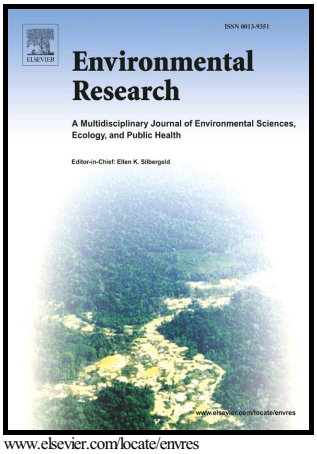

Do chlorinated insecticides (aldrin and DDT) or products of their transformations (dieldrin and DDE) impair signal transfer from regulators (oxytocin and relaxin) of bovine myometrium motility *in vitro*?

Wrobel Michal Hubert

www.elsevier.com/locate/envres

PII: S0013-9351(18)30400-6
DOI: https://doi.org/10.1016/j.envres.2018.07.027
Reference: YENRS8011

To appear in: *Environmental Research*

Received date: 17 May 2018
Revised date: 10 July 2018
Accepted date: 17 July 2018

Cite this article as: Wrobel Michal Hubert, Do chlorinated insecticides (aldrin and DDT) or products of their transformations (dieldrin and DDE) impair signal transfer from regulators (oxytocin and relaxin) of bovine myometrium motility *in vitro*?, *Environmental Research,* https://doi.org/10.1016/j.envres.2018.07.027

Do chlorinated insecticides (aldrin and DDT) or products of their transformations (dieldrin and DDE) impair signal transfer from regulators (oxytocin and relaxin) of bovine myometrium motility *in vitro*?[☆]

Wrobel Michal Hubert*

Institute of Animal Reproduction and Food Research, Polish Academy of Sciences, Tuwima Street 10, 10-748 Olsztyn, Poland

*Address correspondence to M.H. Wrobel, Ph.D., Institute of Animal Reproduction and Food Research, Polish Academy of Sciences, Tuwima Street 10, 10-747 Olsztyn, Poland. E-mail: m.wrobel@pan.olsztyn.pl, Fax: 48-89-5393146, Telephone: 48-89-5393118.

Abstract

Aldrin, dieldrin, and DDT are chlorinated insecticides that are unintentionally widespread in the environment. It was previously shown that all of the aforementioned compounds increased secretion of ovarian oxytocin (OT), which is a potent uterotonic agent. However, only DDT and its metabolite (DDE) promoted, while aldrin and dieldrin inhibited basal and OT-stimulated myometrial contractions in cows. Therefore, the aim of this study was to determine the effect of these treatments on the reception and further transmission of the OT-signal for myometrial contractions and on the levels of contractile-associated integral proteins (caveolin; CAV) and gap junction proteins (GAPs). Moreover, their effect on reception of signal for the relaxation of myometrium was also studied. Myometrial strips or cells from non-pregnant (8-12 days of oestrous cycle) or late pregnant (5-8 months) cows were incubated with the studied compounds at environmentally relevant dose (10 ng/ml), which was chosen according to the previous studies. DDT and DDE increased the CAV protein level, while dieldrin decreased the GAPs level. None of the studied compounds affected mRNA expression of the OT

[☆] This study was supported by the Polish Academy of Sciences (GW 29 and ZFTR/2014).