

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
and other constituents". Amer. J. Vet. Res. 36:283-387.

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.

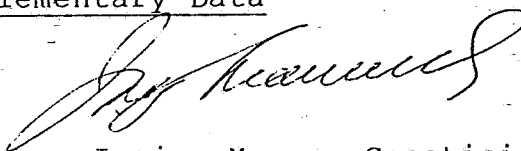
Procedures: A group of 3 two-year old castrates were given a single iv dose of 1.5 mg/kg Neguvon (in 0.9% NaCl); and two days later, daily oral doses of 4 mg/kg coumaphos for 6 days. Two groups of 3 wethers were served as controls: one treated with oral coumaphos according to the same schedule, but pre-treated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

 11-30-83

Irving Mauer, Geneticist
Section V, Toxicology Branch
Hazard Evaluation Division (TS-769)