

Determination of Hydroxyproline in Meat after Acid Hydrolyzation (Photometric method)

SpeedDigester K-436, K-439 with Reflux Digestion Set

1. Introduction

The determination of hydroxyproline in meat products is an often-used parameter for the evaluation of meat quality. Hydroxyproline is a part of collagen and occurs therefore only in sinews, bones, gristle and skin. A high amount of hydroxyproline is an indication that raw material with cheap quality was used. The samples require acid hydrolyzation to set the hydroxyproline free from the connective tissue and separated from fat. With chloramine T the hydroxyproline will be oxidized to pyrrol. This compound will be converted to a colored product with 4-dimethylaminobenzaldehyde. An easy and reliable method for the determination of hydroxyproline in processed meat, as described in the LFBG §64 06.00-8 and ISO 3496:1994, is introduced below.

2. Experiment

Sample:

Processed meat (Amount of hydroxyproline: 0.356 ± 0.004 g/100g)

Equipment:

SpeedDigester K-436, K-439 with Reflux Digestion Set

Procedure:

First the sample is homogenized and then hydrolyzed with acid. After the hydrolyzation the sample is separated from the fat and the hydroxyproline is oxidated. After the oxidation the sample is measured by 558 nm and the amount of hydroxyproline is calculated.



3. Results

The Results of the determination of hydroxyproline in processed meat with K-439 and K-436 is shown in Table 1.

Table 1. Results of the determination of hydroxyproline in processed meat with K-439 and K-436 (n=6).

Device	Labelled amount of hydroxyproline [g/100g]	Measured Ø amount hydroxyproline [g/100g]	RSD [%]
K-439	0.356 ± 0.004	0.356	2.36
K-436	0.356 ± 0.004	0.356	2.86

4. Conclusion

The determination of hydroxyproline in processed meat using the SpeedDigester K-436 or K-439 provides reliable and reproducible results that correspond to the certified value. There are no differences between the results obtained with the K-436 and the K-439 respectively. For further information please download the full application note from the website.

5. References

Application Note No. 053/2010: Determination of Hydroxyproline in Meat after Acid Hydrolyzation (Photometric method)
LFBG § 64 L06.00-8
ISO 3496:1994
Operation manual of SpeedDigester K-425 / K-436
Operation manual of SpeedDigester K-439
Operation manual of Helios Delta (Thermo, USA)