



**BIOMEDICAL RESEARCH AND INNOVATION CENTER [BRIC-MIST]
MILITARY INSTITUTE OF SCIENCE AND TECHNOLOGY**

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Table 1: Summary of Toxicological Evaluation in Rat Model

Ser	Group	Product Brand	Body weight gain (%) Mean $\pm$ SD	Lung organ index (%) Mean $\pm$ SD	ALT (U/L) Mean $\pm$ SD	AST (U/L) Mean $\pm$ SD	Creatinine (mg/dL) Mean $\pm$ SD	Blood Urea (mg/dL) Mean $\pm$ SD	Leukocyte count TLC (μ L) Mean $\pm$ SD	Hemoglobin Levels (g/dL) Mean $\pm$ SD	Observed Toxicity Profile
1.	Control	Control	13.59 $\pm$ 1.22	0.58 $\pm$ 0.04	37.23 $\pm$ 6.64	75.87 $\pm$ 3.75	0.71 $\pm$ 0.09	32.37 $\pm$ 4.87	8,357 $\pm$ 15.39	13.25 $\pm$ 0.62	Reference
2.	Coil Exposure	Coils (4 products)	10.08 $\pm$ 1.36	0.79 $\pm$ 0.07	63.22 $\pm$ 5.67	88.27 $\pm$ 15.55	1.10 $\pm$ 0.18	44.18 $\pm$ 2.99	11,229 $\pm$ 1,022.05	10.47 $\pm$ 1.12	High
3.	Vaporizer Exposure	Liquid Vaporiser	10.57 $\pm$ 1.41	0.76 $\pm$ 0.02	61.07 $\pm$ 5.60	81.73 $\pm$ 5.51	0.80 $\pm$ 0.04	39.40 $\pm$ 0.17	9,213 $\pm$ 574.38	10.02 $\pm$ 1.13	Moderate-High
4.	Aerosol Exposure	Aerosol sprays (2 products)	11.01 $\pm$ 1.54	0.78 $\pm$ 0.05	57.12 $\pm$ 1.65	80.97 $\pm$ 8.79	1.04 $\pm$ 0.07	36.95 $\pm$ 6.81	10,863 $\pm$ 543.98	10.14 $\pm$ 0.88	High
6.	Natural Repellent Humidifier based	Leeings Mosquito repellent liquid	13.40 $\pm$ 1.72	0.56 $\pm$ 0.06	43.53 $\pm$ 5.91	76.70 $\pm$ 6.39	0.77 $\pm$ 0.04	33.27 $\pm$ 4.06	8,307 $\pm$ 639.05	13.48 $\pm$ 0.38	Low

Table 2: Summary of concentrations of airborne pollutants during mosquito-repellent use (10 minutes per hour)

Ser	Group	Exposure condition	PM _{2.5} (μ g/m ³) Mean $\pm$ SD	PM ₁₀ (μ g/m ³) Mean $\pm$ SD	CO (ppm) Mean $\pm$ SD	TVOC (mg/m ³) Mean $\pm$ SD	Risk to human health
1.	Control	Control	8 $\pm$ 2	15 $\pm$ 4	0.4 $\pm$ 0.1	0.10 $\pm$ 0.03	Reference
2.	Coil Exposure	Coils (4 products)	515.95 $\pm$ 98.79	701.81 $\pm$ 205.76	7.39 $\pm$ 0.73	2.50 $\pm$ 0.25	Very high
3.	Vaporizer Exposure	Liquid Vaporiser	42.03 $\pm$ 3.87	69.67 $\pm$ 1.89	0.85 $\pm$ 0.20	1.45 $\pm$ 0.05	Moderate
4.	Aerosol Exposure	Aerosol sprays (2 products)	76.39 $\pm$ 23.50	137.42 $\pm$ 53.10	0.73 $\pm$ 0.33	1.60 $\pm$ 0.39	Moderate-High
6.	Natural Repellent Humidifier based	Leeings Mosquito repellent liquid	17.70 $\pm$ 0.61	27.87 $\pm$ 3.50	0.24 $\pm$ 0.10	0.18 $\pm$ 0.04	Low

Table 3: Summary of Indoor pollutant concentrations during repellent use (8 hours)

Ser	Product Category	Product Name	n	PM _{2.5} μ g/m ³ (Mean $\pm$ SD)	PM ₁₀ μ g/m ³ (Mean $\pm$ SD)	CO ppm (Mean $\pm$ SD)	TVOC mg/m ³ (Mean $\pm$ SD)
1.	Mosquito Coil	Coil category (5 products)	27	430.17 $\pm$ 34.79	521.03 $\pm$ 32.87	7.47 $\pm$ 0.17	0.56 $\pm$ 0.05
2.	Electric Vaporizer	Liquid Vaporiser	3	42.03 $\pm$ 3.87	69.67 $\pm$ 1.89	0.85 $\pm$ 0.20	0.45 $\pm$ 0.05
3.	Aerosol Spray	Aerosol category (2 products)	6	56.55 $\pm$ 3.59	88.95 $\pm$ 7.03	1.03 $\pm$ 0.25	1.31 $\pm$ 0.02
5.	Natural Repellent Humidifier based	Leeings Mosquito repellent liquid	3	17.70 $\pm$ 0.61	27.87 $\pm$ 3.50	0.24 $\pm$ 0.10	0.18 $\pm$ 0.04

Table 4: Respiratory symptom scores and severity

Ser	Repellent Category	Data level	n	Score mean $\pm$ SD	Median	Range	Severity distribution
1.	Mosquito Coils	Category-level survey	11	8.45 $\pm$ 0.52	8	8-9	Moderate 6; Severe 5
2.	Aerosol Sprays	Category-level survey	11	7.00 $\pm$ 0.63	7	6-8	Moderate 11
3.	Electric Vaporizers	Category-level survey	11	5.09 $\pm$ 0.70	5	4-6	Mild 8; Moderate 3
4.	Topical Lotions	Category-level survey	11	2.64 $\pm$ 0.50	3	2-3	Mild 11
5.	Natural Repellent	Category-level survey	11	1.33 $\pm$ 0.49	1	1-2	None 8; Mild 3

