

A STUDY ON A NOVEL PERSONAL INSECT REPELLENT FORMULATION AGAINST THE MOSQUITO (DIPTERA: CULICIDAE), THE BITING MIDGE (DIPTERA: CERATOPOGONIDAE) AND THE BUSH FLY (DIPTERA: MUSCIDAE)

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Abstract Field studies on a personal insect repellent formulation based on essential oils from Australian native plants were carried out against mosquitoes and Biting midges in Cairns, Far North Queensland, Australia and against Bush flies, *Musca vetustissima* in Quinalow, South West Queensland, Australia. The sites consisted of a fresh water creek infested by mosquitoes, a mangrove wetland infested by Biting midges and a dairy farm infested by Bush flies.

All studies were carried out during daylight hours and were conducted by periodically exposing human volunteers with bare lower legs (knee to ankle) to mosquitoes and Biting midges for a 4 hour period and to Bush flies for a 3 hour period. Counts were made of mosquito landings over a 5 minute period, Biting midge landings over a 3 minute period and Bush fly landings over a 10 minute period. Both legs of each volunteer was used to give 5 replicates of the repellent formulation and 5 replicates of an untreated control.

Against mosquitoes, primarily *Verralina carmenti* and biting midges, primarily *Culicoides ornatus*, the formulation significantly reduced the landing rate compared to untreated legs over the entire 4-hour study period. Against the bush fly the formulation significantly reduced the landing rate compared to untreated legs over the entire 3-hour study period. The study demonstrated that this formulation provided protection against mosquitoes and Biting midges for up to 4 hours after application and against the Bush fly for up to 3 hours after application.