



Mosquitoes not at all Swatted!

Key Findings

- In liquidizer type, brand All Out (95.10%) was found most efficient in biological efficacy test followed by Maxo (94.60%) and Knight Queen (93.50%). Brand Mortein (80.70) was found least efficient among all.
- In cream/lotion/oil/wet wipe category, all the brands were found satisfactory in biological efficacy but brand MOS-OEL was most effective against mosquitoes followed by Odomos lotion and cream.
- All the brands of all categories category were found with lasting time same as declared.
- All the brands of cream/lotion/oil were found under weight.

In urban Indian scenario, the consumers have two options, expose themselves to the insidious: poisoning of the mosquito repellants or take the Malaria risk. Almost all choose the market provided method.

The market comes up, every season (April to November roughly) with ever new and varied versions of the options: wipe, apply, plug in, coil; choice is with the consumers. Mosquitoes have been responding likewise by developing ever stronger resistance to the toxic cocktails, and becoming increasingly immune to most methods devised to destroy them.

The question is when will the consumers develop immunity and become super consumers to get beyond the combined assault of the marauders and the markets?

Malaria is one of the most common diseases, throughout the world. It spreads through the bite of female Anopheles Mosquito. The common symptoms of Malaria are high fever coupled with severe shivering. If not treated immediately it can become fatal and lead to death of the victim, and if not controlled

Brand	Rank
Liquidizer	
All Out	1
Maxo	2
Knight Queen	3
Good Knight	4
Mortein	5

Comparative Test

Brand	Rank
Liquidizer	
Odomos (lotion) 	1
Odomos (cream) 	2
Good Knight (cream) 	3
MOS-OEL Dengue Plus Citronella (oil) 	4
Wet Wipe	
Maxo Safe & Soft (wet wipe) 	1

properly it may take epidemic form. It is therefore very essential to control the growth of mosquitoes and take preventive measures at the grass-root level to stop the out break of Malaria from becoming an epidemic. All over the world, various Physical; Chemical and Electronic methods are being used to prevent yourself from mosquitoes. In recent years the use of the chemical known as d-Allethrin has become quite popular. It is used as an active ingredient of various

compositions in the form of Mats, Coils and Vaporizers. Now a days there are many options available in the market as mosquito repellents but VOICE covered repellents like liquidizers, creams, lotions, oils and wetwipes(tissue). Wetested thevarious brands of all these categories except coils & mats. Since the Standards for mosquito repellents for these types are not yet formulated in India, we developed the test programme for testing of mosquito repellents based on the Malaysian Standards as well as against the claims of the manufacturers of product.

Packaging

The packing of mosquito repellent of liquidizer, cream, oil and tissue type should be in such a manner that the package offers sufficient protection from leakage or contamination. All the brands of mosquito repellents were packed properly and appropriately to suit the product.

Marking

Mosquito repellents should be marked with the following information:

- Name of the material
- Indication of the source of product
- Batch number
- Date of manufacture
- Date of expiry
- Net quantity
- Ingredients
- Directions for use, etc.
- MRP
- Lasting Time
- Standard mark, if any
- Cautionary notice as worded

In Insecticides Act, 1968 and Rules.

Brands All out, Good Knight, Night Queen and Mortein were observed

with all required information in liquidizer type mosquito repellent and Maxo Safe & Soft wet wipe was also marked with all required information. Brands of cream & lotion did not mention the quantity to be used for applying on the human skin. Brand MOS-OEL (Dengue-Plus) did not mark some of the required information like direction for use, lasting time, cautionary note etc.

Net Quantity/Mass

All the brands of liquidizer were found with the quantity they claimed. However all the brands of cream/ lotion/oil were found under weight.

Lasting Time

Lasting time is the duration for which the liquidizer would last. In liquidizer category brand Good Knight (479 Hrs) was found with the maximum lasting time followed by Maxo (478 Hrs) and Knight Queen (445 Hrs). Brand All Out (336 Hrs) was found with minimum lasting time but almost as declared. In ream/lotion/ oil/wet wipe category all the brands we tested were found satisfactory in terms of duration of effectiveness i.e. lasting time.

Active Ingredient

Active ingredients in different types of mosquito repellents are the chemicals used to deactivate the mosquitoes.

