



The flavour of meat products with added bioactive components

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INTRODUCTION

Hypertension is a significant contributor to cardiovascular diseases and recent estimates by WHO [1] show that approximately 25% of the adult population (25 years and over) in the world suffer from hypertension. When producing healthy foods, it is equally important that the eating quality is high, and this might be a challenge with hydrolysates in general, since these may result in chemical and/or bitter flavour characteristics.

The aim of this study was to evaluate the eating quality of traditional Danish meat products with added hydrolysates. The meat products were assessed both by a trained sensory panel and by Danish consumers.

CONCLUSION

The sensory evaluations showed a distinct difference in the off-flavour intensity between each of the products and the corresponding reference. The consumers rated salami and wiener sausage with added hydrolysate as being equally or more appetizing as the reference. This underlines the potential that lies in the application of hydrolysate as a health-promoting ingredient.

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References

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MATERIALS AND METHODS

Hydrolysate

Hydrolysed pig greaves was produced at a commercial plant, and the hydrolysate showed high activity towards lowering high blood pressure in laboratory assay (data not shown).

Production of meat products

Four Danish pork products were produced using traditional recipes: wiener sausage, fermented sausage, liver paste and meat balls. The hydrolysate (concentration of 8% (weight)) were added individually to the products before processing. A reference of each product without added hydrolysate was also produced.

Sensory evaluation

The trained panel performed a quantitative sensory profile analysis (unstructured line scale from 0-15) on the cold meat products. The meat products were assessed in four individual sessions all including a training session followed by the assessment.

RESULTS

Sensory profile of the meat products with added hydrolysed pig greaves (PG). The group of attributes presented include both product specific attributes and common attributes (green).

	LIVER PASTE		SALAMI		WIENER SAUSAGE		MEAT BALL				
	PG	REF	PG	REF	PG	REF	PG	REF			
<i>ODOR</i>											
LIVER	5.1	6.2	Salami	5.8	8.4	Spicy	6.0	7.2	Meatball	3.4	7.2
SPICY	5.1	5.6	Sour	4.8	6.4	Smoked	6.3	9.0	Onion	2.9	5.7
BURNT	3.4	0.6	Off	3.7	0.5	Off	5.7	1.2	Off	5.2	0.7
<i>APPEARANCE</i>											
BROWN	6.2	5.0	Red	5.6	7.7	Rose	2.0	7.3	Ex. color	6.9	5.5
ROSE	2.1	2.7	Yellow	4.9	0.9	Brown	7.0	1.4	Int. color	6.6	4.3
<i>FLAVOR</i>											
LIVER	5.9	4.9	Salami	5.7	8.3	Smoked	5.9	9.1	Meatball	3.3	7.5
SPICY	5.2	5.2	Smoked	5.4	6.5	Spicy	7.1	8.3	Onion	3.4	5.9
SALT	2.2	1.9	Salt	5.8	7.7	Salt	8.6	7.9	Salt	5.0	4.8
SOUR	3.7	3.8	Sour	5.6	7.0	Sour	5.2	4.9	Sour	4.5	4.6
BITTER	5.6	4.3	Bitter	5.8	3.2	Bitter	6.2	3.1	Bitter	5.9	2.3
OFF	2.7	1.8	Off	5.2	0.5	Off	7.0	1.5	Off	7.3	1.0
<i>TEXTURE</i>											
FIRMNESS	7.3	5.2	Firmness	4.4	8.6	Firmness	5.5	3.2	Firmness	3.8	5.0
ROUGHLY	6.4	6.7	Dry	3.9	8.2	Juiciness	4.4	5.6	Sticky	7.7	4.1

The assessors detected a clear off flavour in the products with added hydrolysed pig greaves compared to the respective references. However, liver paste was an exception, as the overall profiles of the two tested liver pastes were quite similar regarding the perceived flavours with slightly higher intensity of bitter and off flavours in the paste with hydrolysed pig greaves.

The consumers also identified the chemical flavour notes in the products. However, they rated salami and wiener sausage with added hydrolysate as being equally or more appetizing as the corresponding reference. From the consumer survey it was also clear, that meat balls are not "the happy home" for hydrolysed pork greaves. So, success largely depends on the identification of the perfect match between hydrolysate and product. Then, the future perspectives of adding hydrolysates to meat products with the aim of designing healthy foods are great.



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