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Implementation of microscale ZnO with controlled morphologies to study the influence of surface polarity on ZnO antibacterial action MARK HATTARKI, TABS high school, JOHN REEKS, Physics Department, TCU, ERIC DAVIS, Los Alamos National Laboratory, TABITHA HAUN, Home Schooled high school student, IMAN ALI, SHAUNA MCGILLIVRAY, Biolog Department, TCU, YURI STRZHEMECHNY, Department of Physics and Astronomy, TCU — Antimicrobial properties of microscale ZnO have been well documented, however a clear model of this action has not been identified. Within the hypothesis that one of the major mechanisms causing ZnO antibacterial properties is rooted in the interactions between the surface of ZnO crystals and the cell's surface, it is reasonable to assume that ZnO surface polarity may affect its antibacterial properties. We employed hydrothermal growth method to controllably synthesize ZnO particles with different relative abundances of polar vs. non-polar surfaces and subsequently investigated antibacterial assays with these microcrystalline samples.

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