All the brands we tested were found with the quantity of active ingredients close to as claimed. In liquidizer category brand Knight Queen was found with maximum percentage of active ingredient followed by Mortein and All Out.

Value for money would be brand All Out as it was costing ₹48.15 lowest among the entire liquidizer range of products.



In cream/lotion/oil type mosquito repellent, brand Odomos (lotion) had slightly more percentage of active ingredients than declared.

Efficacy/Application Test

Our test program was finalized after taking the guidance on performance tests from Indian as well as Malaysian Standard to cover the additional test on Biological Efficacy for this product.

The followed standard prescribes the method for the evaluation of the biological efficacy of mosquito electric vaporizing liquid and we have also followed the same method for the second category of mosquito repellent cream/lotion/oil/ wet wipe by the use of glass chamber method.

How we tested

The test was conducted in an air conditioned environment at a temperature of 24 to 28°C and relative humidity of 55 to 75 percent.

In this test, a glass chamber (Perspex transparent glass 70x70x70 cm) was used, where a total of approx twenty wild sucrose-fed mosquitoes were released to undergo biological efficacy.

In electric vaporizing liquid type, each liquidizer was released in the glass chamber for maximum twenty minutes and during this process the activity of mosquitoes was observed in terms of total number of knockdown of mosquitoes. The process was replicated at least three times on each sample.

In cream/lotion/oil/wet wipe type, the recommended quantity of mosquito repellent cream/lotion/oil/wet wipe

was applied on the forearm (wrist to elbow) of the volunteer and inserted in the glass chamber. The behavior & activity of the mosquitoes were monitored on their landing on forearm, senseless/motion less & falling down was recorded. The total number of mosquitoes knocked down was recorded in hrs. & minutes.

In liquidizer type, All Out 95.10% was found most efficient in biological efficacy test followed by Maxo 94.60% and Knight Queen 93.50%. Mortein 80.70% was found slightly less efficient among all. In cream/lotion/oil/wet wipe category, all the brands were found satisfactory but brand MOS-OEL was most effective against mosquitoes followed by Odomos lotion and cream.

Conclusion

All the brands of mosquito repellents of both categories performed well in biological test followed by other qualitative tests. Based on the quality and performance test parameters, **brand ALL Out scored top among**

all in vaporizer types followed by Maxo & Knight Queen. In application type brands Odomos (lotion) scored top followed by Odomos & Good Knight (cream).

Alternative measures to combat mosquitoes

For tropical climates, the challenge of evolving a safe and effective weapon against mosquitoes is always there. For centuries, Indians have used herbal and organic methods of mosquito control like fumigation with Eucalyptus and Neem leaves, planting of Tulsi (Holy Basil) plant to keep away the pesky creatures, as also biological control methods. Lemon grass has also been used as a mosquito-repelling tool. The juice of its stems and leaves is rubbed on the skin to form a natural mosquito repellent.

Action for the Community:

Weekly emptying and drying of all standing water sources in and around the house. Water should be stored in containers that can be easily cleaned

Odomos is certified as safe to use by leading authorities in India while being highly effective against mosquitoes.

Conventional mosquito repellent range-- like liquid vapourisers, mats and coils -- offer protection in the closed confines of a room, whereas creams like the Odomos personal application range offers protection not only inside the house but also outdoors where the chances of getting bitten by disease-causing mosquitoes are high, especially for children, when playing in the parks in the evenings. They are handy during travel also. During the Consumer VOICE Laboratory test, within one hour thirty minutes of the Odomos application, no movement was observed from the mosquitoes and no mosquito landed on forearm during the test.

** The key advantages of using application type of mosquito repellent over the regular selling repellents are that they are convenient to use outside the living areas (house/office) as well as where the density of mosquitoes is high and also during Malaria & Dengue epidemic. These serve the dual purpose of repelling mosquitoes as well as providing a pleasant, fragrant moisturising cover without the strong citronella oil smell.

Comparative Test

and emptied, and their opening should be lidded.

(a) Drainage: Proper gradient should be provided to eliminate standing of water in drains, lowlying areas, ditches, and pits. Periodic desilting of drains, sewers and storm water drains before the onset of monsoons should be done.

