World Academy of Science, Engineering and Technology
International Journal of Environmental and Ecological Engineering
Vol:13, No:06, 2019

Evaluation of Risk and the Beneficial Effects of Synthesized Nano Silver-Based Disinfectant on Poultry Mortality and Health

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Abstract : This study was evaluated for the potential use of nanosilver (nAg) as a disinfectant and antimicrobial growth promoter supplement for the poultry. The experiments were conducted in the Kangsabati river basin region, in West Medinipur district, West Bengal, India for six months. Two poultry farms were adopted for the experiment. The rural economy of this region from Jhargram to Barkola is heavily dependent on contract poultry farming. The water samples were collected from the water source of poultry farm which has been used for poultry drinking purpose. The bacteriological analysis of water sample revealed that the total bacterial count (total coliform and E. coli) were higher than the acceptable standards. The bacterial loads badly affected the growth performance and health of the poultry. For disinfection, a number of chemical compounds (like formaldehyde, calcium hypochloride, sodium hypochloride, and sodium bicarbonate) have been used in typical commercial formulations. However, the effects of all these chemical compounds have not been significant over time. As a part of our research-to-market initiative, we used nanosilver (nAg) formulation as a disinfectant. The nAg formulation was synthesized by hydrothermal technique and characterized by UV-visible, TEM, SEM, and EDX. The obtained results revealed that the mortality rate of poultry was reduced due to nAg formulation compared to the mortality rate of the negative control. Moreover, the income of the farmer family was increased by 10-20% due to less mortality and better health of the poultry.

Keywords : farm water, nanosilver, field application, and poultry performance
Conference Title : ICEME 2019 : International Conference on Environmental Management and Engineering
Conference Location : Oslo, Norway
Conference Dates : June 24-25, 2019