Beefalin: Meat Tenderizer from non-edible parts of pineapple

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Product background

- Several strategies have been implemented to improve tenderness quality of meat
- Meat tenderization using plant proteolytic enzymes are preferable.
- Pineapple by-products (non edible parts) – source of proteolytic enzyme (bromelain).
- Pineapple by-products are typically easily exposed to microbial spoilage
- OBJECTIVE: to find out the added value of the pineapple byproducts, stem, from the Malaysian variant of A. comosus to be used as a meat tenderizer

State of the art

Bromelain analysis from different A. Comosus variants

Different variants of A. comosus collected from different place in Malaysia with different properties: colour of skin, size and shape of body and amount and size of spines.

Product characteristics

- Bromelain analysis from different A. Comosus variants
- Bromelain analysis using (a) proteolytic analysis (b) Gelatin digestion unit (GDU) analysis
- Physico-chemical properties determination
- Physico-chemical and antioxidant analysis on meat
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Marketability and competitors

- Halal Food industries
- McCormick (USA) – no halal certification
- BEEFALIN will cost less than McCormick due to cheaper and available pineapple by-products

Environmental impact

- BEEFALIN is a natural product (enzyme) from agricultural by-products that is environment friendly and doesn’t have any side effects
- BEEFALIN is an alternative to mechanical and chemical meat tenderization agents
- BEEFALIN is an added value to the pineapple by-products and at the same time can reduce agricultural waste

Novelty

- BEEFALIN is the first product from pineapple to be used in Malaysia food industries
- BEEFALIN will be the first local product of its kind to be commercialized and also halal
- BEEFALIN contain antioxidant properties that can improve the meat quality.
- Patent: In progress

Benefits

- Beef tenderizer produced from the local pineapple waste
- Bromelain is Generally Recognized As Safe (GRAS) for human consumption
- Suitable to tenderize beef and any other meat.
- Cooking time can be reduced to 1/3 of normal time.
- Meat palatability can be increased without affecting other meat quality

Achievement and Publication

- GOLD MEDAL, CREATION, INNOVATION, TECHNOLOGY & RESEARCH EXPOSITION, 2018, UMP

Research Collaboration

Lembaga Perindustrian Nenas Malaysia (LPNM) Cawangan Negeri Pahang
Pekan Pina Sdn Bhd