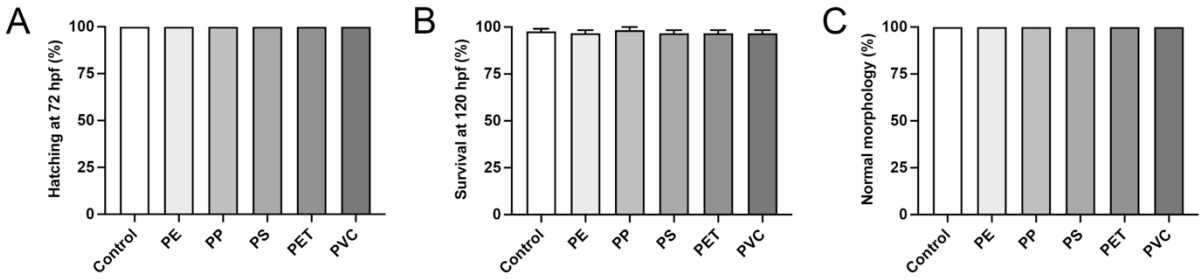
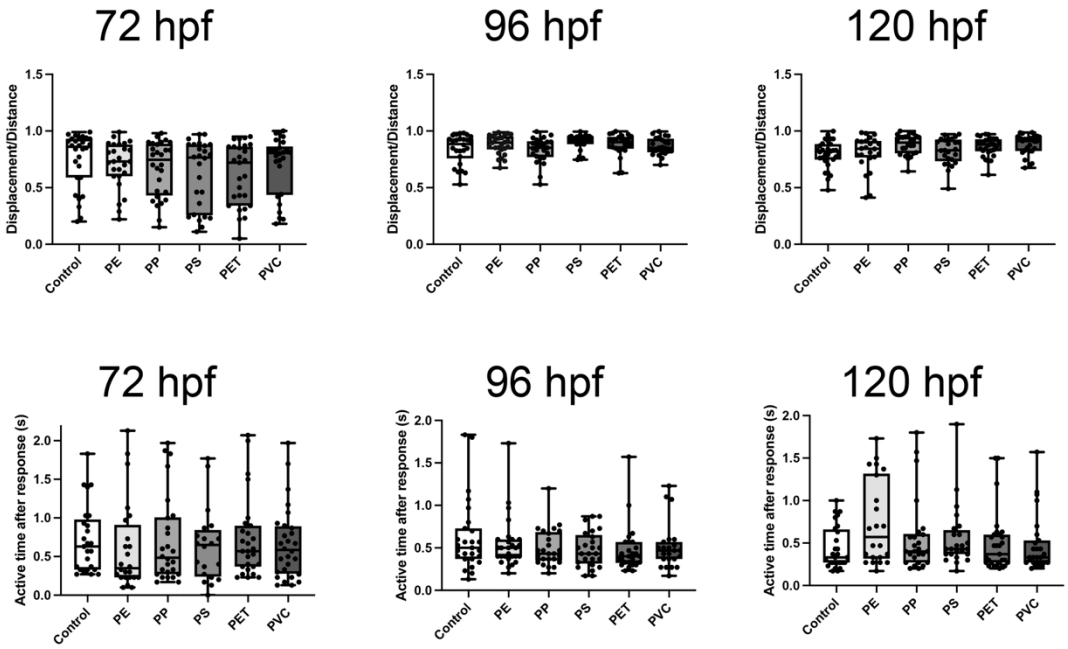


Supplementary Figure 1. Microplastics do not affect zebrafish survival, hatching, or larval morphology. Bar graphs show the (A) proportion of hatched larvae at 72 hours hpf. (B) percentage of survival and (C) the frequency of morphological abnormalities in control and all MP-treated groups (PE, PP, PS, PET, PVC) at 120 hpf. No significant differences were observed between groups at any assessed timepoint, indicating that exposure to these microplastics does not impair early survival or development. Abbreviations: PE, polyethylene; PP, polypropylene; PS, polystyrene; PET, polyethylene terephthalate; PVC, polyvinyl chloride; hpf, hours post-fertilization.



Supplementary Figure 2. After induced response, swimming distance and activity time are not affected by microplastic exposure in zebrafish larvae. Box and whisker plots show total distance moved and active time for control and all microplastic treatment groups (PE, PP, PS, PET, PVC) at 72, 96, and 120 hpf, measured after the touch-evoked response assay. No significant differences were observed between groups at any stage, indicating that microplastic exposure does not alter baseline swimming ability or activity duration. Abbreviations: PE, polyethylene; PP, polypropylene; PS, polystyrene; PET, polyethylene terephthalate; PVC, polyvinyl chloride; hpf, hours post-fertilization.

Table S1. Characteristic FTIR absorption bands (cm^{-1}) used for the identification of selected synthetic polymers. Measured spectra were compared with reference spectra reported by Jung et al. [23], while spectral correlations (r) were determined using the OpenSpecy library with reference datasets from Primke et al. [25] and De Frond et al. [26].

Polymer	Absorption bands (cm^{-1}) used for identification	Reference by Jung et al. [23]	Spectral correlation
Polyethylene (PE)	a. 2915 b. 2848 c. 1472 d. 1463 e. 731 f. 718	a. 2915 b. 2845 c. 1472 d. 1462 e. 730 f. 717	r = 0.99 Primke et al. [25]
Polypropylene (PP)	a. 2949 b. 2916 c. 2837 d. 1452 e. 1375 f. 1166 g. 997 h. 972 i. 841 j. 808	a. 2950 b. 2915 c. 2838 d. 1455 e. 1377 f. 1166 g. 997 h. 972 i. 840 j. 808	r = 0.99 Primke et al. [25]
Polystyrene (PS)	a. 3025 b. 2849 c. 1600 d. 1492 e. 1451 f. 1027 g. 696 h. 537	a. 3024 b. 2847 c. 1601 d. 1492 e. 1451 f. 1027 g. 694 h. 537	r = 0.99 Primke et al. [25]
Polyethylene terephthalate (PET)	a. 1713 b. 1240 c. 1092 d. 723	a. 1713 b. 1241 c. 1094 d. 720	r = 0.99 Primke et al. [25]
Polyvinyl chloride (PVC)	a. 1426 b. 1328 c. 1242 d. 1094 e. 965 f. 611	a. 1427 b. 1331 c. 1255 d. 1099 e. 966 f. 616	r = 0.84 De Frond et al. [26]