Appendix C. Bibliography of ECOTOX Open Literature

Accepted for EcoTox and OPP

Chaudhary, V. and Tripathi, R. S. (2006). Evaluation of Single Dose Efficacy of Difethialone- a Second-Generation Anticoagulant for the Control of Rodents Inhabiting Arid Ecosystem. *Indian J. Agric. Sci.* 76: 736-739.

EcoReference No.: 151509
Chemical of Concern: DFT; Habitat: T; Effect Codes: BEH,MOR; Code: LITE EVAL CODED (DFT).

Accepted for EcoTox but not OPP

Grandemange, A., Kohn, M. H., Lasseur, R., Longin-Sauvageon, C., Berny, P., and Benoit, E. (2009). Consequences of the Y139F Vkorc1 Mutation on Resistance to AVKs: In-Vivo Investigation in a 7th Generation of Congenic Y139F Strain of Rats. *Pharmacogen. Genom.* 19: 742-750.

EcoReference No.: 151506
Chemical of Concern: BDL,CPC,DFM,DFT; Habitat: T; Effect Codes: PHY; Code: NO EXP TYPE (BDL,CPC,DFM,DFT).

Lechevin, J. C. and Poche, R. M. (1988). Activity of LM 2219 (Difethialone), a New Anticoagulant Rodenticide, in Commensal Rodents. *In: Proc.of the 13th Vertebrate Pest Conference, Univ.of Nebraska* 59-63.

EcoReference No.: 109886
Chemical of Concern: DFT; Habitat: AT; Effect Codes: MOR; Code: NO CONTROL (DFT).

Prakash, S., Kumar, S., Veer, V., Gopalan, N., Purnanand, Pandey, K. S., and Rao, K. M. (2003). Laboratory Evaluation of Four Rodenticides Admixed in a Cereal-Based Bait Against Commensal Rat, Rattus rattus (L.) (Rodentia: Muridae : Murinae). *J. Stored Prod. Res.* 39: 141-147.

EcoReference No.: 90246
Chemical of Concern: DBAC,DFT,DNB,ZnP; Habitat: T; Effect Codes: BEH,MOR; Code: NO CONTROL (DBAC,DFT,DNB,ZnP).

Saravanan, K. and Kanakasabai, R. (2004). Evaluation of Secondary Poisoning of Difethialone, a New Second-Generation Anticoagulant Rodenticide to Barn Owl, Tyto alba Hartert Under Captivity. *Indian J. Exp. Biol.* 42: 1013-1016.

EcoReference No.: 151510
Chemical of Concern: DFT; Habitat: T; Effect Codes: BEH,MOR; Code: NO CONTROL (DFT).

Vandenbroucke, V., Desmet, N., De Backer, P., and Croubels, S. (2008). Multi-Residue Analysis of Eight Anticoagulant Rodenticides in Animal Plasma and Liver Using Liquid Chromatography Combined with Heated Electrospray Ionization Tandem Mass Spectrometry. *J. Chromatogr. B* 869: 101-110.

EcoReference No.: 151507
Chemical of Concern: BDF,BDL,CPC,DFM,DFT,PPCP,WFN; Habitat: T; Effect Codes: ACC; Code: NO CONTROL (BDF,BDL,CPC,DFM,DFT,PPCP,WFN), NO ENDPOINT (BDF,BDL,CPC,DFM,DFT,PPCP,WFN).

Excluded

Albert, C. A., Wilson, L. K., Mineau, P., Trudeau, S., and Elliott, J. E. (Anticoagulant Rodenticides in Three Owl

Species From Western Canada, 1988-2003. *Arch environ contam toxicol. 2010, feb; 58(2):451-9. [Archives of environmental contamination and toxicology]: Arch Environ Contam Toxicol.*
Chem Codes: Chemical of Concern: DFT Code: SURVEY.

