



## DETERMINATION OF MECHANICAL PROPERTIES OF BIOLOGICAL MATERIAL OF ANIMAL ORIGIN

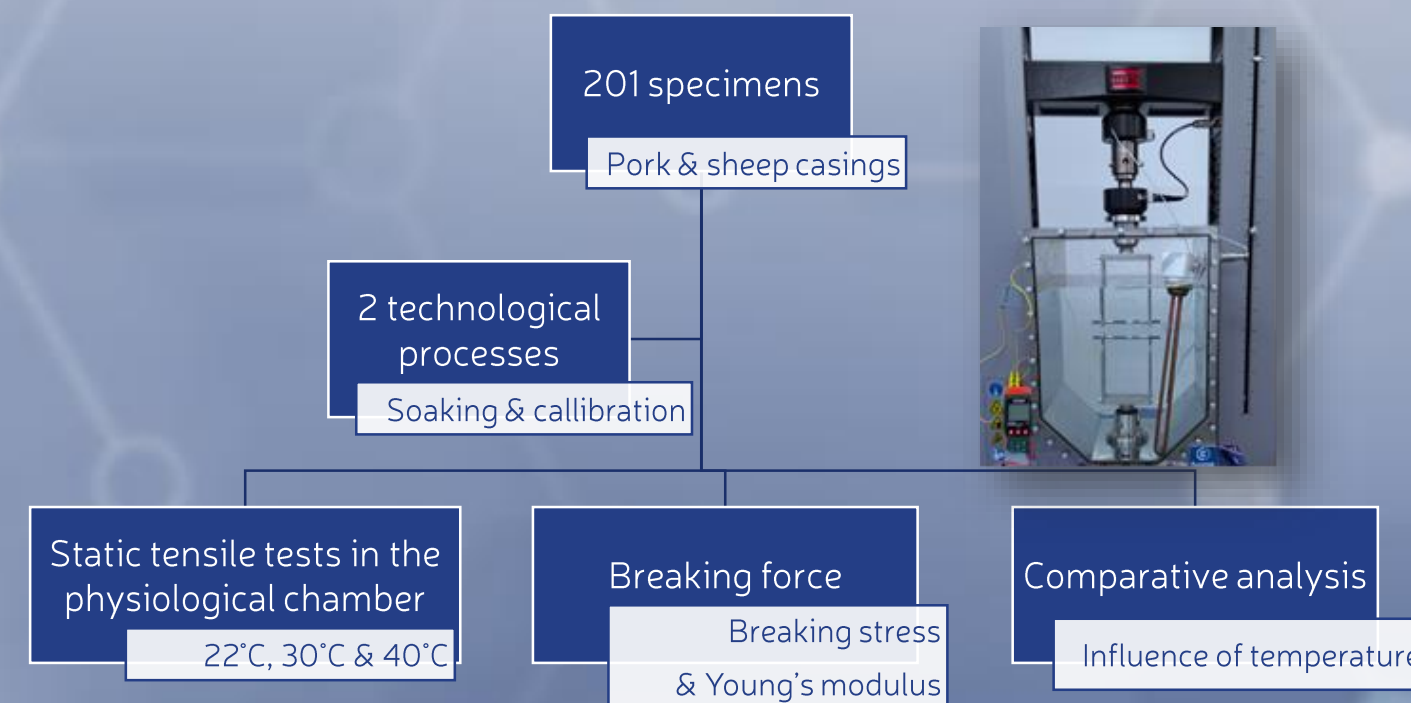
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### Introduction & aim of investigation

Animal intestines are very often accepted as models of the human intestine. In order to correctly determine which animal intestine may represent the human intestine, it is necessary to know their mechanical properties. The main aim of investigations was to evaluate the influence of technological operations on the intestines' mechanical properties. An attempt was made to develop the research methodology of experimental tests for determining the mechanical properties of an animal's intestines, which are used in the meat industry. Also, it was analyzed how the specific technological processes change the mechanical properties of tested tissues.

