We have fabricated a p-Si/Zn$_{0.3}$Ni$_{0.7}$Fe$_2$O$_4$(ZNFO)/CuPc/Au heterostructure and investigated its magnetic field-induced tuning of photocurrent. Under illumination of 660nm laser, photocurrent increases with increase of optical power. With simultaneous application of light and magnetic field, a drastic change in the ratio of photocurrent with magnetic field ($I(H)$) to photocurrent without magnetic field ($I(0)$) is observed for optical power variations at a fixed positive bias. A significant decrease in electrical hysteresis width ($|\Delta I|$) with magnetic field at higher optical illumination is noticed.