



UNIVERSITY OF GOTHENBURG



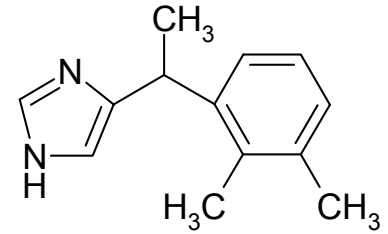
Toxicity and bioaccumulation of medetomidine in marine fauna

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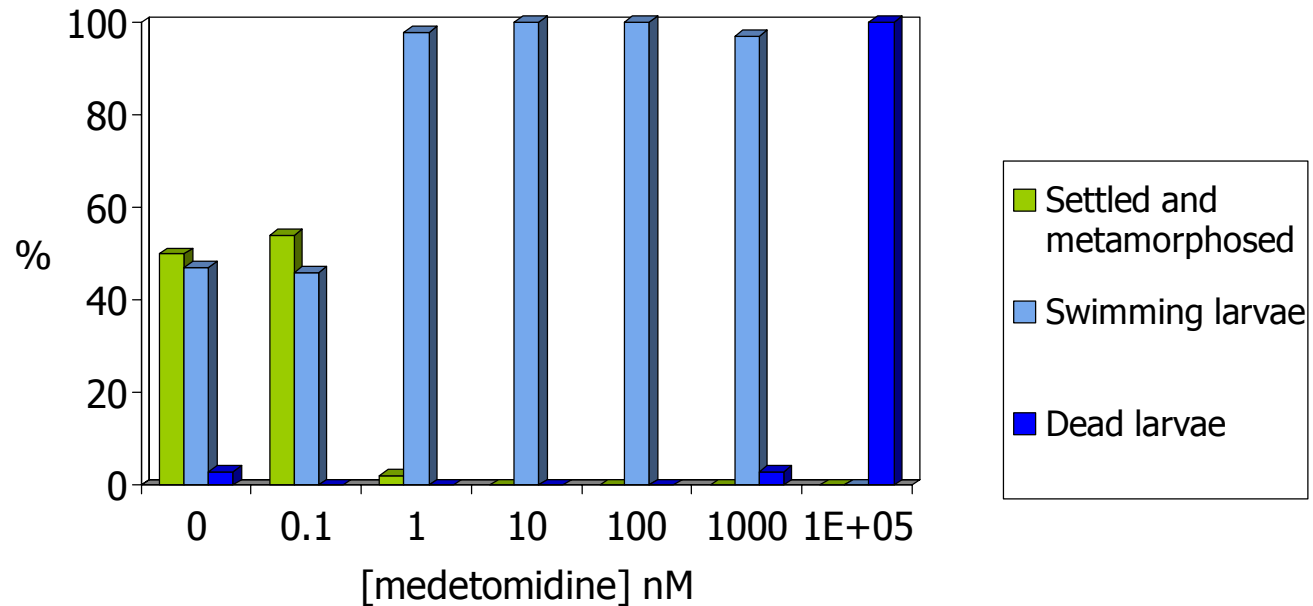


Medetomidine



- Veterinary substance
- α_2 -adrenoceptor agonist
- Inhibits barnacle settling at 1 nM

Inhibition of barnacle settling



Modified from
Dahlström et al., 2000
Biofouling



Marine Paint



- Interdisciplinary Swedish research project
- Effective antifouling paints
- More environmental friendly

Marine paint: from multidisciplinary research to environmentally sound antifouling paints

