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Daphnia magna male neonate induced by the easy method using juvenoids has higher chemical tolerance than female counterpart

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We previously reported that the male daphnid *Daphnia magna* induced by methyl farnesoate exposure have higher tolerance to chemical compounds such as potassium dichromate and pentachlorophenol than female. Male neonates are also known to be induced by exposure to juvenile hormone analogs, such as fenoxycarb and pyriproxyfen. In this study, we investigate the chemical sensitivity of male neonates produced by exposure to juvenile hormone (methyl farnesoate) and its analogs. The minimum concentration of fenoxycarb and pyriproxyfen to induce 100% male-reproduction were 600- to 800-fold lower than that of methyl farnesoate. In addition, no reduction of relative reproduction was observed at the juvenoid concentrations in a 24 h exposure producing 100% male progeny. The median effective concentrations (EC_{50}) of potassium dichromate for immobility of male neonates, established by a standardized method for investigating sensitivity to chemicals, were significantly higher (12 - 29%) than that of females at least after 24 h exposure in all the male neonates induced by juvenoids used in this study ($P < 0.05$). Our results demonstrated that the male daphnids induced by exposure to juvenile hormone and its analogs exhibit similar chemical tolerance.