

EPR AND TEM STUDIES OF MAGNETIC NANOPARTICLES IN LIVING SYSTEMS

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The generation of biogenic magnetic nanoparticles in living systems (leaves of various plants, grape snails and laboratory rats) was studied by electron paramagnetic resonance (EPR) and Transmission Electron Microscopy (TEM) methods [1,2,3]. Under the influence of stress factors as a result of the phenomenon of biomineralization, the appearance of magnetic properties was determined in them [4,5]. Thus, it was determined that new paramagnetic centers related to iron oxide nanophase particles were registered in a wide range of magnetic fields under the influence of stress factors in the research objects.

The results obtained were confirmed in TEM experiments, and the resulting magnetic nanoparticles could be observed visually.

References.

1. Nasibova A.N. Formation of magnetic properties in biological systems under stress factors. *Journal of Radiation Researches*. V.7, İ.1, p.5-10. 2020.
2. Aygun Nasibova, Rovshan Khalilov, Mahammad Bayramov, Islam Mustafayev, Aziz Eftekhari, Mirheydar Abbasov, Taras Kavetsky, Gvozden Rosic, Dragica Selakovic. Electron Paramagnetic Resonance Studies of Irradiated Grape Snails (*Helix pomatia*) and Investigation of Biophysical Parameters. *Molecules*. V.28, İ.4, P.1872. 2023.
3. Aygun Nasibova, Rovshan Khalilov, Huseyn Abiyev, Boris Trubitsine, Aziz Eftekhari. Identification of the EPR signals of fig leaves (*Ficus carica* L.). *Eurasian Chemical Communications*. V.3, P.193-199, 2021.
4. Nasibova A.N., Khalilov R.I. Preliminary studies on generating metal nanoparticles in pomegranates (*Punica Granatum*) under stress. *International Journal of Development Research*. Vol.6, Issue 03, pp. 7071-7078.
5. Nasibova Aygun. The use of EPR signals of snails as bioindicative parameters in the study of environmental pollution. *Advances in Biology & Earth Sciences*. Vol.4, No.3, 2019, pp.196-205.