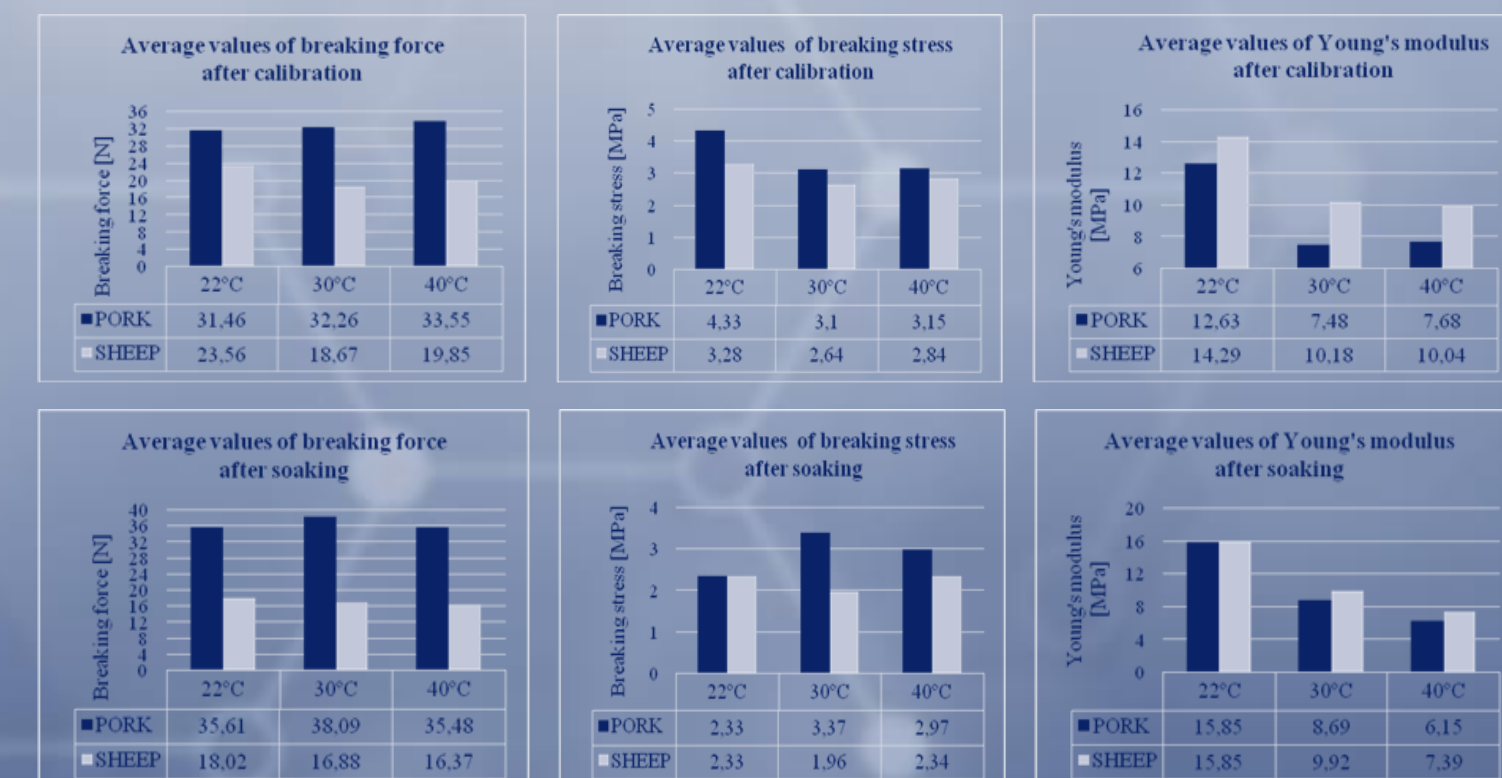
### Materials & methods

It was performed experimental tests on the MTS Insight machine. It was analyzed the average values of breaking force, breaking stress and Young's modulus for 201 specimens in three temperatures, after two technological processes – soaking and callibration.



### Results

Both sheep's and pork's specimens have a higher Young's modulus at the room temperature than at an elevated temperature. The values obtained in temperatures 30°C and 40°C are very similar and significantly lower. For example, after calibration at the elevated temperature, Young's modulus of pork casings is about 40% lower and for sheep casing is about 30% lower. After soaking the difference is even greater, especially at 40°C, where the difference is about 61% for pork casings and about 54% for sheep casings.



### Conclusions

The mechanical properties of intestines vary depending on the species from which they were prepared. Pork's intestines have both higher Young's modulus and breaking stresses than the sheep intestines.

The technological processes and the elevated temperature of work have a negative influence on the strength properties.