

Using garlic oleoresin to modify the flavour of pork - from the perspective of Singapore and New Zealand consumers

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Abstract

Sensory quality is an important consideration when Singapore consumers purchase pork. They often associate non-Indonesian pork with the presence of an unpleasant off-flavour described as a mutton-like flavour. Some evidence indicates that the intensity of undesirable flavours in meat can be reduced by herbs and spices.

The current experiments assessed the possibility of reducing mutton flavour in pork and improving its acceptability by adding garlic oleoresin. The threshold level for aroma of garlic oleoresin when added to rice bran oil or minced pork was determined. For cooked pork mince the threshold for garlic taste was also assessed, along with levels of mutton aroma and taste, and acceptability. Singapore and New Zealand panellists were used.



The concentration at which aroma of garlic oleoresin could be detected by Singaporean (n=50) and New Zealand (n=49) consumers in rice-bran oil, and in either raw or cooked pork mince (n=30 for Singaporean consumers and n=50 for New Zealand consumers) was assessed using a threshold test protocol.

Most panellists in Singapore (80%) and New Zealand (75%) could detect garlic aroma in rice bran oil at a concentration at 75 ppm.

Increased garlic oleoresin concentration in rice bran oil had a positive influence on garlic aroma intensity ($p < 0.05$) for Singapore and New Zealand panellists, and also on garlic aroma hedonic scores for Singapore consumers only ($p < 0.05$).



For cooked pork mince, panellists detected significant differences in garlic ($p < 0.0001$) and mutton ($p < 0.0001$) aroma intensity with increasing levels of garlic oleoresin (0 to 175 ppm), but the degree of liking of garlic aroma did not change significantly.

A garlic oleoresin concentration of 100 ppm in pork mince significantly increased the intensity of garlic aroma and reduced the mutton aroma in raw and cooked pork samples. To significantly reduce mutton taste in pork mince, a garlic oleoresin concentration of 125 ppm was needed.

Increases in the intensity of garlic aroma and taste were associated with increases in acceptability of cooked-mince garlic taste to a greater extent for Singapore panellists than New Zealand panellists. It is concluded that undesirable mutton-like flavour notes in pork mince may be reduced by adding garlic oleoresin.

