SUMMARY

EVALUATION OF THE ENDOCRINE DISRUPTING CHEMICALS CONTAMINATION IN THE NORTH SEA PORPOISE POPULATION

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During the last decades, the production endocrine disrupting chemicals reached such levels that they are now spread all over nature. They are known to be very slowly degraded, decreasing the environmental quality and posing ecological risks. Marine mammals inhabiting polluted environments accumulate high levels of these chemicals, so they can be considered good indicators of marine pollution.

Thirteen major organochloride pollutants were chosen to make subject of this study: o,p'-DDD; p,p'-DDD; p,p'-DDE; o,p'-DDT; p,p'-DDT; HCB; α-HCH; β-HCH; γ-HCH; δ-HCH; PCB 138; PCB 153 and PCB 180.

All these chemicals will have their endocrine disrupting effects characterized individually and collectively by report gene expression assays. The MCF7-ERE cells used in these assays were produced in the Molecular Biology and Genetic Engineering Laboratory of the University of Liège and are originated from a human mammary carcinoma. They carry a gene expressing the synthesis of luciferase and controlled by oestrogen receptors.

Then, the thirteen chemicals will be searched in the blubber tissues of porpoises by the use of gas chromatography-mass spectrometry. The blubber samples will also have their endocrine disrupting effect characterized.

For the moment, the estrogenic effects of the HCH isomers were put in evidence:

Agonist and antagonist effects observed for HCH isomers

Compound	Agonist effect	Antagonist effect
α-HCH	+	+++
β-HCH	+	++
γ-HCH	+	++
δ-HCH	++	+++

+, slight; ++, medium; +++, strong.

The next steps of this work must be soon accomplished. It is expected a great level of these compounds to be found in the samples. On the other hand, their endocrine disrupting effects and how they act in agonist, antagonist and synergist ways are subject that still needs to be cleared.

Once the present study arrives to its end, these interesting and original questions will be able to be answered.