

Nutritional and Immuno-regulatory Approaches in Abating Bovine Mastitis

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For the fiscal year of 1998, the Malaysian dairy industry could only supply 4.5% (30.83 million litres) of the total demand leading to an importation amounting to more than RM1 billion. Of the total yield, almost 70% came from the small holders. The ever-increasing local demand for milk, healthy milk-products and development of an integrated system with cheap fodder production, is an opportunity for this industry to advance into the millennium with great success. To turn this into a reality, an effective measure on the control of one of the factors contributing to low productivity, mastitis is therefore of utmost importance.

The enigmatic bovine mastitis continues to be a major welfare concern and economic importance to the dairy industry worldwide. Attributable significant economic losses due to mastitis include reduced milk yield, poor quality milk, condemnation of antibiotic-contaminated milk, treatment and replacement costs of non-productive animals. Research on mastitis in Malaysia was not only conducted on a small-scale and retrospective basis but was conducted more than two decades ago. Possibly, the data generated from those studies are not longer valid and relevant due to drastic changes in the animal industry with respect to urbanization and management practices.

Thus, a more comprehensive and scientific research is required in mastitis research. This will elucidate the current scenario of mastitis in the local industry. Such approach will also generate sufficient and valid data that can be extrapolated into the future needs and scenario of the dairy industry.

Preliminary research conducted at UPM has shown that greatest incidence of mastitis is predominantly seen in nutritionally deficient cows that also had impaired udder macrophage function. Although earlier research conducted has documented correlation between mastitis and poor nutrition, reports on its correlation with udder macrophage activity is lacking. There is a likelihood of abating mastitis in Malaysia via manipulation of the nutritional status of cows.

This warrants for an extensive research on mastitis so as to improve the current status of the local dairy industry and to enrich the scientific knowledge on new developments in mastitis research. The main aim of this project is to boost the sluggish local dairy industry by increasing milk production via abatement of mastitis and the production of safe and wholesome milk (antibiotic free) with the following objectives:

To characterise mammary gland resistant responses and virulence factors of mammary gland pathogens in the development of mastitis;

To develop modulation techniques of host responses to mastitis pathogens on dairy food safety.

The benefits from this research project will be:

1. Impact on Malaysian economy – the success of the research will save the country of no less than RM 1 billion/year. Apart from this, the aim of achieving a total milk production of 45.31 and 61.95 million litres in the year 2005 and 2010, respectively is a feasible target (Dasar Pertanian Negara 3).

2. Impact on dairy farmers - maximising profit through less cases of mastitis (less treatment and replacement cost), higher productivity (high quality, antibiotic-free, less discarded milk) and optimal utilisation of land (integrated farming).

3. Development of the local (dairy) food industry – not only this sector can save cost with less importation but can produce a more locally demand added-value products (flavoured milk, cheese, butter, yoghurt and ice-cream) that is cheaper, wholesome and healthy.

Reader Enquiry

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