

## Clinico-therapeutic management of Dimethoate-30% (Rogor) poisoning in a non-descript bullock

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### Abstract

A non-descript bullock suffering from dimethoate-30%(Rogor) poisoning was treated using Inj. Dexamethasone, Inj. 2-PAM, Inj. B-complex and Sodium Bicarbonate alongwith fluid therapy, the bullock responded well to the therapy and survived.

**Key words:** Dimethoate poisoning, non-descript bullock.

### Introduction

OPIs (organophosphate insecticides) are commonly used on large scale in agriculture and the livestock due to their high selectivity, rapid degradation in animal body and ecosystem. With indiscriminate use of these compounds, several cases of poisoning have been recorded in domestic animals, wild life and man. Although OPIs are comparatively less toxic in mammals than insects, much higher acute toxicity has been observed in animals from careless use and accidental ingestion of these chemicals (Garg,2002)by live stock.

Dimethoate-30% (Rogor) one amongst them is extensively used in horticulture as systemic insecticide. Its toxicity varies with purity and is said to increase with increasing shelf life (Clark and Clark, 1975). Dimethoate when used as acaricide for animal treatment get readily absorbed or may be ingested by animals to produce toxicity. The present report describes acute poisoning due to use of dimethoate as an acaricide in anon-descript bullock and its successful therapeutic management.

### Case History

A non-descript bullock aged 5-6 yrs was referred to Teaching Veterinary Clinical Service Complex (TVCSO) College of Veterinary and Animal Sciences, MAFSU, Parbhani with the symptoms of watery salivation following drop-by-drop, severe depression, grinding of teeth, lacrimation, frequent involuntary urination and defecation. Symptoms of hyper excitability, restlessness, and abdominal pain with kicking at the belly manifested by bullock initially were observed by the owner before presenting the case to the hospital.

Clinical examination revealed hypothermia (99°F), bradycardia (30/min), hypertension, papillary constriction, sweating and cooler extremities. Farm history, clinical findings and insecticide smell over body directed towards poisoning. Farm history of application of dimethoate-30% (Rogor) spray on the body of this bullock to reduce heavy tick infestation without taking proper precautions was narrated last during anamnesis. Dimethoate-30% has been indiscriminately used by rural people as insecticide to kill ectoparasites of animals, which may lead to acute poisoning through ingestion or skin absorption.

### Treatment

The was given inj. Atropine sulphate @ 0.5 mg/kg body weight, one fourth of the above dose was given i/v with 5%-dextrose saline and 3/4th i/m. half of the total dose was repeated after 6 hrs. single dose of inj. PAM (2- pyridine aldoxime methiodide )@ 25-50 mg/kg as 20% solution by slow i/v route (Roy, 2001)and inj.sigmacalvit @30 ml i/m (total dose)was administered. Supportive treatment included fluids, B-complex and inj. Dexamethasone@0.05 mg/kg i/m. A systemic alkalizer sodium bicarbonate (160ml of 7.5% solution in 2000 ml of ringer's lactate) after giving above therapy there was initiated recovery.

### Results and discussion

The affected bullock recovered from recumbancy and started grazing. Symptoms observed in the present case viz. watery salivation, lacrimation, hypothermia, severe depression, meiosis, bradycardia, frequent urination and defecation due to OPIs poisoning has also been reported earlier by Roy(2001) and Garg(2002).

Atropine sulphate is a physiological antidote of OPIs poisoning and competitive antagonist of Ach for muscarinic receptors. 2-PAM reactivates the phosphorelated acetyl cholinesterase and accelerates clinical recovery. Sigmacalvt is a calcium preparation was used to prevent hyper toxicity and to nullify preconvulsive increase of K<sup>+</sup> ion concentration. Parenteral rehydration therapy of 5%-dextrose saline i/v and with vit B-complex i/m prevented deterioration. Dexamethasone was given to avoid shock. However, the perceptible recovery was noticed after institution of systemic sodium bicarbonate therapy.

The present acute case of dimethoate - 30%(Rogor) poisoning ultimately responded to above therapy. The present report indicates atropine

sulphate, 2-PAM (2- piridine aldoxime methiodide ) and systemic alkalizer along with the set of standard supportive therapy can be used for successful therapeutic management of dimethoate-30%(Rogor) poisoning in the livestock.

#### References

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## Panel Ignored Bt Cotton Toxicity evidence

New Delhi: While Bt brinjal is at an advanced stage of being cleared for commercial cultivation, a Supreme Court nominee to the regulatory body has come up with a "major argument" to suspend the existing cultivation of Bt cotton due to bio-safety concerns about genetically modified crops. Molecular scientist P M Bhargava, who was appointed three months ago at the instance of SC as a special invitee to the Genetic Engineering Approval Committee (GEAC), found that the regulator had ignored evidence of toxicity in Bt cotton leading to the death of hundreds of sheep in Andhra Pradesh. In a letter to GEAC dated May 14, Bhargava said that the three documents relied upon by the regulator "contradict.. unequivocally" its own claim that the mortality of sheep might be due to pesticide residues rather than Bt toxin. According to the minutes of the GEAC meeting held on April 2, other members told Bhargava that the studies commissioned by them "indicate that the sheep deaths might be due to high content of nitrates/nitrites, residues of hydrocyanide (HCN) and organophosphates which are common ingredients of pesticides used during cotton cultivation and not those of Bt toxin." But the three expert reports given to Bhargava subsequently, in a bid to justify GEAC's clean chit to Bt cotton, have turned out to be, in his opinion, evidence strongly suggesting "the possibility or even the probability" of Bt cotton causing the death of sheep which had grazed on that crop. Dept of Animal Husbandry, govt of AP, in its letter dated May 9, 2007, admitted that "bio-safety studies were not taken up in sheep and also trials did not include continuous grazing/feeding of complete Bt cotton plants to animals." It also said that the samples were "negative for HCN, Nitrates, Nitrites, Alkaloids and Glycocides." The state government therefore advised shepherds "not to graze their animals in harvested Bt cotton fields till the definite cause is established." Indian Veterinary Research Institute, Izatnagar, Uttar Pradesh, in its letter dated June 18, 2007, said, "Bt cotton samples tested in the Toxicology Laboratory of this centre showed absence of HCN, Nitrate/Nitrite, Alkaloids and Glycocides." Sri Venkateswara University, Tirupati, wrote to GEAC that "the bio-safety studies on grazing Bt cotton crop by sheep are lacking." In keeping with his SC-given mandate of lending more transparency to GEAC's functioning, Bhargava called for a review of its assertion that the rise in sheep mortality had nothing to do with Bt cotton. He said the three reports cited by GEAC "underscore the fact that no serious studies to rule this out have been done so far. This would be a major argument to suspend all cultivation of Bt cotton until we have definitive data on the toxicity of Bt plants to animals on field." Founder director of the Centre for Cellular and Molecular Biology, Bhargava was a member of the Knowledge Commission set up by Prime Minister Manmohan Singh. In February, the Supreme Court directed his appointment to GEAC along with another scientist, M S Swaminathan, on a PIL filed by activist Aruna Rodrigues alleging that the regulatory system for GM crops was skewed in favour of multinational companies to the detriment of bio-safety.

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