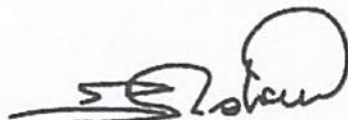




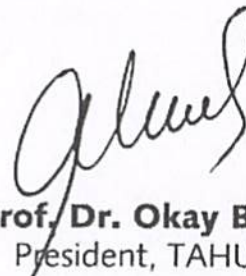
This is to certify that  
**Hardisman Dasman**  
**Indonesia**

*Presenter/ Speaker*

Participated at the 20<sup>th</sup> Wonca Europe Conference  
held in Istanbul, Turkey, October 22-25, 2015.



**Prof. Dr. Dilek Guldal**  
Congress President



**Prof. Dr. Okay Basak**  
President, TAHUD

# Using Repellent as Mosquito Bite Protection: Solving Problem with Problem

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# The Problems

- ❑ Mosquito has significant role as a vector various infectious diseases:
  - Eg: malaria, dengue, etc
  - Especially in tropical regions
- ❑ Female mosquitoes need mammalian/ human blood:
  - For maturing their eggs.
  - While sucking the human blood: transmit parasites, which cause diseases in human

Example:

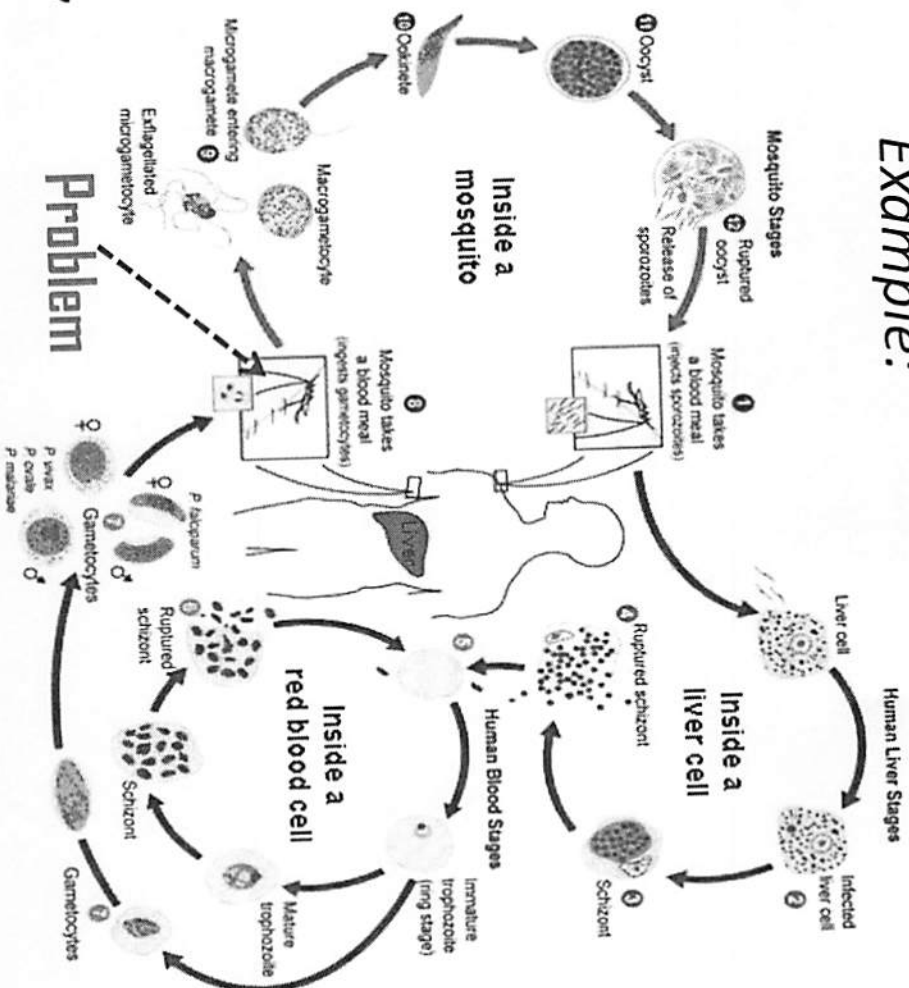


Figure 1. Plasmodium Life cycle

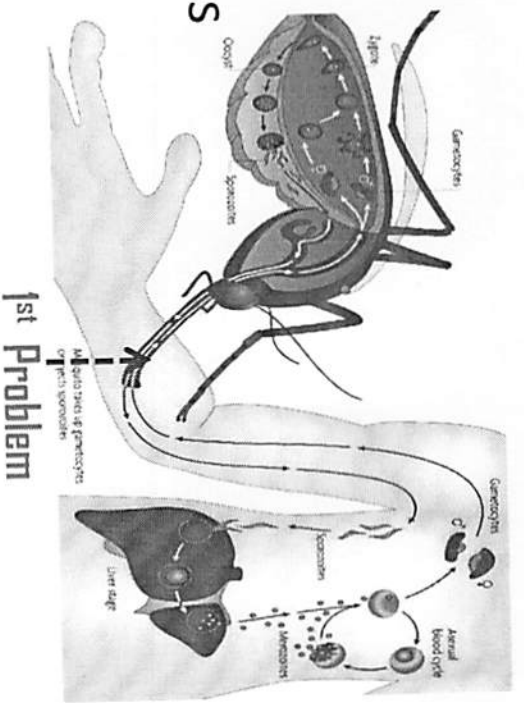
Source: CDC



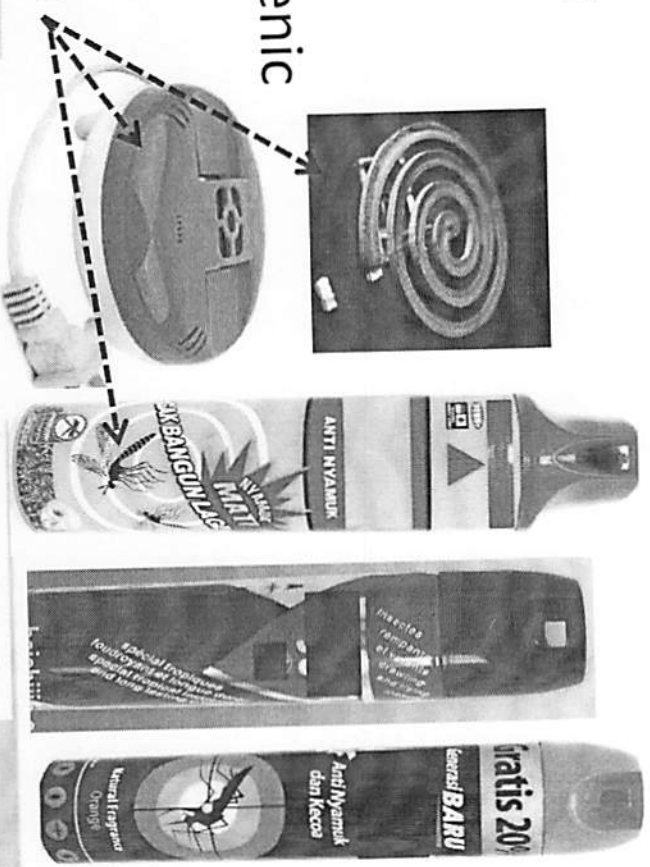
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- ❑ Mosquito's bite protection
  - burned, toxic spray, and electric repellents
- ❑ Unfortunately, using the repellents causes health problems
  - Respiratory disorders
  - Cough and eye irritation
- ❑ The repellents also contain *allethrin*
  - Toxic substance
  - all kind of repellents
  - causes oxidative stress and cell damaged that leads to carcinogenic process.



