experiments silver and gold nanoparticles were studied by Raman, FTIR spectroscopy and AFM, TEM. It has been found that the size of silver nanoparticles was 25 -30 nm, and the gold ones - 4-10 nm. It has been found also that an addition synthesized nanoparticles to PCR influences on this reaction. The gold nanoparticles enhanced but the silver nanoparticles conversely reduced the efficiency of PCR.

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