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## Effects of Zeolite in Aflatoxin B1 Contaminated Diet on Aflatoxin Residues in Duck's Tissues

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### Abstract

Aflatoxins are toxic metabolites produced mainly by *Aspergillus flavus* and *A. parasiticus*. Among them, aflatoxin B1 (AFB1) is the most toxic and carcinogenic compound both for human and animal. Duck is one of the most sensitive animals to aflatoxin exposure that may related with their liver biotransformation capacity. Therefore, consumption of AFB1 contaminated diet will not only lead to decrease on duck performance but potentially present aflatoxin residues in duck's tissues and egg. This research was conducted to study the effects of zeolite as an AFB1 adsorbent in reducing aflatoxin residues in the liver, meat, and egg of Indonesian local laying duck, *Anas platyrinchos* Borneo. Sixty-four of 7 months laying ducks were randomly allotted to 2 levels of AFB1 (low: 30 ppb; and high: 70 ppb) and 2 levels of zeolite inclusion (0 and 2%). *In vivo* trial was conducted for 28 days and at the end of treatment, the birds were sacrificed. Meat, liver, and egg samples were collected for AFB1 and aflatoxin M1 (AFM1) determination. AFB1 and AFM1 concentrations were determined using ELISA analysis. Data were analysed by analysis of variance using the general linear model of SPSS software. Liver sample were also collected for liver histopathology examination. Results showed levels of AFB1 in feed significantly ( $p < 0.05$ ) increase AFB1 concentration in liver and AFM1 in the egg. Zeolite inclusions tended to reduce AFB1 and AFM1 concentrations in liver and egg, but these were not significantly different ( $p > 0.05$ ). Examination of liver samples indicated moderate and severe liver pathology in diet without zeolite inclusion. In conclusion, zeolite inclusion in the diet could reduce aflatoxin residues in liver and egg of laying duck.

**Keywords:** Aflatoxin B1, aflatoxin M1, egg, laying duck, liver, zeolite