B.O Dahlback on Wednesday Session 30A



Marine Paint Ecotoxicology

Assess environmental effects

- Sublethal effects in fish
 - Colour
 - Respiration
 - EROD
- Bioaccumulation

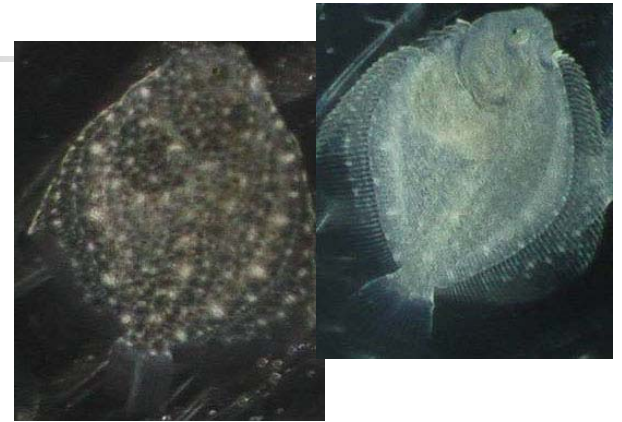
Colour

Turbot (*Psetta maxima*)

Lumpfish (*Cyclopterus lumpus*)

Atlantic cod (*Gadus morhua*)

Rainbow trout (*Oncorhynchus mykiss*)