ABSTRACT: Anticoagulant rodenticides are widely used to control rodent infestations. Previous studies have shown that nontarget organisms, such as birds, are at risk for both primary and secondary poisoning. This paper presents rodenticide residue information on the livers from 164 strigiformes which included barn owls (Tyto alba), barred owls (Strix varia), and great horned owls (Bubo virginianus), collected from 1988 to 2003 in the province of British Columbia and the Yukon Territory, Canada. Livers were analyzed for brodifacoum, bromadiolone, chlorophacinone, diphacinone, difethialone, and warfarin. Our results show that, of the 164 owl livers analyzed, 70% had residues of at least one rodenticide, and of these 41% had more than one rodenticide detected. Of the three species of owls examined, barred owls were most frequently exposed (92%, n = 23); brodifacoum and bromadiolone were most often detected, with liver concentrations ranging from 0.001 to 0.927 mg/kg brodifacoum, and 0.002 to 1.012 mg/kg bromadiolone. Six of the owls (three barred owls, two barn owls, and one great horned owl) were diagnosed as having died from anticoagulant poisoning; all six owls had brodifacoum residues in the liver.
MESH HEADINGS: 4-Hydroxycoumarins/analysis/metabolism
MESH HEADINGS: Animals
MESH HEADINGS: Anticoagulants/analysis/*metabolism/poisoning
MESH HEADINGS: Canada
MESH HEADINGS: Environmental Monitoring/*methods
MESH HEADINGS: Food Chain
MESH HEADINGS: Liver/chemistry/drug effects/metabolism
MESH HEADINGS: Mice
MESH HEADINGS: Pesticide Residues/*analysis
MESH HEADINGS: Rodenticides/analysis/*metabolism/poisoning
MESH HEADINGS: Species Specificity
MESH HEADINGS: Strigiformes/*metabolism eng

De Paula, E. V., Montalvao, S. A., Madureira, P. R., Jose Vieira, R., Annichino-Bizzacchi, J. M., and Ozelo, M. C. (Simultaneous Bleeding and Thrombosis in Superwarfarin Poisoning. *Thromb res. 2009, feb; 123(4):637-9. [Thrombosis research]: Thromb Res.*
Chem Codes: Chemical of Concern: DFT Code: HUMAN HEALTH.

MESH HEADINGS: 4-Hydroxycoumarins/*poisoning
MESH HEADINGS: Adult
MESH HEADINGS: Anticoagulants/*poisoning
MESH HEADINGS: Hemorrhage/*chemically induced/therapy
MESH HEADINGS: Humans
MESH HEADINGS: Male
MESH HEADINGS: Venous Thrombosis/*chemically induced/therapy
MESH HEADINGS: Young Adult eng

Fourel, I., Hugnet, C., Goy-Thollot, I., and Berny, P. (2010). Validation of a New Liquid Chromatography- Tandem Mass Spectrometry Ion-Trap Technique for the Simultaneous Determination of Thirteen Anticoagulant Rodenticides, Drugs, or Natural Products. *J. Anal. Toxicol.* 34: 95-102.
Chem Codes: Chemical of Concern: BDF,BDL,CPC,DFM,DFT,PPCP,WFN Code: CHEM METHODS,NO CONC.

Grobosch, T., Angelow, B., Sch&Ouml, Nberg, L., and Lampe, D. (Acute Bromadiolone Intoxication. *J anal toxicol. 2006, may; 30(4):281-6. [Journal of analytical toxicology]: J Anal Toxicol.*
Chem Codes: Chemical of Concern: DFT Code: HUMAN HEALTH.

ABSTRACT: A 55-year-old man came to the hospital with a bleeding wound on his tongue. The coating of his tongue was green, and his sputum was red. Because an increased international normalized ratio-value was measured, a blood sample was sent to our laboratory with the suspicion of coumarin intoxication.

