Cypermethrin and Chlropyrifos Effects on Dung Beetle and Their Determination in Cattle Feces

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Cypermethrin is commonly used as a veterinary ectoparasiticide to control ticks, lice, biting and nuisance flies. Fresh dung was collected from untreated cattle and cattle dosed with a spray-on formulation of cypermethrin and chlorpyrifos (2.1g /cow) on days 1, 3, 5 and 7 post-treatment. The dung was bioassayed using the dung beetle *Copris tripartitus* Waterhouse. Residues of cypermethrin and chlorpyrifos were sufficient to inhibit oviposition by *C. tripartitus* in day 1 dung but there was no significant effect on egg laying in dung collected at days 3-7 post-treatment in sexually matured female. Nulliparous dung beetles fed for 200 days on dung collected 0, 1 and 3 days after treatment of cow with cypermethrin and chlorpyrifos show little ovarian development. We determined cypermethrin and chlropyrifos by GC using the ECD. The concentrations of cypermethrin found in dung 1(16 ppb) and 3 (25 ppb) days after treatment. We conclude that dung voided by cattle treated with a spray-on formulation of cypermethrin and chlorpyrifos reveal in dung at 1, 3, 5 days post-treatment in terms of long terms and cypermethrin and chlorpyrifos residues excreted in dung 1day and 3day after treatment had a deleterious impact on ovarian condition and brood ball production up to 2nd generation. The potential ecotoxic effects of these compounds will be discussed in terms of dung beetle activity and strategies for parasite control of cattle in Korean environment.