(b) Biological control: Larvivorous

fish in ponds and water bodies is

the best way to nip the mosquito problem in the bud.

(c) Keep doors closed: Mosquitoes storm in at dusk time, and then in the early morning cool, they try to get out. There-fore doors and windows should be closed at dusk, and temporarily opened during dawn, to let the mosquitoes out

What preventive measures can I take toward off mosquitoes?

Keep your home and surroundings clean. Mosquitoes breed in stagnant water found in coolers, flowerpots, open drains, small ponds, bird baths, pets' utensils and other water bodies. It takes 7-10 days for the mosquito to hatch so make sure the water is changed regularly. Wherever stagnant water remains, add a few drops of kerosene oil as it forms a thin film over these water bodies and prevents breeding of larvae

Avoid dark, bright color clothing

Dark bright colours seem to attract insects, so it is best to dress your baby in light color clothing that does not leave too much exposed skin. Choose long sleeve tops, fitted garments like pants and jumpers instead of shorts and sleeveless tops

Avoid strong fragrances

Do not use lotions, soap, oils or floral scented perfumes or room fresheners as these may attract insects. Never leave uncovered food anywhere in

your home, especially in your baby's room.

Fix wire mesh and screens on doors and windows

Most insects enter your home at dawn, dusk or early evening. However if there are certain open areas, insects will make a permanent dwelling there. After cleaning out such areas, put wire mesh or screens on all windows and doors. This will prevent bugs and insects from entering your home and will also let enjoy the benefits of fresh air.

Use mosquito nets

This option is safe till your baby starts moving around. Also make sure that no mosquito is caught under the net

Application on volunteers Maxo Safe & Soft

In the initial stage performance of the wet tissue was satisfactory and mosquitoes were becoming senseless. But after 1 hr mosquitoes got active and were landing on the forearm.

Odomos (cream)

Within one hour thirty minutes all the mosquitoes became senseless & motionless, no further movement was observed. No mosquito landed on forearm during the test.



Good Knight (cream)

Within one hour thirty minutes all the mosquitoes become senseless & motionless, no further movement was observed. No mosquito landed on forearm during the test but hovering around after 45 minutes



MOS-OEL (oil)

Within 45 minutes all the mosquitoes become senseless & motionless, no further movement was observed. No mosquito landed on forearm during the test.



Odomos (lotion)

Within one hour thirty minutes all the mosquitoes became senseless & motionless, no further movement was observed. No mosquito landed on forearm during the test . After 40 minutes of the test mosquito starts hovering around the forearm of the user.



COMPARATIVE TEST PERFORMANCE SCORE OF MOSQUITO REPELLENT (LIQUIDIZER & APPLICATION TYPE)

Brand Parameter	% Weightage		Liquidizer Type (A)					Application Type (B)				
	A	B	All Out	Maxo	Knight Queen	Good Knight	Mortein	Odomos (lotion)	Odomos (cream)	Good Knight	MOS-OEL	Maxo Safe & Soft
Pack Size			35ml	45ml	45ml	45ml	35ml	120ml	50gm	50gm	10ml	1 wet tissue
MRP in ₹			48.15	49	66	54	49	60	35	36	30	3
1. Physico-chemical Tests												
1.1 Lasting Time	20	15	19.91	20	19.77	20	19.97	15	15	15	15	15
1.2 Active Ingredient	15	10	14.81	15	15	15	15	10	10	9.97	9.96	10
1.3 Net Quantity	5	5	5	5	5	5	5	4.89	4.95	4.78	2.21	5
2. Biological Efficacy Test	50	50	45.1	44.6	43.5	41	36.7	46.75	45.75	44.25	50	38.75
3. Sensory Tests	NA*	10	NA*	NA*	NA*	NA*	NA*	10	9.5	9.5	6	8.6
4. General Parameters												
4.1 Packing	5	5	5	5	5	5	5	5	5	5	5	5
4.2 Marking	5	5	5	4.5	5	5	5	4.5	4.5	4	3	5
Overall Score	100		94.82	94.1	93.27	91	86.67	96.14	94.7	92.5	91.17	87.35

Rating: >90 – Very Good ***** 71-90- Good ***** 51-70- Average*** 31-50- Poor ** upto 30 – Very Poor *

*NA - Not Applicable