

Use of Effective Microorganisms (EM) to Eliminate Foul Odour in Meat

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Mr E. M. Baustista
Senior Agriculturist

Abstract

A collaborative research project of the Bureau of Soils and Water Management and Animal Products Development Centre, Bureau of Animal Industry of the Department of Agriculture was conducted in Marulas, Velezuela, Metro Manila, Philippines, with the objective of determining the effectiveness of EM as foul odour eliminator in slaughter house and meat processing plant. The application of EM as foul odour eliminator in slaughter house and meat processing plant was evaluated after six months of application. Initial result showed that the odour was greatly reduced with EM. There was also a reduction of flies present in the slaughter house and meat processing plant after treating with EM solution.

Rationale and Objective

The most common problem in slaughter houses and meat processing plants is the foul odour emitted from the solid wastes generated such as hairs, intestinal contents, ruminal contents, blood, fats and meat trimmings. This condition is aggravated when the wastes are pumped into the canals going to the effluent receiving tank.

The present condition in slaughter houses and meat processing plant stresses the need for an appropriate technology to address this problem. Thus, an evaluation of materials which are supposed to be used as foul odour eliminators, like EM is quite important.

The objective of this study was to determine the effectiveness of EM as foul odour eliminator in slaughter houses and meat processing plants.

Methodology

The slaughter house and meat processing plant of the Animal Products Development Centre, Bureau of Animal Industry of the Department of Agriculture were chosen as the test site of the experiment.

After the dressing plant was cleaned, EM solution diluted at 1:200 was sprayed once a week on drain canals, floorings and walls. EM spray was prepared by diluting 100ml of molasses in one liter of water. The mixture was added with 19 liters of water and 100ml of EM-1. The prepared solution was mixed thoroughly before using as a spray.

After one month, the odour of the dressing plant was evaluated particularly the drain canals, floors and walls, using prepared questionnaires addressed to 90 % of the labour force. The intensity of foul odour in the test site was evaluated compared with the foul odour produced without the EM application.

Evaluation on cleansing and deodorizing property of EM was conducted monthly for 6 months. The measurements used were:

Odourless	-having no odour.
Slightly odourous	-one can tolerate the smell for a long period of time.
Moderately odourous	-can tolerate the smell for a short period of time.
Strongly odourous	-no one can tolerate the smell in a definite period of

The population of flies present in the slaughter house and meat processing plant before and after the application of EM was also observed. The volume of EM solution consumed during the duration of the project was determined.

Results and Discussion

Table 1 shows the rating given on the intensity of odour in the slaughter house and meat processing plant with EM application. Results of evaluation showed that 80 % of the evaluators rated the floors and walls as odourless while 20 % rated slightly odourous. The drain canals were rated 60% odourless and 40% rated slightly odourous. The overall result showed that 73.33 % of the evaluators rated the meat processing and slaughter house as odourless and 26.67 % as slightly odourous.

Measurements	Drain canals	Floors	Walls	Total	%
Odourless	6	8	8	22	73.33
Slightly odourous	4	2	2	8	26.67
Moderately odourous					
Strongly odourous					
Total	10	10	10	30	100

Using the same measurements, the rating of evaluators on the intensity of odour in the slaughter house and meat processing plant without EM application was:

- 60% of the evaluators rated the drain canals, floors and walls as strongly odourous;
- 23.33% rated moderately odourous;
- 16.67 % of the evaluators rated slightly odourous.

The volume of EM solution consumed during the duration of the study was 7.2 liters. As a result of application, there was a reduction of flies present in the slaughter house and meat processing plant.

Conclusion and Recommendation

In the environment such as in the flooring, walls and drain canals of the slaughter house and the meat processing plant, the application of EM technology is one method of eliminating foul odour. Previous research findings showed that EM has the ability to absorb toxic gases like hydrogen sulfide and ammonia, and convert them into organic acids thereby eliminating foul odour. And due to the reduction of odour and its direct effects on insect larvae, flies and other flying insects, their occurrences were greatly reduced.

From the initial findings of the study, EM technology is highly recommended to be introduced and disseminated to hog raisers, poultry raisers and meat processors as a method of eliminating foul odour.

A follow-up study on the degree of foul odour removal in effluent receiving tank is highly recommended to confirm the effectiveness of EM solution.