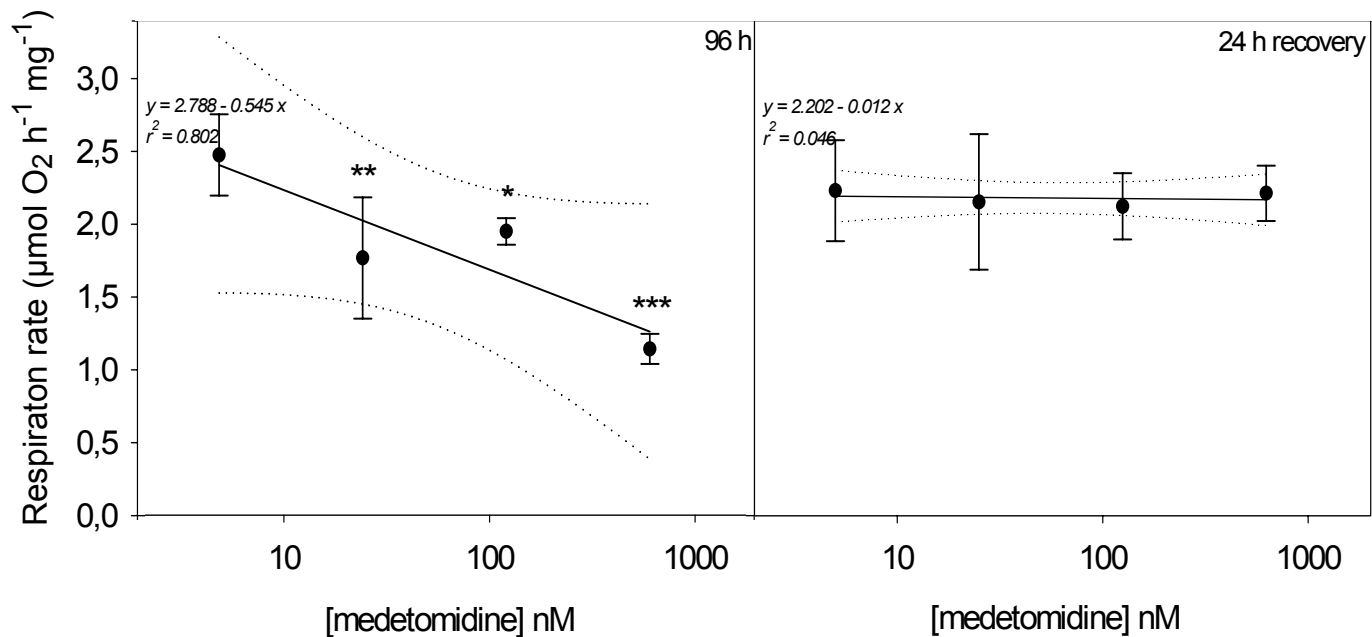


Respiration

Oxygen consumption in lumpfish fry

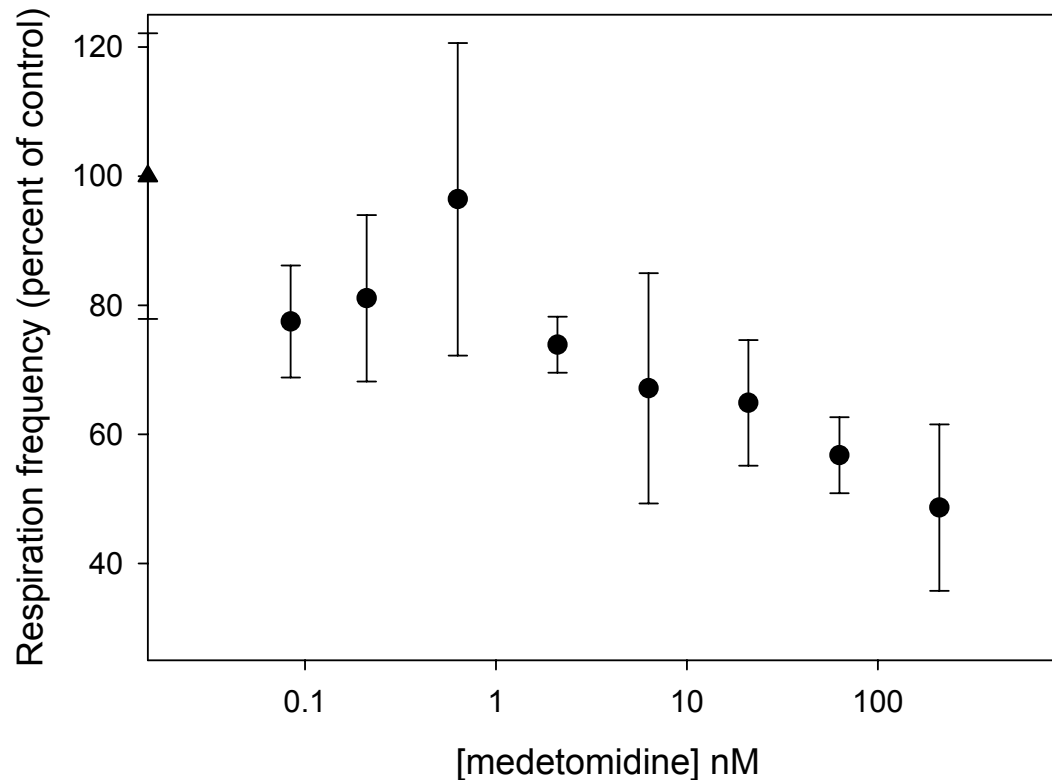
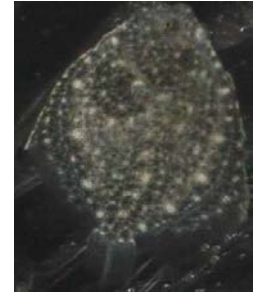


Photo: Åke Granmo



Respiration

Respiration frequency in juvenile turbot





Enzyme activity

- Ethoxyresorufin-O-deethylase (EROD) activity
- Detoxification
- Significant increase after injection and a non-significant decrease after water exposure in turbot
- No effects in Atlantic cod

Bioaccumulation

- Periphyton communities
- Blue mussel (*Mytilus edulis*)
- Brown shrimp (*Crangon crangon*)

