

论著

敌敌畏对斑马鱼的遗传毒性和生殖毒性作用表现

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摘要 目的 考察敌敌畏对斑马鱼遗传和生殖毒性作用表现。方法 斑马鱼成鱼分别暴露于敌敌畏0, 0.95, 2.85和4.65 mg · L⁻¹溶液中, 在持续染毒7和14 d后, 测定斑马鱼性腺指数, 显微镜下观察雄鱼精子质膜完整性; 血细胞微核实验测定微核率。结果 染毒7 d后, 与正常对照组相比, 敌敌畏4.65 mg · L⁻¹组斑马鱼的雌性性腺指数、雄性精子数量和精子质膜完整性百分比显著降低($P<0.01$), 血细胞微核率显著增高($P<0.01$); 敌敌畏2.85 mg · L⁻¹组雄性斑马鱼精子质膜完整性百分比也显著下降($P<0.01$)。染毒14 d后, 与正常对照组相比, 敌敌畏0.95, 2.85和4.65 mg · L⁻¹组斑马鱼的雌性性腺指数, 雄鱼精子数量和精子质膜完整性百分比显著减少($P<0.01$), 敌敌畏4.65和2.85 mg · L⁻¹组血细胞微核率显著增高($P<0.01$)。敌敌畏4.65和2.85 mg · L⁻¹染毒14 d组的雌性性腺指数、雄鱼精子数量和精子质膜完整性百分比及血细胞微核率显著高于同浓度7 d染毒组($P<0.01$)。结论 敌敌畏对斑马鱼的遗传和生殖毒性作用及其表现说明斑马鱼有望成为遗传和生殖毒性评价模型。

关键词 [斑马鱼](#) [敌敌畏](#) [遗传毒性](#) [生殖毒性](#) [DNA损伤](#)

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Genetic toxicity and preconception injuries of dichlorvos to zebrafish

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Abstract

OBJECTIVE To investigate the genetic toxicity and preconception injuries of dichlorvos in zebrafish. **METHODS** Zebrafish were exposed to dichlorvos 0, 0.95, 2.85 and 4.65 mg · L⁻¹ for 7 and 14 d. The gonadosomatic index (GSI) in zebrafish was evaluated, the male zebrafish sperm membrane integrity was observed. The blood cell micronucleus rate was determined by micronuclei assay 7 and 14 d after continuous exposure. **RESULTS** Compared with normal control group, the female GSI, the number of male sperm and rate of sperm membrane integrity significantly decreased in dichlorvos 4.65 mg · L⁻¹ group after 7 d, while the red blood cell micronuclei rate increased, rate of sperm membrane integrity significantly decreased in dichlorvos 2.85 mg · L⁻¹ group and no significant difference was observed in dichlorvos 0.95 mg · L⁻¹ group. Compared with normal control group, the GSI, the number of male sperm and rate of sperm membrane integrity significantly decreased in dichlorvos 0.95, 2.85 and 4.65 mg · L⁻¹ groups, the blood cell micronucleus rate significantly increased in dichlorvos 4.65 and 2.85 mg · L⁻¹ groups after 14 d exposure. At the same concentration, the female GSI, the number of male sperm, rate of sperm membrane integrity and blood cell micronucleus rate at 14 d showed a significant difference in dichlorvos 4.65 and 2.85 mg · L⁻¹ groups compared with 7 d. **CONCLUSION** Dichlorvos

扩展功能

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