Liquid chromatography-electrospray ionization-mass spectrometry (LC-ESI-MS) analysis confirmed the poisoning was by bromadiolone, with its maximum serum concentration at 440 microg/L. The analysis of further samples resulted in a calculated elimination half-life of 140 h. The analytical method described was developed for the determination and quantitation of bromadialone using LC-MS. This method is suitable for the simultaneous identification and quantitation of 10 indirect anticoagulants in human serum, which include five superwarfarins (brodifacoum, bromadiolone, difenacoum, difethialone, and flocoumafen) as rodenticides licenced in Germany and five other vitamin K antagonists (acenocoumarol, coumatetralyl, coumachlor, phenprocoumon, and warfarin). The method is based on an acidic (pH 4.2) liquid-liquid extraction followed by LC-ESI-MS analysis. Analytical separation was carried out using an Atlantis C18 column (2.1 x 20 mm, 3 microm). The mobile phase consisted of methanol/0.1% formic acid; the flow rate was 0.6 mL/min, and the time needed for analysis was 5 min. The lower limit of quantitation was 5 microg/L (signal-to-noise > 10).
MESH HEADINGS: 4-Hydroxycoumarins/*blood/*poisoning
MESH HEADINGS: Anticoagulants/blood/poisoning
MESH HEADINGS: Chromatography, High Pressure Liquid/methods
MESH HEADINGS: Humans
MESH HEADINGS: Male
MESH HEADINGS: Mass Spectrometry/methods
MESH HEADINGS: Middle Aged
MESH HEADINGS: Poisoning/drug therapy
MESH HEADINGS: Rodenticides/blood/poisoning
MESH HEADINGS: Vitamin K/therapeutic use eng

Jensen, I. H. and Bile, N. (1993). Scientific and Technical Work. 6. Flies. *In: I.H.Jensen and N.Bile (Eds.) Dan.Pest Infest.Lab.Annu.Rep.for 1992, Lyngby, Denmark* 36-85.
Chem Codes: EcoReference No.: 70762
Chemical of Concern:
ATN,BDF,BDL,BRSM,CYP,DDT,DFT,DMT,DZ,HCCH,MOM,MTPN,PPB,PPC,PPCP,TVP Code: REVIEW.

Jensen, I. H. and Bile, N. (1993). Scientific and Technical Work. 6. Flies. *In: I.H.Jensen and N.Bile (Eds.) Dan.Pest Infest.Lab.Annu.Rep.for 1992, Lyngby, Denmark* 36-85.
Chem Codes: Chemical of Concern:
ATN,BDF,BDL,BRSM,CYP,DDT,DFT,DMT,DZ,HCCH,MOM,MTPN,PPB,PPC,TVP Code: REVIEW.

Some data that is not published elsewhere//

Pascal, M., Pradier, B., and Habert, M. (1988). Methodologie Appliquee a L'evaluation En Nature De L'efficacite De Rodenticides a Effet Differe. Application De Cette Methodologie a L'evaluation De L'efficacite De Deux Molecules Rodenticides, Bromadiolone Et Difethialone Sur La Forme Fouisseuse Du Campagnol Terrestre Arvicola Terrestris Scherman (Shaw). *Oecol.Acta* 9: 371-384(FRE) (ENG ABS).
Chem Codes: Chemical of Concern: BDF,DFT Code: NON-ENGLISH.

WAS ECOREF 75572//Acta Oecologica, Oecologia Applicata//ISSN: 0243-7678// (Was ECOREF# 75572)

Robben, J. H., Mout, H. C. A., and Kuijpers, E. A. P. (1997). Anticoagulant Rodenticide Poisoning in Dogs in the Netherlands (Rodenticide Anticoagulans-Intoxicatie Bij Honden in Nederland). *Tijdschr. Diergeneeskd.* 122: 466-471(DUT) (ENG ABS).
Chem Codes: Chemical of Concern: BDF,BDL,CPC,DFT Code: NON-ENGLISH.