Solution → Next Problem



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**Monitoring of allethrin, deltamethrin, esbiothrin, prallethrin and transfluthrin in air during the use of household mosquito repellents**

Ramesh A , Vijayalakshmi A.

Int J Dev Neurosci. 2004 Feb;22(1):31-7.

**Mosquito repellent (pyrethroid-based) induced dysfunction of blood-brain barrier permeability in developing brain**

Sinha C , Agrawal AK, Islam F, Seth K, Chaturvedi RK, Shukla S, Seth PK.

J Toxicol Sci. 2006 Feb;31(1):1-7.

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## WHO SPECIFICATIONS AND EVALUATIONS

### FOR PUBLIC HEALTH PESTICIDES

#### *D*-ALLETHRIN<sup>1</sup>

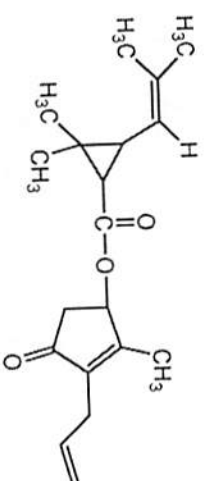
(*R*S)-3-allyl-2-methyl-4-oxocyclopent-2-enyl (1*R*)-*cis*-trans-chrysanthemate

2002



WORLD HEALTH ORGANIZATION  
Geneva

<sup>1</sup> *D*-Allethrin is the name given by the manufacturer, in the absence of an ISO common name



$C_{19}H_{26}O_3$

**Figure 2. Allethrin Chemistry and Molecule Formula**



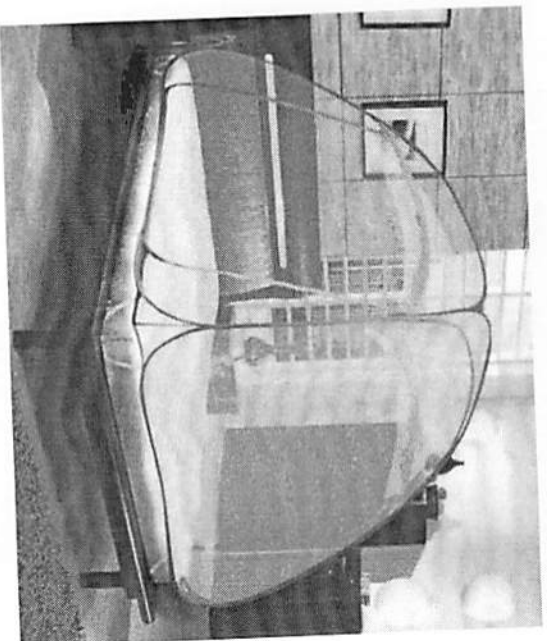
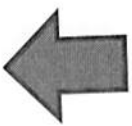
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# Discussion

- **What is the best strategy ?**
  - Healthy environment
  - Healthy housing
  - Family physicians have significant role to promote this action
- Do we need to campaign to **stop using mosquito repellents?**



*Thank You*



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