11/30/83

TOXICOLOGY BRANCH: DATA REVIEW

Chemical: Trichlorfon (TCF)  Caswell No.: 385
                        Shaughnessey No.: 057901

Study Type: Potentiation (rbc-AChE activity)

Citation: Silvestri, R.; Himes, J.A.; Edds, G.T. (1975).
"Repeated oral administration of coumaphos in
sheep: Effects on erythrocyte acetylcholinesterase

Accession No./MRID No.: NA/NA

Sponsor/Contracting Lab.: N/A (Published article)

Report No./Date: N/A (Published article)

Test Material: Neguvon Technical (90% a.i.), from Chemagro.

Procedures: A group of 3 two-year old castrates were given a
single iv dose of 1.5 mg/kg Neguvon (in 0.9% NaCl); and two days
later, daily oral doses of 4 mg/kg coumaphos for 6 days. Two
groups of 3 wethers were served as controls: one treated with
oral coumaphos according to the same schedule, but pre-treated
with saline; the second, treated only with NaCl (saline controls).

Blood samples from all groups were analyzed for erythrocyte
acetylcholinesterase activity (rbc-AChE), as well as electrolytes
and serum enzymes (AAT, ICD) before, during and 4 to 6 weeks
after combined treatments.

Results: Compared to saline controls, rbc-AChE activity was not
affected by trichlorfon pre-treatment alone, but was
significantly inhibited by trichlorfon-plus-coumaphos. This
inhibition, however, was not different from that found in animals
treated with coumaphos alone. In both coumaphos-treated groups,
AChE remained significantly depressed 6 weeks after treatment.
One animal on combined treatment died a day after the last
coumaphos dose, in severe electrolyte imbalance (increased plasma
Mg, decreased serum K); salivation, loss of appetite and diarrhea
were observed in surviving wethers after the 4th to 5th coumaphos
dose (both groups), but no changes in serum electrolytes or other
enzyme activities found.
Conclusion: Combined trichlorfon-coumaphos treatment was additive rather than synergistic, since the effect on rbc-AChE activity was only slightly greater, but statistically not significant, compared to that in the group treated with coumaphos alone. Trichlorfon pre-treatment, however, did increase the toxicity of coumaphos.

TB Evaluation: Core-Supplementary Data

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