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QUALITY CHARACTERISTICS OF BEEF JERKY MADE IN LABORATORY CONDITIONS

***Miloš Županjac*[1], Tatjana Peulić[1], Predrag Ikonić[1], Marija Jokanović[2], Jovana Delić[1], Aleksandra Novaković[1], Milica Popović[1]**

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Beef jerky is a traditional meat product that is preserved by means of salting (curing) and drying, i.e. reduction of water activity (a_w). This study was carried out to investigate the quality characteristics of beef jerky made in laboratory conditions. In order to prepare the meat for drying, the beef muscle (*M. Semimembranosus*) was firstly cut into thin slices and then into strips (approx. 10 x 1.5 x 0.5cm). The strips were marinated by dipping in a solution containing salt and flavoring ingredients (three types of marinade – S_1, S_2, S_3). Heat processing of jerky was conducted using constant climate chamber, Model KBF 115 (BINDER GmbH, Germany), and it was comprised in two distinct steps: "cooking phase" (temperature of 70°C during 2h and 15min; relative humidity ranged from 80% to 93.4%, being ≥90% for at least 1h.) and "drying phase" (temperature ranged between 60°C to 65°C; relative humidity gradually decreased from 70% to 35% during 4h and 15 min). Quality and safety characteristics of obtained beef jerky were verified by microbial analyses, determination of water activity (a_w), moisture-protein-ratio (MPR), as well as nutritive value. Pathogenic bacteria (*Salmonella spp., Escherichia coli* and *Enterobacteriaceae),* yeasts and molds, were not detected in any sample. Water activity (a_w) (0.786 - 0.814) and MPR (0.61 - 0.66) in final products, were lower than recommended maximal values, being 0.85 and 0.75, respectively (FSIS Compliance Guideline, 2014). The protein content of the analyzed samples ranged from 47.61% to 49.96%, which makes jerky a rich source of protein. In the same time, the lipid content was very low, ranging from 5.67% to 6.29%. The energy value of produced beef jerky ranged between 267 (S_1) and 280 (S_3) kcal/100g, amounting approx. 11% of average daily energy requirement for normal adult person.

Keywords: Beef jerky, Microbiological safety, Nutritive value, Water activity

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