Single crystals of Bi2Se3 doped with Mn (cMn=0 - 3,0.1019 atoms/cm3) atoms were grown using a modified Bridgman method. Prepared samples were characterized by X-ray diffraction analysis, reflectivity measurement in the plasma resonance frequency region, temperature and magnetic field dependences of the transport coefficients (electrical conductivity, Hall constant), by magnetization measurements (measurement of magnetization curves and temperature dependence of molar magnetic susceptibility) and by measurements of specific heat. The measuremens of above mentioned quantities revealed that the incorporation of Mn atoms to crystal structure leads to increase the free electrons concentration as well as mobility of free electrons. Valence of manganese atoms is according to the magnetic measurements Mn2+. These effects are explained on the point defect model, which is based on idea that the Mn impurity creates substitutional defects Mn´Bi and decreases concentration of antistructure defects Bi ´Se at the same time.