

US EPA ARCHIVE DOCUMENT

*Factors Affecting Mosquito
Landing/Biting activity
in Field Environment*

COL Raj K. Gupta, Ph.D
Science Director
Walter Reed Army Institute of Research
Silver Spring, MD

An Insect Repellent

- Dethier defines a repellent as a chemical that causes the insect to make oriented movement away from its source
 - » Vapor repellents – Deet, Icaridin, KBR3023, etc
 - » Contact repellents – Indalone, Permethrin

First/Second Landing or Bite

- Variable Factors
 - » Skin
 - » Temperature
 - » Age
 - » Hairs on skin surface
 - » Density of mosquito population

Factors Affecting Landing/Biting Activity

- Mosquito Population
 - » Lack of coordination or agreement
 - » Varies with density
 - » Susceptibility
 - » Age
- Test Sites
 - » Weather – temperature, wind, humidity, light
 - » Terrain
 - » Fauna/flora

Factors Affecting Landing/Biting Activity

- Test Subjects

- » Attractancy
- » Skin type
- » Skin chemistry
- » Skin temperature
- » Skin Permeability
- » Blood content and circulation

Factors Affecting Landing/Biting Activity

- Test Methods
 - » Experimental design
 - Exposure skin surface
 - Selection of treatment/control subjects
 - » Continuous and time sampling
 - » Realistic comparison
- Cannot predict initial or confirming event