

STUDIES ON THE SOLUTIONS FOR PREVENTION AND TREATMENT OF MOLD INFECTION IN ANIMAL FEED

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The survey results showed that aflatoxin contamination in animal feed in Southern Vietnam was comparatively high rate, especially in protein-rich ingredients and corn. The proportion of protein-rich ingredient infected with aflatoxin was 53.8% and corn was 37.25%. The aflatoxin contamination in animal feed fluctuated largely, from 0.1 to 676 ppb.

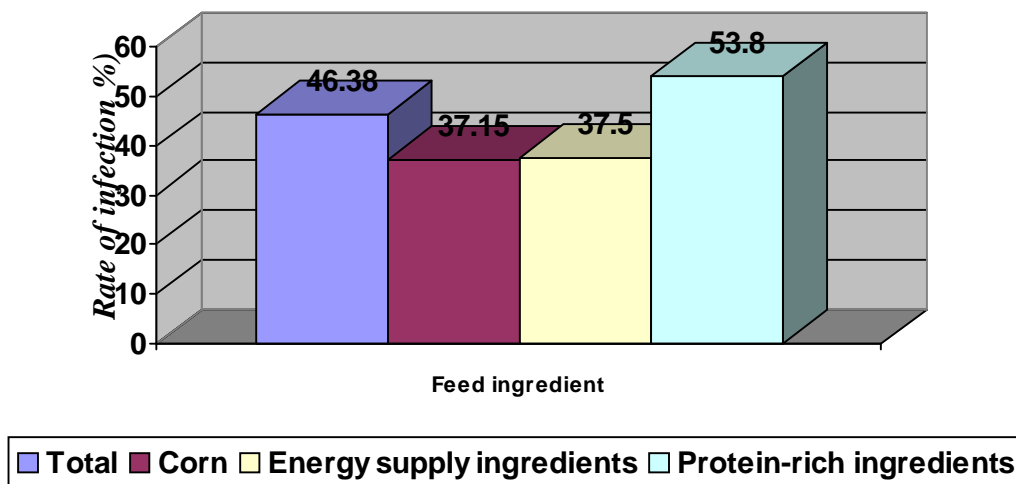


Figure 1. Aflatoxin infection rate of feed ingredients in Southern Vietnam

The study results of mould prevention method in animal feed showed that, the short chain organic acids have anti-mould activity. After inclusion in animal feed, it can penetrate into the mould cells and kill them, so that the aflatoxin production was considerably decreased. With the inclusion rate of 0.05% -0.3 % (on DM base) the formic and propionic acids can reduce mould cells in animal feed by 35 – 40 % and the aflatoxin contamination decreased by 70%-80 %.

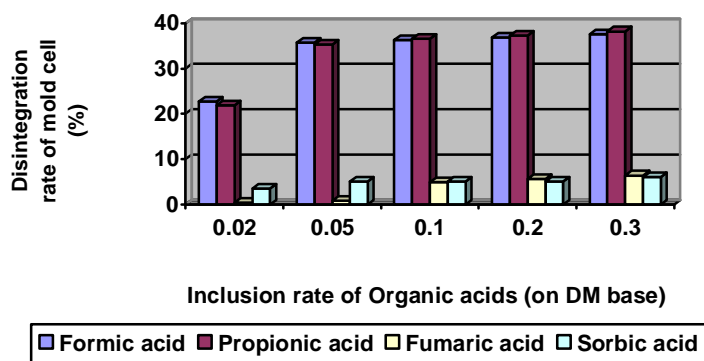


Figure 2. Anti-mold activity of organic acids

The effect of organic acids on aflatoxin disintegration in animal feed

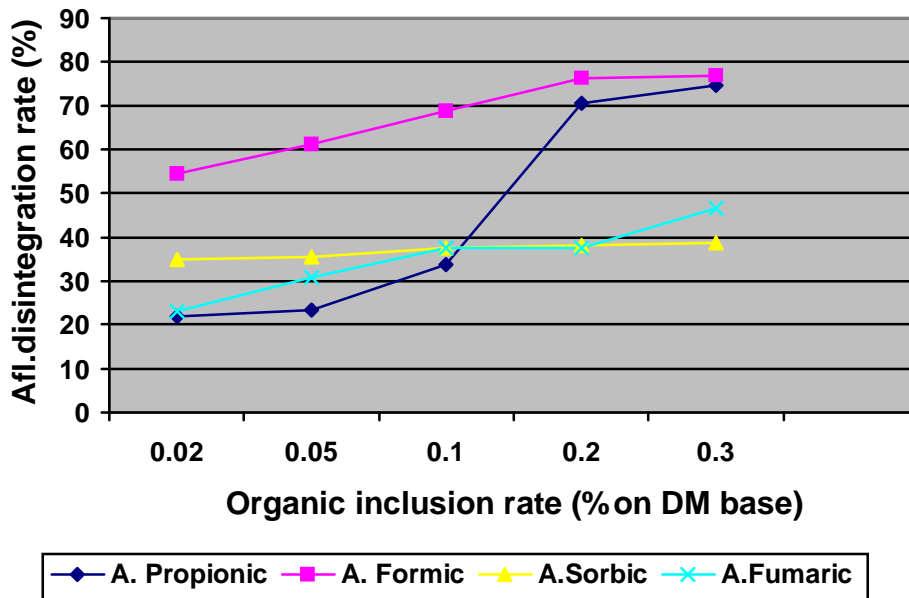


Figure 3. The effect of organic acids on aflatoxin disintegration in animal feed

Table 1. The effect of bentonite sodium in the post weaning piglet diet

Criteria	Control	T1 (+1 kg bentonite)	T2 (+ 1 kg bentonite)
Aflatoxin content in piglet diet (ppb)	9,9	9,9	19,8
Number of pigs in treatment	38	38	38
Initial weight (kg/piglet)	8,38 ± 1,31	8,74 ± 1,74	8,92 ± 1,44
- Average BW of male (kg/piglet)	8,46 ± 1,57	8,44 ± 1,99	8,94 ± 1,10
- Average BW of female (kg/piglet)	8,31 ± 1,1	9,05 ± 1,45	8,90 ± 1,71
Final weight (kg/piglet)	17,83 ± 2,86 ^a	19,27 ± 3,51 ^b	19,12 ± 2,59 ^{ab}
- Average BW of male pig (kg/piglet)	18,36 ± 3,77	18,67 ± 3,75	19,80 ± 2,44
- Average BW. Of female (kg/piglet)	17,39 ± 1,85 ^a	19,87 ± 3,24 ^b	18,53 ± 2,62 ^{ab}
Average daily weight gain (kg/day)	0,295 ± 0,063 ^a	0,328 ± 0,079 ^b	0,318 ± 0,061 ^{ab}
FCR	1,94 ± 0,32	1,56 ± 0,62	1,58 ± 0,05

Adding 1 % bentonite sodium in post-weaning piglet diet contaminated 9.9 –19.8 ppm aflatoxin can improve growth rate and FCR.



Conclusions

The formic and propionic acids have the highest anti-mould activity in comparison with other one. With the inclusion rate of 0.05 - 0.3 % in animal feed (on DM base), it can decrease number of mould cells by 35% – 40 % and aflatoxin content by 70 -80 %.

Adding 1% of bentonite sodium into post weaning piglet diet infected 9.9 - 19.8 ppb aflatoxin can improve growth rate and feed conversion ratio in comparison with that of control group without supplementing bentonite sodium.