



Sous vide processing of beef: effect of portioning type on cooking loss of two different cuts

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Sous vide is a process in which vacuum-packed food is cooked for long periods at low temperatures. Depending on the time and temperature used in the process and the cut and portioning shape, meat quality characteristics can be affected. The objective of this work was to evaluate the effect of *sous vide* processing at different times and temperatures on the cooking loss of the outside flat – “coxão duro” (*Biceps femoris*) and knuckle – “patinho” (*Vastus intermedius*, *Vastus lateralis*, *Vastus medialis*, *Rectus femoris*), portioned in the steak or cube shape. Beef samples came from male Nelore cattle, which received the same diet and were slaughtered at twenty-three months of age in a commercial slaughterhouse. After slaughter, the carcasses were identified and stored in a cold chamber for twenty-four hours, then taken under refrigeration to the Meat Laboratory of Embrapa Pecuária Sudeste - São Carlos, SP for the analysis. The cuts were portioned into 2.5 cm thick steaks and 4 cm cubes. The vacuum-packed samples were submitted to a combination of three temperatures (65°C, 75°C and 85°C) and three times (60 min, 90 min and 120 min), in a central rotational composite design (DCCR), with a central point performed in quadruplicate. For determining the cooking loss, the samples were weighed before and after the process. For the knuckle cut, higher values of cooking loss were obtained in the portioning of steaks (40.86% to 57.10%) compared to cubes (31.44% and 46.15%). The highest value (57.10%) of cooking loss was observed at 85°C for 120 min and the lowest value (40.86%) at 75°C for 90 min. The highest value obtained was for the outside flat cut into cubes (46.00%) when cooked at 75°C for 90 min. In the same cut but in the steaks, the highest value (56.81%) was obtained at 75°C for 90 min and the lowest (28.25%) at 65°C for 60 min. The increase in cooking loss proportional to cooking temperature is possibly related to the thermal denaturation of myofibrillar proteins and collagen retraction. It is concluded that the cooking loss in the *sous vide* process depends on the cut and portioning, as higher values of this parameter were observed in outside flat steaks and knuckle cubes when increasing the time and temperature.

Key-words: time; temperature; knuckle; outside flat; steak; cube.

Acknowledgments: This study was financed by Empresa Brasileira de Pesquisa Agropecuária (EMBRAPA), Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) and in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES) – Finance Code 001.