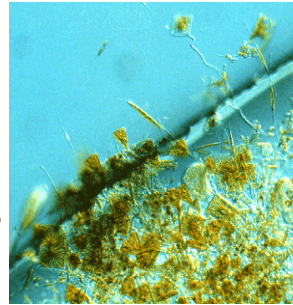


Photo: Mats Kuylenstierna

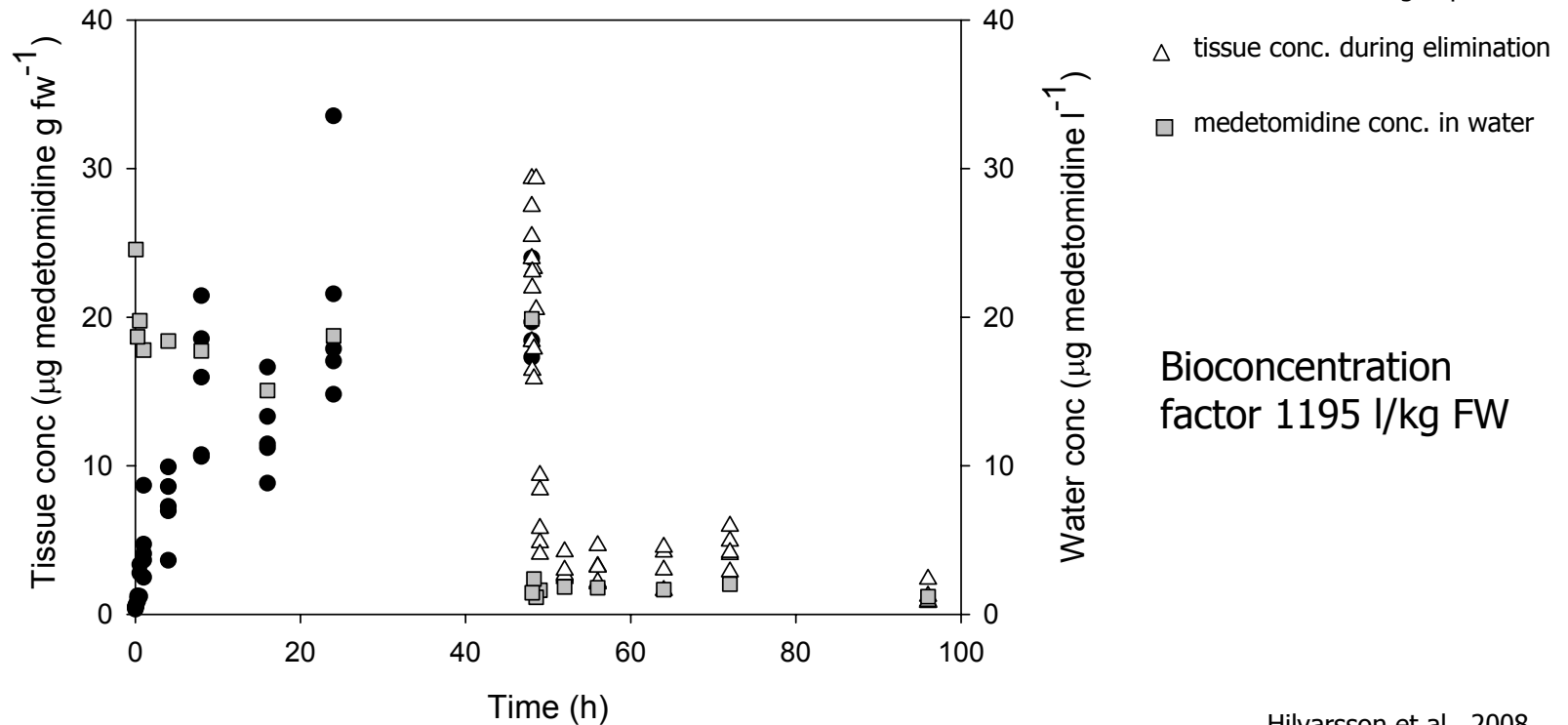


Photo: Maria Asplund



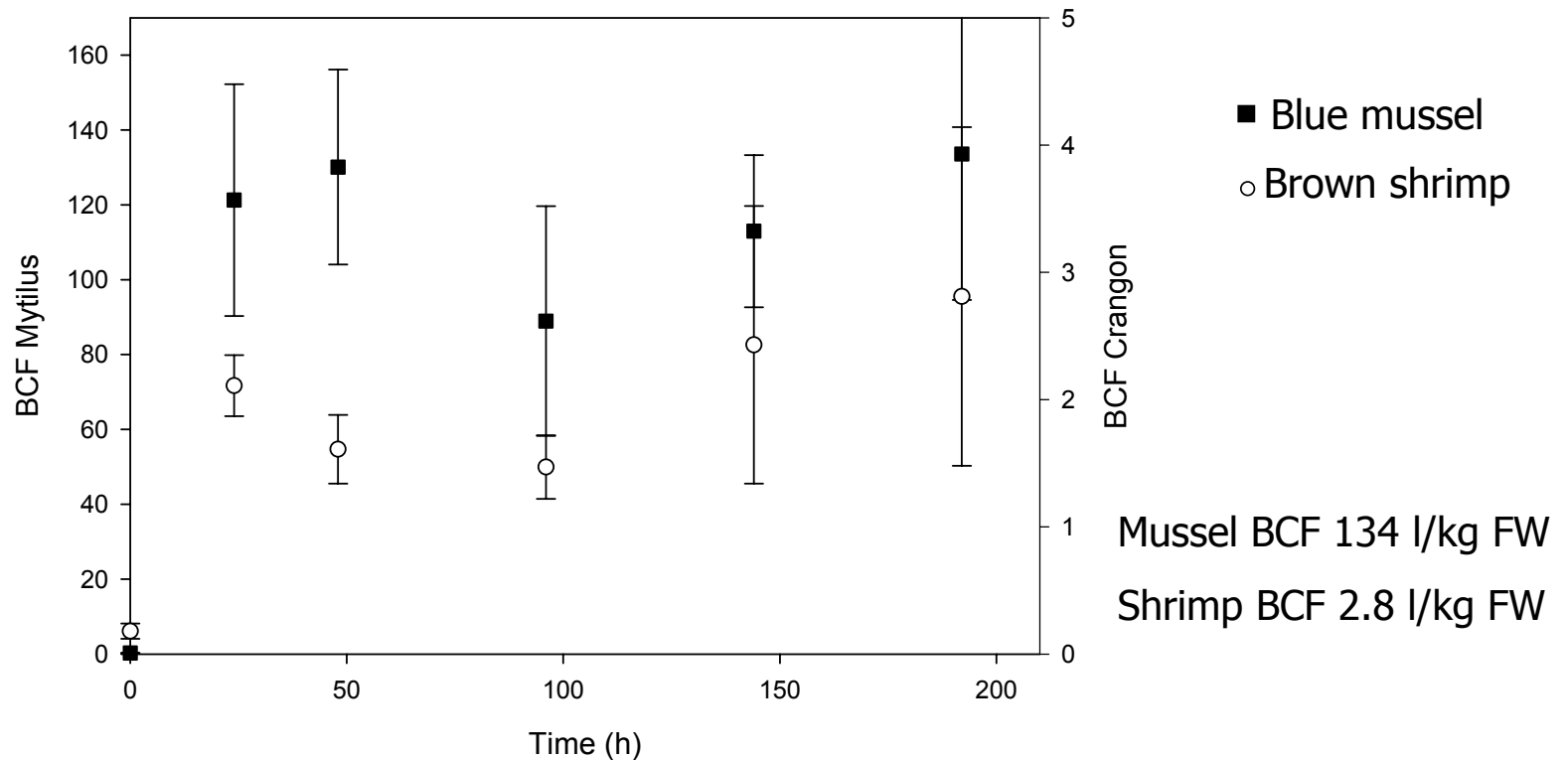
Bioaccumulation

Periphyton communities



Bioaccumulation

Blue mussel and brown shrimp





Summary and conclusions

- Paling in fish
- Decreased respiration – decreased metabolism
- EROD activity inconclusive
- Low bioaccumulation
- Reversible effects



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