THE EFFECTS OF GRAPHENE OXIDE WITH HYDRA PROTEIN ON ZEBRAFISH EMBRYOGENESIS

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Abstract: In this study, we investigated the effects of hydra protein (HP) reduce on toxicity of Graphene oxide (GO) during zebrafish embryogenesis. The HPs were purified from *Hydra magnipapillata*. Particularly, HPs are natural materials and could disintegrate easily after use. The experiment groups were control, GO exposed group (10 mg / L, 100 mg / L), HP exposed group, and GO attached HP (GO-HP) exposed group (GO, 10 mg / L, 100 mg /L) groups. We investigated the toxicity with hatching rate, abnormal rate and abnormal morphologies of zebrafish embryogenesis. GO-HP exposed group was shown decrease the abnormal rate than GO exposed group, however Cortisol concentrations were shown higher (HP exposed group, 430.83±12.84pg/mL; GO exposed group, 449.12±83.99 pg/mL; and GO-HP exposed group, 620.81±234.56 pg/mL) than control group (335.13±13.18 pg/mL).

Keywords: Graphene oxide, Hydra protein, Zebrafish embryogenesis, Cortisol.