ORAL COMMUNICATIONS

DEVELOPMENTAL TOXICITY OF DIBUTYLPFTALATE ALONE AND IN MIXTURE WITH SUB-TERATOGENIC CONCENTRATIONS OF ETHANOL: PRELIMINARY RESULTS ON *XENOPUS LAEVIS* EMBRYOS (R-FETAX)

E. Menegola[1], F. Metruccio[2], R. Bacchetta[1], M. Battistoni[1], F. Di Renzo[1]

[1]Dept of Environmental Science and Policy Università degli Studi di Milano, Italy; [2]ICPS, ASST Fatebenefratelli Sacco, Milan, Italy

Phthalates are a family of chemicals that are mainly used as plasticizers to increase the flexibility and durability of plastics like PVC, but they can also be found in adhesives, sealants, and paints. According to their hazard classifications in the EU (REACH and CLP), Dibutylphthalate (DBP) its use is not allowed in most consumer articles because "May damage the unborn child, is suspected of damaging fertility, is very toxic to aquatic life". DBP human exposure and environmental contamination have been reported. Using *Xenopus laevis* as alternative model (R-FETAX protocol), the first aim of the present study was to evaluate stage-dependent embryotoxic effects of DBP, considering lethality, teratogenicity and neurobehavioral development (swimming test). R-FETAX was applied, selecting three exposure windows: i) whole test period (from early gastrulation-Nieuwkoop-Faber stage NF 10- to tadpole- NF 46), ii) gastrulation-organogenesis (NF 10-40), iii) neuron migration/innate neuromotor reaction (NF 40- 46). DBP concentrations (0- 5- 10- 15- 30 µg/mL) were selected based on the literature and previous in home range-finding tests. Considering that complex mixture exposure represents the real-life consumer scenario, the second aim of this work was to evaluate mixtures of DBP (0- 5- 10- 15- 30 µg /L) and ethanol (0.1%, dose described as not-effective for X. laevis development) throughout the entire test period (NF 10-46). Data were modelled using the PROAST software package (www.proastweb.rivm.nl). Results suggest that DBP induces dose- and stage-dependent changes, with teratogenic effects in groups exposed during organogenesis (typically head abnormalities) and neurobehavioral (altered swimming pattern) effects in groups exposed at NF 40-46. Co-exposure to DBP and ethanol exacerbated this complex phenotype, highlighting the need for further mechanistic investigations.

ORAL PRESENTATION