Miya-Gold® *is heat-stable during commercial feed processing*

Trial description

1. Purpose

Probiotic products based on spore-forming bacteria have a great ease of use, as spores are extremely robust to harsh environmental conditions. This includes production parameters during feed processing, with spores being able to withstand these conditions better compared to probiotic vegetative cells. To examine this for the spores of probiotic *Clostridium butyricum* in Miya-Gold®, commercial pelleting conditions were applied to batches of feed containing the probiotic, followed by a cell recovery analysis.

2. Experimental design

- **Location:** Danish Technological Institute, Denmark
- **Set-up:** Miya-Gold® was added to two batches of basal broiler feed, followed by a standard pelleting procedure. Conditioning time was either 30 or 60 seconds. Pelleting temperatures evaluated were 75, 80, 85, 90 and 95 degrees Celsius.
- **Products:** 500 g Miya-Gold® per ton of feed, equal to 2.5 x 10^{11} CFU *Clostridium butyricum*/ton of feed.

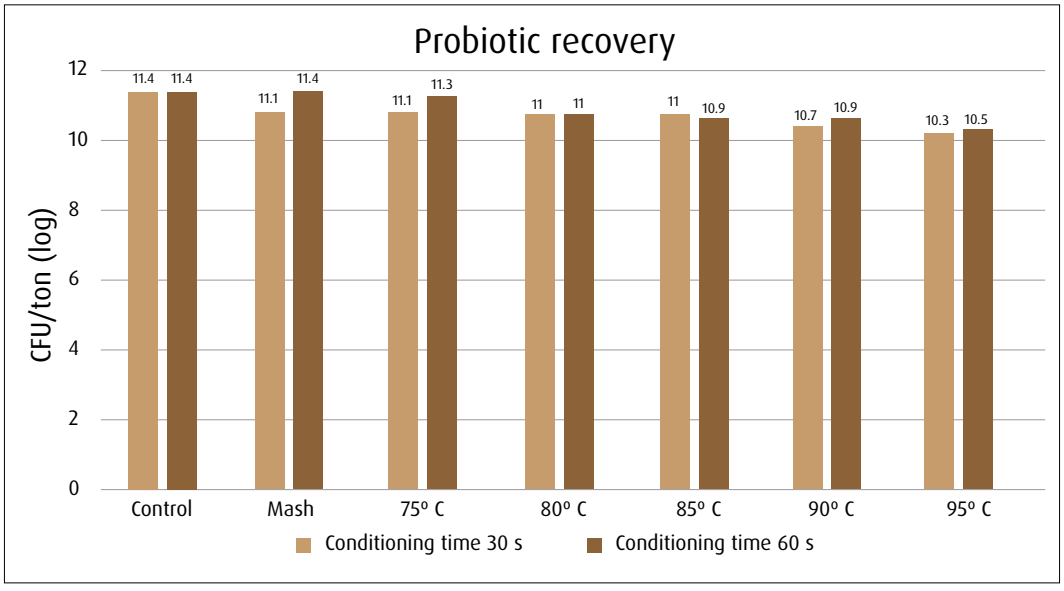
Miya-Gold® is a probiotic feed additive containing viable spores of *Clostridium butyricum*.

3. Measured parameters

Both mash as well as finished pellets were sampled and analysed for probiotic recovery, for both conditioning times and at each applied temperature. A pooled sample was created for each temperature, using 5-10 individual samples. Sampling was started when the targeted temperatures were reached.

Results

Regardless of tested temperature or conditioning time, there was no significant loss of probiotic spores in the processed feed (Graph 1).



Graph 1: probiotic recovery in mash and pellets, analysed at different commercial pelleting conditions and expressed as CFU/ton of feed (log values).

Conclusion

Clostridium butyricum, **the spore-forming probiotic in Miya-Gold®, shows great heat-stability under different commercial feed processing conditions.**

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