WAS ECOREF 75550//Tijdschrift voor Diergeneeskunde (Netherlands Journal of Veterinary Science)//ISSN: 0040-7453// (Was ECOREF# 75550)

Vudathala, D., Cummings, M., and Murphy, L. (Analysis of Multiple Anticoagulant Rodenticides in Animal Blood and Liver Tissue Using Principles of Quechers Method. *J anal toxicol. 2010; 34(5):273-9. [Journal of*

analytical toxicology]: J Anal Toxicol.
Chem Codes: Chemical of Concern: DFT Code: METHODS.

ABSTRACT: A quick and easy method for the analysis of anticoagulant rodenticides in blood or tissue using principles of dispersive solid-phase extraction (dSPE), commonly known as QuEChERS (short for quick, easy, cheap, effective, rugged, and safe), was developed. Briefly, a combination of magnesium sulfate, PSA, florisil, and basic alumina was used to cleanup blood samples. Further, to cleanup liver tissue samples, C(18) sorbent was included along with the previously mentioned. The samples were analyzed using high-performance liquid chromatography equipped with a reversed-phase C(18) column (150 x 4.6 mm, 5-microm particle size) and a UV and fluorescence detector. The mobile phase consisted of 0.03 M tetrabutylammonium hydroxide (TBA) adjusted to pH 7/methanol (1:1, v/v) as solvent A and methanol as solvent B in a gradient run. The method detection limit was as low as 10 ng/mL for brodifacoum and difenacoum in blood and 10 ng/g in liver; 50 ng/mL for bromadiolone, difethialone, and chlorphacinone in blood and similarly 50 ng/g in liver; and 100 ng/mL for coumafuryl, pindone, warfarin, and diphacinone in blood and 100 ng/g in liver samples. A number of clinical samples of both blood and liver were analyzed; the comparison of this modified QuEChERS and traditional solid-phase extraction data was found to be in close agreement. This method resulted in drastic reduction in processing time and solvent cost both in terms of consumption and disposal, thus making it an attractive alternative to the traditional solid-phase extraction.
MESH HEADINGS: Animals
MESH HEADINGS: Anticoagulants/*analysis/blood/isolation &amp
MESH HEADINGS: purification
MESH HEADINGS: Chromatography, High Pressure Liquid/*methods
MESH HEADINGS: Liver/*chemistry
MESH HEADINGS: Rodenticides/*analysis/blood/isolation &amp
MESH HEADINGS: purification
MESH HEADINGS: Solid Phase Extraction/*methods eng

Zolcinski, M., Padjas, A., and Musial, J. (Intoxication With Three Different Superwarfarin Compounds in an Adult Woman. *Thromb haemost. 2008, jul; 100(1):156-7. [Thrombosis and haemostasis]: Thromb Haemost.*
Chem Codes: Chemical of Concern: DFT Code : HUMAN HEALTH.

MESH HEADINGS: 4-Hydroxycoumarins/*poisoning
MESH HEADINGS: Anticoagulants/*poisoning
MESH HEADINGS: Blood Coagulation/drug effects
MESH HEADINGS: Blood Coagulation Tests
MESH HEADINGS: Blood Component Transfusion
MESH HEADINGS: Contusions/*chemically induced/therapy
MESH HEADINGS: Epistaxis/*chemically induced/therapy
MESH HEADINGS: Female
MESH HEADINGS: Gastrointestinal Hemorrhage/*chemically induced/therapy
MESH HEADINGS: Humans
MESH HEADINGS: Middle Aged
MESH HEADINGS: Rodenticides/*poisoning
MESH HEADINGS: Vitamin K 1/therapeutic use eng

Target: Toxicity of Chemical on Intended Pest

Chaudhary, V., Tripathi, R. S., and Poonia, F. S. (2004). Effect of Supplementary Feeding of Vitamin K1 on Difethialone Treated Indian Gerbil, Tatera indica Hardwicke in Laboratory. *Indian J. Exp. Biol.* 42: 297-302.

EcoReference No.: 151508
Chemical of Concern: DFT; Habitat: T; Effect Codes: BEH,MOR; Code: TARGET (DFT).