

## EDITORIAL

# Microbial Presence in Animal Feed and Ways of Treatment: An Editorial

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### INTRODUCTION

Bacteria such as *Clostridium botulinum* and *Staphylococcus aureus*, produce toxins as they proliferate within a food, and when the food is eaten, cause an intoxication. However, other agents have been found to cause food borne disease such as *Bacillus cereus*, enteropathogenic *Escherichia coli*, *Vibrio parahaemolyticus*, and *Yersinia enterocolitica*. The present review discusses on the remedial measures to reduce the microbial load in feed mainly by cooking and/or steam treatment [1].

The feed which is offered to swines is the major source of pathogenic microorganisms. Many bacterial pathogens that are conveyed by foods invade the intestinal mucosa (*Salmonellae*, some *Shigellae* and some enteropathogenic strains of *Escherichia coli*) causing true infection. Others release enterotoxins during growth or lysis (*Vibrio cholerae*, some enteropathogenic *Escherichia coli*), or during sporulation, *Clostridium perfringens* in the gut.

### Microbiological Investigation Reports on Animal Feed

Pirie and Harrigan [2] found heat treatments caused a reduction of over 99.90% in *Clostridium welchii* added to the meat mix. Twenty of these above isolates were identifiable for their genus on the basis of the cultural, morphology, staining and biochemical characters and suggestive for belonging to *Clostridium* species. There are also reports on isolation of *Clostridium perfringens* from the poultry feed samples examined [3]. The concentration ranged from  $10^2$  to  $2.30 \times 10^3$ . Strong *et al.* [4] found the incidence of *Clostridium perfringens* was 4.10% in 610 food samples. Komnenov *et al.* [5] reported *Clostridium perfringens* from 64% out of total 86 feed samples (concentrates and mixes).

Numerous studies showed that the major bacterial groups isolated from the pig intestine are *Streptococcus*, *Lactobacillus*, *Prevotella*, *Selenomonas*, *Mitsuokella*, *Megasphaera*, *Clostridia*, *Eubacteria*, *Bacteroides*, *Fusobacteria*, *Acidodaminococci*, and the *Enterobacteria* [6].

### CONCLUSION

Tempering/ heat treatment in form of cooking or boiling of animal feed especially for the swines reduces the bacterial count, less viable count in boiled kitchen waste suggesting the lowering effect of cooking on viable count of bacteria.

### REFERENCES

1. Gagrai L K, Prasad A, Tiwary B K, Ganguly S. (2011). Bacteriological analysis of microflora in digestive tract of pigs fed with kitchen waste. *Livest. Line.* 4(9): pp.11.
2. Pirie D G, Harrigan W F. (1962). The destruction of *Clostridium welchii* during cooking process. *Proceedings of First International Congress of Food Science and Technology*. London, Sept. 18-21.1962; Ed. Leitch J M. Vol. 2. Gordon and Breach Science Publishers, NY, London, Paris. pp. 481-84.
3. Sarkar M., Mukhopadhyay S K, Niyogi D, Singh, R, Isore D P, Biswas P, Ganguly S. (2012). Incidence and antibiogram of *Cl. Perfringens* type - A in the broiler chicken, poultry feed and farm environment. *Indian J. Anim. Hlth.* 51(1): 13-16
4. Strong D M, Southworth J M L, Canada J C. (1962). The incidence of *Clostridium perfringens* in institutionally prepared foods. *Proceedings of first International Congress of Food Science and Technology*. London, Sept. 18-21, 1962; Ed. Leitch J M. Vol.2. Gordon and Breach Science publishers, NY, London, Paris. pp. 491-97.

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5. Komnenov V, Velhner M, Katrinka M. (1981). Importance of feed in the occurrence of Clostridial infections in poultry. *Veterinarski Glasnik*. 35(3): 245-48. (*Vet. Bull.* 52: 1534)
6. Moore W E C, Moore L V H, Cato E P, Wilkins T D, Kornegay E T. (1987). Effect of high-fiber and high-oil diets on the faecal flora of swine. *Applied and Environmental Microbiol.* 53:1638-44.