

Impact of triclosan on behaviour and neural development of *Cyprinodon variegatus*

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The study focussed on the effects of triclosan (TCS) exposure on mobility and hearing capacities of *Cyprinodon variegatus* larvae. TCS is an omnipresent antimicrobial and contaminant of aquatic ecosystems, which can act as endocrine disruptor, mainly by modifying thyroid functioning. Larval stages are particularly vulnerable to deleterious effects of endocrine disruptors because of potential impairment of fish development and behaviour. Exposure to TCS was conducted at fertilization of eggs at concentrations likely to be found in the environment: 20, 50 and 100 µg.l⁻¹. The analysis of growth parameters of *C. variegatus* showed no effect of TCS on the fertility of eggs, survival and larval weight. Subsequently, THs concentrations were measured on 15 days post hatching larvae. THs are initially produced as T4 (thyroxine) cells and then converted in the bioactive form of T3 (triiodothyronine) cells. The observed increase of T4 and T3 cells in larvae exposed to 50 and 100 µg.l⁻¹ suggests an increase in THs synthesis as a consequence of TCS exposure. Auditory thresholds of larvae were determined using ABR (Auditory Brainstem Response) technique, and finally larval mobility was measured. For both parameters no significant differences were observed among the three different treatments. Audiograms showed that the auditory system is not yet completely established at 30 days post hatching. However, these results allowed us to consider *C. variegatus* as an “hearing generalist” because this species have a hearing sensitivity lower than 2000 Hz. Regarding locomotion, our result summarized short time experiences targeting only swimming speed, distance and degree of mobility. It would be interesting to expand the behavioural aspects on other parameters of locomotion and integrate *Cyprinodon* reaction to different stress (light or touch). In conclusion, our results require an extensive long-term study on the full life cycle of *C. variegatus*, in order to evaluate the impact of triclosan on neural function and behaviour through several generations.