

CHAPTER I

1.0 INTRODUCTION

The poultry industry in Malaysia contributes remarkable amount (about 80%) of the total meat requirements/consumption of the country (Department of Veterinary Science DVS, 2011) and, poultry meat provides the protein requirement for most Malaysians (The Poultry Site, 2006). Poultry production and processing involve chains of inter-connected steps designed to transform domestic birds into ready-to-cook whole carcass, cut-up carcass parts or various forms of deboned meat products (Alan, 2001).

Poultry meat consumption per capita in Malaysia was reported to be 47 kg per person in 2014 and it is projected that that chicken meat consumption will continue to grow annually (Jayaraman et al., 2013; DVS, 2014). This continuous growth in chicken meat consumption can be attributed to the fact that chicken meat is cheaper compared to pork, beef and mutton. It has good nutritional profile, easy to prepare, well suited for quick menus and above all, it has no religious restriction unlike pork and beef as long as its Halal status is intact. However, wastage in the meat industry is very high with an approximate 3.5 billion kg of poultry and meat wasted at the consumer, retailer and food service level (Kantor et al., 1997) and the loss is significantly due to microbial spoilage. Cerveny et al. (2009) reported that a reduction of 5% of this meat loss is enough to satisfy the daily meat and poultry needs of approximately 320,000 people.

Given the importance of chicken meat to Malaysians, special emphases are given to the quality of the meat before a purchase is made and, these emphases are usually on the spot assessment of the meat product such as colour, flavour, juiciness and texture (Glitsch, 2000). Meat quality describes the overall meat characteristics which includes its physical, chemical, morphological, biochemical, microbial, sensory, technological, hygienic and nutritional properties (Ingr, 1989; Jassim et al., 2011). Several factors such as genotype, diet, sex, rearing techniques, pre-slaughter handling and post-mortem handling of the carcass influence the meat quality (Berri et al., 2001; Anadon, 2002; Debut et al., 2003; Berri et al., 2005; Debut et al., 2005; Bianchi et al., 2006) but, reports on the effect of the slaughtering methods on meat quality indicators are still limited.

Slaughtering is a major way of bleeding an animal and the amount of blood expelled is dependent on method of slaughter. Several slaughtering methods are used worldwide. The two methods of slaughtering recognised by Islam are Halal and Non-Halal.

The Halal method of slaughter is done to obtain Halal meat (legal, permitted by Allah) according to the Islamic law. It involves following the appropriate Islamic guidance of slaughter. It can be done with or without stunning but certain rules must be adhered to if stunning is to be used. It requires the use of a sharp knife to cut all the vessels of the throat which includes the carotid artery, trachea, oesophagus and the jugular veins thereby bringing the animal to death. Ali et al. (2011) reported a maximum blood drainage which had a positive effect on the keeping quality of chicken meat for birds slaughtered using the Halal method.

Residual blood left in the carcass as a result of improper bleeding may decrease the shelf life and hence the quality of the meat product because haemoglobin which is an important component of blood is a powerful promoter of lipid oxidation (Alvarado et al., 2007).

The Non-Halal method of slaughter is the slaughtering done without following the Islamic guidance. It may be as a result of inhumane treatment of the animal before slaughter or by not cutting the throat to bleed the animal. One of such methods is the use of a sharp object to poke the throat of the bird thereby killing it by making a small hole for blood drainage. Muslims globally are concerned about the Halal status of meat products before purchase is usually made. However, consumers find it quite difficult to differentiate between Halal and Non-Halal slaughtered animals in the market.

Therefore, this study investigated meat quality indicators that can be used to distinguish between Halal and Non-Halal slaughtered chicken meat.

1.1 Objectives

The objectives of the study include:

- i. To determine the effect of slaughtering methods on the physico-chemical qualities of chicken meat.
- ii. To evaluate the effect of slaughtering methods on chemical changes of broiler chicken meat during refrigerated storage at 4°C.
- iii. To evaluate the effect of slaughtering methods on microbiological quality of broiler chicken meat during refrigerated storage.