Reviewer’s report

Title: Estrogen-like activity of seafood related to environmental chemical contaminants

Version: 1  Date: 13 October 2005

Reviewer: Eva Cecilie Bonefeld-Jorgensen

Reviewer’s report:

General

The reported study compare the estrogenic activity in tissue extracts of edible marine organisms in different areas of the Mediterranean Sea (Tyrrenian and Adreatic Sea) in samples collected 2004. The estrogenic activities are assessed by transactivation of the human estrogen receptor (ER) using the reporter gene Yeast strain RMY326 ER-ERE). The activity was compared to PCB determined in the tissue extracts. The aim of the study to evaluate the exposure of edible marine species to estrogen-like chemicals and compare the activity to PCBs being international markers of sea contamination is relevant and well defined.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Method section page 5 last line and page 6 last line: Evaporation of the samples must be described in detail since it is known that a stream of inert air such as N2 protect the compounds – is that used?

Concerning the chemical analyses page 6, 2nd last line from the bottom: Fat was extracted---the protocol should be described; page 7 line 4 – the protocol for activation of Florisil should be given and it also might be discussed that it is a raw fat extract where possible endogenous hormones still are present.

Page 6: The β-galactosidase induced dose-response curves (sigmoid and the log transformed linear dose-response relationship should be shown).

Result and Discussion section: In addition to determination of the agonistic estrogen-like activity in the tissue extracts (representing 64% of the samples) parallel co-exposure to 17β-estradiol could give important information about possible antagonistic potential of the samples. Should either be performed or discussed since antagonistic activities have as well the potential to exert hormone disrupting effects.

Page 10, sentence line 12-13: Clarify how it was assessed/calculated that in samples with estrogenic activity > 10% of E2 predominantly were represented with the mixture of PCB28, 101, 153 and 180

The expected level of endogenous estrogen activity contribution to the actual estrogen-like determined activity must be discussed, and whether it might differ in the different species.

Page 10, last section: How was the predicted response calculated according to the individual content of PCBs measured in each sample? – must be described.
Estrogenic activity and species: A comparison of the estrogenic activity in the same species from the two habitats should be compared statistically, and described.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Background Page 3, line 14: The twelve dioxin-like and seven ICES marker PCB congeners should be introduced in the text.

Page 14 second section: References to studies performed at the Faeroe Island concerning prenatal and neonatal exposure to PCB and neurobehavioral effects must be introduced. Moreover, the AMAP report reference could be given for studies evaluating effects upon consumption of PCB contaminated in the arctic e.g. AMAP, AMAP Assessment 2002: Human Health in the Arctic. Arctic Monitoring and Assessment Programme (AMAP), Oslo, Norway., 2003. (http://www.amap.no) - Publications online: (DEFINITIVE_POPS6.pdf)(ISBN 82-7971-016-7): p. xiv+137pp.

Page 12: The postulated scientific evidence for links between chronic exposure to chemicals and reproductive and reproductive health in animals need a reference as well as the following discussion concerning bioaccumulation in human ands possible health effects.

Page 3 line 5: Also dioxins should be mentioned as a potential EDC.
Page 6 second section first line: Z-buffer should be defined

Legend Figure 2: the n values for the two sampling habitats should be given

The heading to Figure 3 and 4 should include the habitat name.

Table 2: The concentrations of the individual PCBs should be given.

Figure 5 and 6: The title of the Y axes should include % of 10nM E2

Discretionary Revisions (which the author can choose to ignore)

**What next?:** Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interest