APPLICATION OF STABLE ISOTOPES (δ^{13}C e δ^{15}N) TO DETERMINE SOY PROTEIN IN BEEF HAMBURGERS

1Ducatti Rhani, 1Nogueira Pinto José Paes de Almeida, 2Ducatti Carlos, 2Denadai Juliana Célia, 2Sartori Maria Márcia Pereira.1Faculdade de Medicina Veterinária e Zootecnia - UNESP/Botucatu – SP – Brasil.2Centro de Isótopos Estáveis– IBB/UNESP/Botucatu – SP – Brasil.

The hamburger is a meat industrialized product and according to the Technical Regulation of Identity and Quality of Hamburger (IN nº 20 of 07/31/2000) only “4.0% addition of non-meat protein under aggregated form is allowed”. The non-meat proteins are optional ingredients that increase the weight related to the original product, maximize manufacturing efficiency and the profit of fraudulent companies. Their detection is a problem for supervisory agencies due to the lack of appropriate methodologies. In this context, the objective of this study was to analyze burgers by the technique of stable isotopes of carbon -13 and nitrogen-15, since they exhibit isotopic differences related to plant C_{3} and C_{4} photosynthetic cycle and trophic level, respectively. Three samples of beef hamburgers, seven trademarks named A (control sample of meat), B, C, D, E, F and G (soy control sample) have been analyzed. The results obtained permitted to establish limiting values for products that meet the current legislation in the country, they are: -13,7‰ to -12,1‰ in carbon and 7,2‰ to 8,9‰ in nitrogen. All samples showed higher amount of soy protein than permitted by Normative Instruction. This work defined a new methodology for determining the percentage of soy protein in hamburgers and made it possible a standard’s certification of the products tested.