



## Effects of Herbal Anti-microbial Amendments on Ammonia Emission from Broiler Litter

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### Abstract

Emission of ammonia (NH<sub>3</sub>) from poultry litter has a range of negative effects both on animals and employees who work in poultry houses. Meanwhile emissions of NH<sub>3</sub> to the atmosphere are considered a threat to the environment. Objective of this study was to determine whether emission of NH<sub>3</sub> from broiler litter could be reduced by using plant materials having anti-microbial properties as litter amendments. Giving a completely randomized design with eight replicates, 13 days old broiler chicks (n=96) were allocated into 32 floor pens, each having paddy husk litter amended either with Cinnamon (*Cinnamomum zeylanicum*) outer bark (cork layer) powder, Neem (*Azadirachta indica*) leaf powder, Accasia (*Accasia indica*) leaf powder at 7.5%, alum at 2.5%. Twenty four chicks in eight pens having paddy husk litter without an amendment served as the control. Birds were raised on respective litter until day 38. Litter samples taken from each cage on day 24 and 38 were used to determine litter moisture, pH and ammonia emission rate. Litter amendments had no significant ( $p > 0.05$ ) effect on growth performance parameters and, litter moisture, pH and bulk density. Both on day 24 and 38, ammonia emission rates of the litter amended with alum were significantly lower than all other treatments. Meanwhile, ammonia emission rates of the litter amended with accasia and cinnamon were not significantly different from that of the control litter with no amendment. Both on day 24 and 38, the ammonia emission of the litter amended with neem was not significantly different from the alum treated litter and lower than litter treated with cinnamon and the control group. There were no statistical relationships between ammonia emission either with litter moisture or litter pH. It was concluded that 7.5% neem leaf powder is as effective as alum in controlling the ammonia emission from broiler litter.

**Keywords:** *accasia, cinnamon, litter amendments, neem.*

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