

# EFFECT OF MEAT BINDING BY FIBRIMEX ON THE WEIGHT LOSS AND SENSORIC EVALUATION AFTER HEATING.

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## SUMMARY

The natural binding medium Fibrimex (a fibrinogen concentrate) is increasingly used for the manufacture of improved and new fresh meat products. The effect of Fibrimex on the weight loss after heating of different bound meat products was tested. Also the effect of Fibrimex on the taste and the juiciness was tested. Therefore, different raw materials as shoulder, rib, neck, mix and belly were bound with and without Fibrimex.

After heating (frying or deep-fat-frying) the following results were obtained:

- the weight loss of meat bound with Fibrimex was lower (about 15 %) than meat without Fibrimex. This means that Fibrimex increases the weight yield after heating.
- the sensoric evaluation of the taste of the products bound with Fibrimex was the same as that of meat without Fibrimex. This means that Fibrimex has no influence on the taste.
- the sensoric evaluation of the juiciness of shoulder and mix products bound with and without Fibrimex was in favour of the Fibrimex bound meat. For rib, neck and belly the juiciness was the same for products with or without Fibrimex. This means that Fibrimex can have a positive influence on the juiciness of meat products.

On the whole we can conclude that the use of Fibrimex at meat binding decreases cooking loss. In addition, it has no influence on the taste and can have a positive effect on the juiciness.

## INTRODUCTION

The economic value of small muscles, small pieces of meat and cuttings that always appear in the meat industry, will increase if small pieces are bound together.

With the use of special plasma proteins (fibrinogen and thrombin) it is possible to bind raw materials together so a new fresh meat product is made (1, 2, 3). These fresh meat products can be heated in a normal way.

During heating (frying or deep-fat-frying) there will be weight loss. In this study the effect of Fibrimex on the weight loss after heating of different bound meat products was tested. Probably natural juice is also bound by Fibrimex. This means that the use of the binding medium Fibrimex can give an economic advantage (decrease of weight loss) and sensoric advantage (higher juiciness).

These advantages will depend on muscle, pretreatment, size of the small pieces, method of binding and concentration of the binding medium.

## MATERIALS AND METHODS

Fibrinogen and thrombin are mixed together in preportioned amounts and coated on the surface of fresh meat parts. The meat is shaped into the desired form and is set overnight.

The following five raw materials (all pork) are used in the tests.

- Neck, 80-100 g pieces, Fibrimex was mixed with pieces.
- Mix of small pieces of neck, belly and shoulder (80-100 g), Fibrimex was mixed with pieces.
- Shoulder, 80-100 g pieces, Fibrimex was mixed with pieces.

- Belly, 2 kg pieces, Fibrisprayer was used to introduce the Fibrimex.
- Rib, 1½ kg pieces, Fibrisprayer was used to introduce the Fibrimex.

The raw materials were cut in slices of 1½ cm.

The slices were heated by frying or deep-fat-frying. For each raw material meat bound with Fibrimex and meat without Fibrimex was heated together.

The heating time for the different raw materials was as follows:

	Deep-fat-frying time (minutes)	Frying time (minutes)
Neck		
Mix	4	15
Shoulder	4	15
Belly	4	10
Rib	3	8
	2	8

Just before and just after heating 3 slices were weighed. The average weight loss with standard deviation was calculated. After weighing the sensoric test was performed by five specialists who compared taste and juiciness of the meat bound with Fibrimex and meat without Fibrimex. The best product got ranksum 1, the worst product got ranksum 2 (for five specialists the minimum ranksum is 5, the maximum ranksum is 10). Also a score for the appreciation was given.

## RESULTS AND DISCUSSION

The results are given in Table 1-4 and indicate that

- the percentage of weight loss is lower for frying than for deep-fat-frying (table 1 and 3).
- the percentage of weight loss after frying and deep-fat-frying is lower for meat bound with Fibrimex than for meat without Fibrimex (table 1 and 3).
- the products neck, shoulder and mix (small pieces bound together) have a higher percentage of weight loss than the products belly and rib (pieces of 1½ - 2 kg bound together) (table 1 and 3).
- the sensoric evaluation of the taste is the same for meat bound with Fibrimex and meat without Fibrimex (table 2 and 4).
- the sensoric evaluation of the juiciness was the same for meat bound with Fibrimex and meat without Fibrimex in serie 1 and in favour of the meat bound with Fibrimex in serie 2 (particularly mix and shoulder - reliability 95 %) (table 2 and 4).

Meat cells are much more disrupted in small meat pieces than in large pieces.

At applying Fibrimex the surface of meat pieces is covered with a gel.

The effect of Fibrimex application on the weight loss after heating of bound meat products containing small pieces is more favourable than at bound products containing large pieces.

Apparently the Fibrimexgel hampers the exudate formation during heating.

Subsequently this effect of Fibrimex favours the juiciness of the meat products.

## CONCLUSIONS

- The weight loss after frying or deep-fat-frying of meat bound with Fibrimex was lower than that of meat without Fibrimex.
- This means that Fibrimex increases the weight yield after heating.
- The sensoric evaluation of the taste of meat bound with Fibrimex was the same as that of meat without Fibrimex.
- This means that Fibrimex has no influence on the taste.
- The sensoric evaluation of the juiciness of shoulder and mix products with and without Fibrimex was in favour of the meat bound with Fibrimex. For the other products the results were the same.
- This means that Fibrimex can have a positive influence on the juiciness of meat products.



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