

The Journal of Allergy and Clinical Immunology
2006 American Academy of Allergy, Asthma and Immunology.

Volume 117, **Issue 2, Supplement**, Page S28 (February 2006)

Ultraviolet C Exposure is Fatal to American House Dust Mite Eggs

RATIONALE: Ultraviolet C exposure is lethal to an array of organisms by damaging their nucleic acids (DNA and RNA). This non-chemical tactic has been assumed to kill house dust mites (HDM). We tested two exposure times against newly laid *Dermatophagoides farinae* eggs.

METHODS: American HDM eggs were exposed to UV-C for either 5 or 15 seconds at less than 2 cm distance, and hatchability was monitored for 10 days. Specimens were confined in a 24-well titer plate at 70% RH and 27°C and compared to untreated controls.

RESULTS: None of the UV-C exposed eggs (23@5 secs; 18@15 secs) hatched while 26 of 27 control eggs hatched into viable larvae. Scanning electron micrographs show that many of the eggs collapsed by 8 days and no larval mites escaped the eggs. Eggs that failed to hatch showed little or no differentiation compared to controls when sub-illuminated using light-level microscopy.

CONCLUSIONS: UV-C has potential to break the life cycle of HDM by killing the embryonic stage thus stopping the production of allergens. Further susceptibility tests are being conducted with shorter exposure times and against the other life stages.

Ultraviolet C Exposure is Fatal to American House Dust Mite Eggs

G. Needham, C. Begg, S. Buchanan

The Journal of Allergy and Clinical Immunology

February 2006 (Vol. 117, Issue 2, Page S28)

[Full Text](#) | [Full-Text PDF \(197 KB\)](#)

Funding: UviaClean, Inc.