

To investigate the sensibility effect of the biogenic Ag-NPs toward  $Pb^{2+}$  and  $Cu^{2+}$  metal ions, lead and cupric ions solutions with concentrations of  $10^{-3}$ ,  $10^{-4}$  and  $10^{-5}$  M were added to the Ag-NPs solution. For example, the addition of  $10^{-3}$  M of  $Pb^{2+}$  resulted in a bathochromic shift of the plasmon absorption of 14 nm, from 400 to 414nm; however, with less concentration of the metal ions the shift diminish, from 400 to 411nm and from 400 to 408nm with concentrations of  $10^{-4}$  and  $10^{-5}$  M, respectively. These results are shown in Figure 7