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Studies into factors responsible for the acceptability of pork on the Singaporean market

A thesis presented in partial fulfilment of the requirements for the
Degree of Doctor of Philosophy in Animal Science
at Massey University, Palmerston North,
New Zealand

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2011

ABSTRACT

The thesis reports the results of a series of studies looking into the acceptability of pork on the Singapore market. Anecdotal comments have indicated that pork from some countries had a less acceptable flavour than that produced locally, so a survey was conducted to clarify the situation. This indicated that imported pork, including that from New Zealand, had an undesirable mutton-like flavour. Using pork from female pigs fed either a plant only diet (NZP) or one that included some animal products (NZA) it was shown that Singapore consumers favoured the former due to a lower mutton note. The use of garlic essential oil (GEO) to improve the acceptability of NZ pork either by adding it directly to pork or feeding it to pigs was demonstrated. With increasing GEO, garlic flavour strength increased and mutton flavour strength decreased even when diets of the pigs included animal products.

Concentrations of indolic compounds (indole and skatole) in backfat increased with increasing dietary garlic concentration ($P<0.001$), and were higher in backfat from the NZA group ($P<0.05$), but were unaffected by different dietary lipid sources (fish oil, tallow, and a mix of linseed oil and soya oil).

A highly acceptable low-fat (<10%) and low-salt (<450 mg/100 g) pork ball with an n-6/n-3 ratio of <4 was developed as a premium product, and effects on its acceptability were assessed using pork from pigs on different diets. A supplement containing selenium, vitamin E, vitamin C and CLA fed to pigs led to pork and pork balls with increased levels of these items. Inclusion of fish oil in the diet (4.4%) increased the levels of the long chain n-3 fatty acids (LCN3FA) in the pork and pork balls, but also increased measures of oxidation (TBARs), especially after a period of storage, and decreased the acceptability of the product due to increased off-flavours (rancid and aftertaste). This occurred when fish oil was removed from the diet either 28 days or 49 days (early and late feeding stage) before slaughter. Further research into ways of improving the flavour aspects of these products is required.

ACKNOWLEDGEMENT

I would like to begin by expressing my most sincere appreciation and gratitude to my supervisor Assoc. Prof. Roger W. Purchas. Thank you for all of your support throughout this program, without you this endeavour would not have been possible.

I would also like to thank my co-supervisors, Assoc. Prof. Patrick C. Morel and Dr. Brian H. Wilkinson, their guidance and support. Thank you Assoc. Prof Lee Yuan Kun for taking time out of his busy schedule to serve as my local co-supervisor. I would also like to thank Miss Niki Nuijten for feeding the pigs and sharing her results on growth performance of the pigs.

I would like to take this opportunity to acknowledge Singapore Polytechnic for the financial support of this project. Without you this project would not have occurred. I would like to also acknowledge strategic funding provided by Foundation for Research, Science and Technology. Additional project support was also provided by Singapore Polytechnic R&D funds. To all of staff and student at the School of Chemical and Life Sciences, I would like to express my thanks for your friendship and support. I would especially like to thank my bosses, Dr. Thomas Chai, Dr. Voon Yun Wah and Mrs Ku-Chong Lee Fong for giving me time and space to perform my research at the polytechnic, as well as Ms Teo Siok Hwee for her laboratory support at the Food Quality and Sensory Evaluation Lab. To the Food Analysis and Food Processing Lab staff, especially Jon Foo and James Tan, thanks for always being a cheerful face when I needed to perform my research activities after office hours. Special appreciation to Mrs Barbara Purchas who had guided me in my writing and encouraged and motivated me when I needed most while at New Zealand.

I would like to thank my family, Vincent and Vicki, and my parents and parents-in-law for your love, continual support and encouragement. Without you I would not be the person I am today. Thank you to all of my friends for always being there when I needed a break.

Finally, I would like to thank my Lord and Saviour, Jesus Christ for all you have done for me, and for providing me with this exceptional opportunity in life.

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