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HISTOLOGICAL ALTERATION OF KIDNEY CELLS OF *PSAMMOPHILUS BLANFORDANUS* IN RESPONSE TO FURADAN

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Abstract: It is found that distinct red spots appear on the surface of abdomen immediately after the treatment of furadan orally to the *Psammophilus blanfordanus.* The texure of kidney somewhat damaged after 72h of the treatment in comparison to that of untreated *P. blanfordanus.* Distinct histological alterations are found in the section of kidney of treated animal when observed under microscope.
Keywords: Furadan, *Psammophilus blanfordanus,* kidney.

Introduction

A number of non target wild animals can be affected when pesticides or phytopesticides are used because of their effect on physiological function (Pauli and Money, 2000). Carbofuran is a broad spectrum systemic insecticide that is registered for use on agricultural crops such as alfaalfa, rice, sugarcane, and especially corn (Palmer and Schlinke, 1973; EPA 1976; Finlayson *et al*., 1979; Flickinger *et al*., 1980). Carbofuran (2,3-dihydro-2,2-dimethyl-7 benzofuranyl methyl carbamate) is also known as furadan. The present work was conducted to study effect of furadan on histopathological alteration in kidney of *Psammophilus*.

Materials and Methods

Animal

Psammophilus blanfordanus can be distinguished by the regularly arranged scales, flattened body and the presence of a fold in the skin of throat. *Psammophilus* for the experiment were caught locally from the North Orissa University campus, Baripada, Mayurbhanj, Odisha from the month of September 2010 to March 2011.

The lizards were kept inside the labeled plastic jars with small holes to allow air to pass into it. They were acclimatized for 7 days in laboratory condition before the experiment. The lizards were divided into two groups (i) control groups; and (ii) experimental groups.

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Control Group

Three numbers of *Psammophilus* were treated orally with 100 µl of acetone and after 72 hours, the *Psammophilus* were sacrificed and the kidney was dissected out to 0.9% normal saline.

Experimental group

Five numbers of *Psammophilus* were treated orally with 100µl of furadan dissolved in acetone (0.005gm of furadan per 1ml of acetone) and after 72 hrs the animals were sacrificed and the kidney was dissected out to 0.9% normal saline. The blood vessels were cleaned.

Processing of tissue

The kidney (both from control and experimental) were fixed in Bouin's fluid and then processed for microtome sections. The thin sections were stained with eosin and haematoxylin and observed under microscope.

Results and Discussion

It is found that a number of red spot appear on the skin surface near the abdomen, immediately after the treatment of furadan on *Psammophilus* in experimental group (fig.1). It is found that the size of kidney of experimental group was larger and texture was somewhat damaged in comparison to control group *Psammophilus* (fig.2).

It is found that T.S. of kidney of control *Psammophilus* showed normal glomerulus with normal nucleated cells (Fig.3). However, T.S. of Kidney of treated *Psammophilus* showing disrupted glomerulus, nucleus of cells are not visible large vacuole or lumen is created at the centre of glomerulus. The colour of cell becomes brown instead of the colour of eosin (fig 4).

Fig 1. Red spot appear on skin after furadan treatment

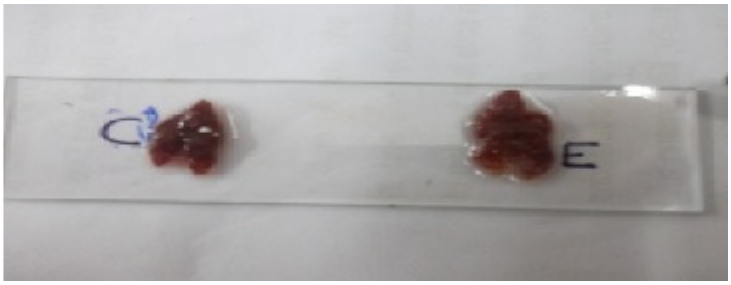

Fig.2 Kidney: without (C) and with (E) treatment of furadan

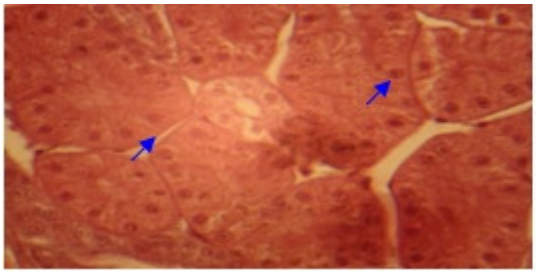

Fig 3. T.s kidney of control group showing Nucleated cells

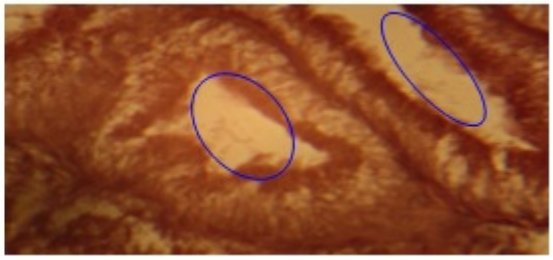

Fig 4. T.s kidney of experimental group showing vacuole

References

[1] EPA 1976. Substitute chemical program. Initial Scientific and minieconomic review of carbofuran. U.S. Environ. Protection Agency Rep. 540/1-76-009:187.

[2] Finlayson, D.G., Graham, J.R., Greenhalgh, R., Roberts, J.R., Smith, E. A. H., Whitehead, P., Willes, R.F. and Willims, I. 1979. Carbofuran: Criteria for interpreting the effects of its use on environmental quality. Nat. Res. Coun. Canada, Publ. NRCC 16740:191.

[3] Flickinger, E.L., King, K.A. Stout, W.F. and Mohn, M.M. 1980. Wild life hazards from Furadan 3G applications to rice in Texas. *J. Wildl. Manage.* 44:190-19.

[4] Palmer, J.S. and Schlinke, J.C. 1973. Toxic effects of carbofuran in cattle and sheep. *J. Am.vet. Med- Assoc*. 162:561-563.

[5] Pauli, B.D and Money, S. 2000. Ecotoxicology of pesticides in reptiles. *Soc. of Envt. Toxicology and Chem*.:269 -324.