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The unique properties of silver particles are strongly dependent on the size and shape of the nanoparticles, NPs [1]. Ablation synthesis in solution has some limitations in the size control of NPs. So, to have a uniform size distribution at the time of synthesizing the NPs in solution, either by chemical method [2] or by laser ablation [3], has been a problem that is difficult to solve. Among traditional separation methods, centrifugal separation technology has been successfully applied in the separation and purification of different types of NPs [4]. In this report, a simple method is shown to obtain size distribution-controlled spherical silver nanoparticles, Ag-NPs, by repeated centrifugation-dispersion steps, controlling the centrifugation speed. The morphology and surface plasmon resonance for Ag-NPs, were investigated by scanning-transmission electron microscopy, STEM, and UV-Vis absorption spectroscopy, respectively. Meanwhile, the statistics of the size distribution of the separated nanoparticles was taken from the microscopy images using software for particle measurement and data analysis. During this study, the results obtained for each centrifugation stage, their corresponding values for the central peak of the surface plasmon resonance and the percentage of the majority population of NPs report nanoparticles in the range of 11 to 20 nm of diameter. In conclusion, a viable procedure was found for the separation of spherical Ag-NPs by size and therefore a way to standardize nanoparticles size distribution.

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