

US EPA ARCHIVE DOCUMENT

EFFICACY STUDY REVIEW

by Kevin J. Sweeney, Entomologist - IB

To: File

From Kevin Sweeney

Kevin Sweeney 4/17/00

Through: Mark Dow

Date: April 17, 2000 *MD 18 APR 2000*

EPA File Symbol 3125-LRE

Product Name: KBR 3023

Registrant: Bayer Corp.

PM: Marion Johnson, PM 10

Action: 116

Submission No. S577015 DP #: D264424

Chemical: picaridin

OPPTS Guideline: 810.33

Studies Submitted: (3)

MRID 450500-01 Laboratory Efficacy Test of Repellent Formulation Against *Aedes albopictus* by Yap Han Heng, University of Malaysia

These laboratory assays were product comparison tests. Efficacy of two KBR 3023 formulations, a 12% lotion and a 5% cream, was compared to commercial repellent formulations containing the active ingredients DEET or citronella in blind-sided tests where formulations were identified by letter only.. The %a.i. in each of the commercial formulations was not stated. There was no negative (untreated control) in these tests. **This study is considered supplementary since untreated control data were not included and biting pressure was unknown. In addition, the number of replicates per treatment were different.** The data suggest that the KBR formulations outperformed DEET and citronella in these side by side tests.

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MRID 450500-02 Laboratory Efficacy Trials on *Aedes aegypti* and *Anopheles* spp. (*Anopheles dirus*) and Field Efficacy Trials on *Aedes albopictus*, *Culex quinquefasciatus*, and *Anopheles* and other *Culex* species by Yap Han Heng, University of Malaysia.

These laboratory assays were product comparison tests. Efficacy of two KBR 3023 formulations, a 12% lotion and a 5% cream, was compared to commercial repellent formulations containing the active ingredients DEET or citronella in blind-sided tests where formulations were identified by letter only. The %a.i. in each of the commercial formulations was not stated. There was no negative (untreated control) in these tests. **This study is considered supplementary since untreated control data were not included and biting pressure was unknown. In addition, the number of replicates per treatment were different.** The data suggest that the KBR formulations outperformed DEET and citronella in these side by side tests. The 12% KBR formulation outperformed the 5% formulation and both were equal to DEET. Very few bites were recorded in these treatments over 8 hours against all species tested in the lab and the field. However, the significance of this is unclear since biting pressures were unknown.

MRID 450500-03 KBR 3023 Efficacy Field trials Against *Aedes aegypti* by Yap Han Heng, University of Malaysia

These studies are acceptable but it should be noted that the landing rates were not high and not as great as in other studies submitted by Professor Yap. Based on statistical testing, the differences between the treatments and controls were considered significant, but visual examination of the raw data shows variability between human baits. For instance, in table 1a, the citronella treated arm had more bites than the untreated arm. In this test overall, the percent repellency was below 95% for both KBR 3023 formulations over an 8 hour period. However, if the CPT method is used, then the KBR 3023 label claims are supported - 3-4 hours for 5% and 5 hours for the 10% formulations.