

FIELD EFFICACY of IR3535-BASED PERSONAL INSECT REPELLENTS against the MOSQUITO (DIPTERA: CULICIDAE) and the BITING MIDGE (DIPTERA : CERATOPOGONIDAE)

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IR3535 (Ethyl Butylacetylaminopropionate) is a repellent compound that has been shown to have activity against a range of biting and nuisance insects. In this study the efficacy of three Reckitt Benckiser Aerogard® formulations containing IR3535 were assessed. The formulations were: (1) Aerosol (20% IR3535), (2) Lotion (20% IR3535), and (3) Pump spray (15% IR3535).

Field trials were carried out over three days at separate sites in Cairns, Far North Queensland, Australia, in December 2000. Cairns is located on the east coast and has a wet tropical climate. Both sites consisted of mangrove wetlands: one located close to an estuary (mosquitoes) and the other close to the coast (biting midges). Both studies were carried out during daylight hours (0900 to 1500) and were conducted by periodically exposing human volunteers with bare lower legs (knee to ankle) to mosquitoes or biting midges over a six-hour period. Volunteers were males or females aged between 18 to 55 years. To confirm mosquitoes or biting midges were landing, volunteers were exposed prior to treatment. Counts were made of mosquito landings over a ten-minute period and biting midge landings over a three-minute period. Both legs of each volunteer were used, and the pair of repellents applied was randomised to give five replications per formulation. One leg of one volunteer was used as an untreated control for each replicate. The aerosol and pump spray were applied at the rate of 2.4g per lower leg, and the lotion was applied at 1.2g per lower leg.

Against day-biting mosquitoes, primarily *Verrallina funereus* (Theobald) and *Ochlerotatus vigilax* (Skuse), and less commonly *Aedes aegypti* (L), and against biting midges, *Culicoides ornatus* (Taylor), all three formulations significantly reduced ($p < 0.05$) the landing rate compared to untreated legs over the entire six-hour study period. This study demonstrated that all three formulations containing the repellent IR3535 provided protection against mosquitoes and biting midges for up to six hours after application.