

Abstract Submitted
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Nanostructured thermites based on iodine pentoxide for bio agent defeat systems. MKHITAR HOBOSYAN, ALEXANDER KAZANSKY, KAREN MARTIROSYAN, University of Texas at Brownsville — The risk for bioterrorist events involving the intentional airborne release of contagious agents has led to development of new approaches for bio agent defeat technologies both indoors and outdoors. Novel approaches to defeat harmful biological agents have generated a strong demand for new active materials. The preferred solutions are to neutralize the biological agents within the immediate target area by using aerosolized biocidal substances released in situ by high energetic reactions. By using nano-thermite reactions, with energy release up to 25 kJ/cc, based on I₂O₅/Al nanoparticles we intend to generate high quantity of vaporized iodine for spatial deposition onto harmful bacteria for their destruction. In this report, the effect of reaction product on growth and survival of Escherichia coli (E-coli) expressing GFP (Green Fluorescent Protein) was investigated. Moreover, we developed an approach to increase sensitivity of the detection. The study has shown that I₂O₅/Al nanosystem is extremely effective to disinfect harmful biological agents such (E-coli) bacteria in seconds.

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