

Efficacy Review

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2-12-10

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Products: Etofenprox/Nylar Spot-on Flea and Tick for Dogs

EPA Reg. #: 2517-RGG

A.I.'s: Ethofenprox (55.0%), Pyriproxyfen (2.2%)

Decision #s: 420097

DP #s: 371693

Submission: R310, New Products, RD Science Review

MRIDs: Submitted: 47849607, 4789608

GLP: No

MRID 47849607:

Title: Analysis of a Dose Titration to Determine the Relationship between Dose Rate of Etofenprox, When Applied as a Spot-On to Dogs, and the Duration of Residual Efficacy Against Flea and Tick Reinfestation.

Guideline: OPPTS 810.3300

Materials and Methods:

12 dogs were allocated to 3 treatment groups (4 dogs each, with average size approximately equal, using 30-40 lb dogs). One was an untreated control group, and the other groups were both treated with an etofenprox squeeze on, applied at 2 different dosages (approximately 8g and 4g, respectively). Rates of a.i. applied to animals were approximately 381 mg/kg and 178 mg/kg, respectively. Infestations (and reinfestations over time) were conducted with 50 ticks (*R. sanguineus*) and 100 cat fleas (*C. felis*). Fleas were counted via a comb at both 24 hours and 72 hours after each infestation/reinfestation. Ticks were counted by hand. Removal of both was done at 72 hours for mortality assessments. Weekly reinfestations were conducted until inadequate efficacy was shown. % Mortality was calculated in comparison to the control.

Regression analysis was conducted to determine if there was a significant correlation between treatment dose and duration of efficacy.

Study Summary of the Results:

1. Average flea efficacy was >90% for dogs in the 381 mg/kg treatment group through 31 days. For the 178 mg/kg treatment, average efficacy was 89% at day 23 and 84% at day 31.
2. Average tick efficacy was 89% for dogs in the 381 mg/kg treatment group through 31 days. For the 178 mg/kg treatment, average efficacy was only 77% at day 31, but was adequate through day 23 (96%).
3. There was no significant correlation between dosage and efficacy duration for fleas and ticks, due to insufficient numbers of dogs.
4. Dose rates in the range of 250-300 mg/kg were associated with 90% or higher efficacy at 31 days after treatment (looking at reinfestations on the 28th day). This observation can be used to generate a hypothetical dosage schedule for the treatment of puppies and dogs 15lbs or less, with dogs up to 15 lbs receiving 1.2 mL of a 55% etofenprox product, supporting a claim for the product of “up to 28 days” efficacy against re-infestation with fleas and ticks.

Entomologist’s Observations/Discussion:

1. Replication was inadequate for the study as typically a minimum of 6 dogs are required for each treatment group. Typically, the dogs should be of varying breeds and weights, including larger dogs, but this issue isn’t as critical for this study, as the proposed product is intended only for small dogs less than 20 lbs.
2. Efficacy was demonstrated for the 381 mg/kg treatment group, but not for the 178 mg/kg group.
3. Despite a statistically insignificant relationship between the dosage and the efficacy duration for this product, the authors propose a titration scheme that would support efficacy claims for a product applied at a minimum of 250 mg/kg a.i. This appears to be supported by the efficacy data for this present study, as dogs treated with this rate and higher were adequately protected for 30 days (albeit an inadequately small sample size). However, according to the study’s own titration table, which is a bit confusing, the proposed dose (1.6 mL) appears to be inadequate for dogs larger than 6 lbs, because the ai dosage falls below the threshold of 250 mg/kg.

MRID 47849608:

Title: Analyses of Efficacy and Safety Data to Support Label Claims for Sergeant’s Squeeze-On for Small Dogs Containing Etofenprox and Pyriproxyfen.

This is a summary document of other studies cited/submitted in support of this product.

Entomologist’s Observations/Discussion: Summarized in other reviews.