



**EFFECT OF LIME AND NITRIFYING BACTERIA IN THE REDUCTION
OF AMMONIA FOR THE MANAGEMENT OF POULTRY**

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ABSTRACT

Cases of morbidity and mortality in poultry due to ammonia were recorded in several farms in Batangas province. Several strategies were employed but the costs were too high and the net profit becomes minimal. The study was conducted to assess the effect of lime and nitrifying bacteria in the reduction of ammonia for the management of poultry. Treatment set ups were prepared such as (T_1) soil + chicken manure + lime, (T_2) soil + chicken manure + nitrifying bacteria, (T_3) soil + chicken manure + lime + nitrifying bacteria. T_0 served as control with soil and chicken manure only. The set ups were observed in mason jars for the *in vitro* set up and plastic jars for the *in situ* set-up wherein ammonia was measured in three consecutive weeks in the *in vitro* and two weeks in the *in situ*. Ammonia was measured using titration method before and after the addition of lime and nitrifying bacteria. The nitrifying bacteria were isolated from the soil samples using ammonium nitrate medium. For the *in vitro* set-up, the results showed that 108.4 mg/ NH_3 per 200 g of soil was extracted from the set-up without lime and nitrifying bacteria. After 21 days of incubation with lime, ammonia significantly decreased ($p < 0.05$) to 35.4 mg/ NH_3 per 200 g of soil whereas a significant decrease ($p < 0.05$) to 0.17 mg/ NH_3 per 200 g of soil was observed in set-up with nitrifying bacteria. In the presence of both lime and nitrifying bacteria, there was a significant decrease ($p < 0.05$) to 0.34 mg/ NH_3 per 200 g of soil was observed. The result in the *in situ* set-up validates the results of the *in vitro* set-up. The combination of NB and lime has significantly reduced ($p < 0.05$) the amount of ammonia produced over 14 days of incubation. From 171.65 to 10.15 mg/ NH_3 per 200 g of soil was observed. It can be concluded that the addition of both lime and nitrifying bacteria or nitrifying bacteria alone reduces the ammonia produced. The results indicate that a low-cost strategy of using nitrifying bacteria can be applied in poultry houses to minimize mortality of chicken caused by ammonia.



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