

THE TESTOSTERONE METABOLISM OF *NEOMYSIS INTEGER*: THE QUEST CONTINUES...

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Both vertebrate and invertebrate species use enzymatic biotransformations for detoxication and elimination of xenobiotics. Testosterone has been used as a substrate to study the multiplicity of these enzymes. Since many of these enzymes are under hormone control, disruption of the hormone function can lead to potential effects on enzyme function and subsequently steroid homeostasis. The testosterone metabolism has therefore been proposed as a biomarker of exposure to endocrine disruptive compounds.

In a previous study, the estuarine crustacean *Neomysis integer* (Crustacea, Mysidacea) was exposed to both testosterone and [¹⁴C]-testosterone. Identification and quantification of testosterone metabolites and endogenous steroids was done using TLC and LC-MSn (Verslycke *et al.*, Gen. Comp. Endocrinol., accepted). The use of liquid chromatography coupled with multiple mass spectrometry allows a unique quantification of both endogenously produced steroids and *in vivo* produced metabolites in single mysid.

Recent research has focused on the potential use of these biotransformations as a predictive biomarker for exposure to known endocrine disruptors. In this context, quantitative changes in the biotransformation profile of testosterone were evaluated after exposure to tributyltin (TBT), a compound used in antifouling paint, which has been suspected to interfere with steroid metabolism. The resulting protocol allows a quantitative and qualitative evaluation of the effect of TBT on the testosterone metabolism of *N. integer*. The results of these exposures will be presented and a possible mechanism of disruption through interaction with the P450 enzyme system is proposed.

Future research on the steroid metabolism of *N. integer* could result in the development of predictive biomarkers for detection of endocrine disruption in estuarine environments.

Key words: testosterone metabolism; *Neomysis integer*; endocrine disruption; invertebrate.