EVALUATION OF CARCASS DISSECTIONING AND CHEMICAL PROPERTIES OF MEAT OF TURKEY BRED İN TÜRKİYE

A.BULGAY, S.O.TÖMEK and M.SERDAROĞLU

Ege University, Food Engineering Department, Bornova, İzmir, Türkiye.

SUMMARY: This study was realized to stress the use of turkey meat as a valuable protein source. 16 female turkeys were slaughtered with weights ranging from 5 kg to 6.25 kg. Their carcasses were dissected into commercial parts, skin, trimming meat and edible offals. In the assesment process, percentage yields of carcass and meat were calculated, chemical compositions of breast and thigh muscles and skin were determined, TBA and cholestrol analysis were conducted and additionally, total viable bacteria counts (PCA) in breast and thigh muscles were found out.

Percentage carcass yield were found to vary between 59% - 81%. Dark muscles had significantly higher pH values and contained more fat ($p<0.05$) than the white muscles. There were no significant differences between the protein and moisture contents of white and dark muscles. Total viable count, for dark and white muscles, was found 10^4 cells/g.

INTRODUCTION: The utilization of turkey meat as a protein source is not common in Türkiye however turkey consumption rises during some certain periods of the year such as new year time. Turkey meat is valuable for human nutrition with its high protein content (Barbut, 1984).

There is no or very limited literatüre about the meat yield, carcass composition and nutrition aspects of turkey bred in Türkiye.

The purpose of this study is to evaluate the carcass composition with meat yield and chemical composition of female turkeys of Bronze commercial breed, bred in Türkiye.

MATERIAL and METHODS: 16 female turkeys of Bronze commercial breed, with weights ranging from5.0 to 6.250 kg, which were reared in the same pen with the same feeding system were used in this study. All turkeys were slaughtered and eviscerated in two hours after their delivery to the pilot plant. Their carcasses were cut into commercial parts; breasts, thighs, wings, thracic back, pelvic back and neck. These parts were then separated into meat, skin and bone. Total meat was weighed to determine the meat yield. The percentage carcass yield after evisceration was calculated by the formula; eviscerated weight divided by weight of turkey prior to slaughter, times 100. Carcass composition was determined by weighing each component seperately.

Immediately after slaughter, pH values were measured in breasts and thighs with a probe electrode using the method outlined by Landvogt (1991).

For the determination of the chemical composition of turkeys, several analysis were made on thighs, breasts and skin. Protein analysis were performed through micro kjeldahl nitrogen determination method (AOAC,1975),fat content was determined by using chloroform-methanol method (Flayn and Bramblet,1975) and moisture and ash determinations were made by using Association of Official Analytical Chemists (1975) procedures. Lipid oxidation was monitored by the thiobarbutiric acid value (TBA) method of Tarladgis et al.(1960) and chlosterol content analysis were performed through Rhee et al.(1982). Using standart plate count agar (PCA), total viable counts of breasts and thighs were assessed just after slaughter by incubating the plates at 37°C for 48 hours.

All data were subjected to analysis of variance (Steel and Torrie, 1960).

RESULT and DISCUSSION: Percentage carcass yield was found between 59% and 81% and the mean was 75% Ngoka al.(1982) observed that the carcass yield of turkey was between 73.5%-76.1%.

Carcass composition of turkey was given in figure 1. In its general carcass composition, turkey had less meat compared to the white meat. As reported by Berry et al.(1980), heavier turkeys had a lower dark percentage than the smaller ones. Since, heavier turkeys were used in this study, a greater percentage white meat was obtained. The total meat yield was also found to be high, being 58.2%.

pH was found to be 6.74 for dark muscles and 5.79 for white muscles. These values indicated a signific difference between the pH values of dark muscles and white muscles ($p<0.05$).

Chemical compositions of white and dark muscles and skin are summarized in figure 2. Dark muscle had a hig percentage of fat than the white muscle ($p<0.05$). There were no significant differences between the white dark muscles regarding their protein and moisture contents. As would be expected, skin had the high percentage of fat and the lowest content of moisture compared to the white and dark muscles ($p<0.05$). The ash content of the skin was lower than of the white and dark muscles although this differe istatistically neglectable.

Skin and thigh were expected to have high level of cholosterol in respect of their chemical composition the cholesterol determination was made on these two parts. Skin had an average value of 103.6 mg/100g, w is considered to be high and thigh had an average value of 60.7 mg/100g.

When the TBA values were analized just after the slaughter in the mentioned three parts of turkeys, in o to learn about the lipid oxidation, significant differences were found between them. Skin had the hig mean TBA value which was 0.52 mg malonaldehyde/kg. The TBA values of thigh and breast were 0.358 and 0.19 malonaldehyde/kg respectively. The relatively higher TBA values of skin and thigh can be explained by t high contents of fat. This situation gives way to a faster lipid oxidation and a shorter shelf-life.

CONCLUSION: At the end of the carcass dissectioning of the big turkey bred in Türkiye, their white meat total meat yields of carcass were determined to be high. It is concluded that, the utilization of valuable parts, thighs and breasts, as cheap meat sources in every time of the year and the utilization the trimming parts in the industrial production is possible and economical.

REFERENCES

Association of Official Analytical Chemists, 1975 12 th Ed. Washington D.C.

BARBUT,S.L., ARRINGTON,G., MAURER,A.J., 1984. Optimum Utilization of Turkey in Summer Sausage. Poul Science 63, 1160p.

BERRY,J.G., STADELMAN,W.J., PRATT,D.E., SWEAT,V.E., 1980. Estimating Cooking Times and Meat Yield Roasted Turkeys, J.Food Sci, 45, 629p.

FLAYH,A.W., BRAMBLETT., 1975. Effect of Frozen Storage Cooking Method and Muscle Quality on Attributes of Pork Lions. J.Food Sci. 40,63p.

LANDVOGT,A., 1991. Errors in pH Measurement of Meat and Meat Products by Dilution Effects. Proceeding 37th International Congress of Meat Science and Technology. 3, 1159p. September 1-6 Kulmbach, Germany.

RHEE,K.J., DUTSON,T.R., SMITH,G.G., HOSTETLER,R.L., REISER., 1982. Clolesterol Content of Raw and Cooked Beef Longissimus Muscles with Different Degrees of Marbling, J.Food Sci. 47, 719p.

STEEL,R.G.D., TORRIE,J.H., 1960. Principles and Procedures of Statistics. Mc. Grawhill Book Company Inc. NewYork.

TARLADGIS,B.G., WATTS,B.M., YOUNATHAN., 1960. A Distillation Method for the Quantitative Determination of Malonaldehyde in Rancid Food. The J. of the Am. Oil Chem. Soc, 37, 44p.

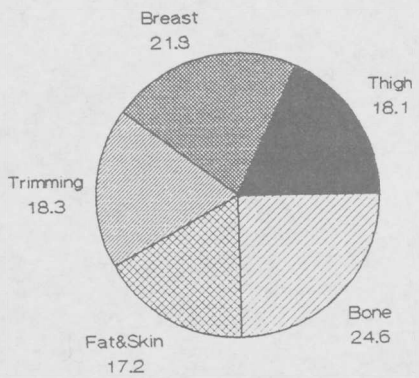

Figure 1 : Dissectioning data of the turkey carcass.

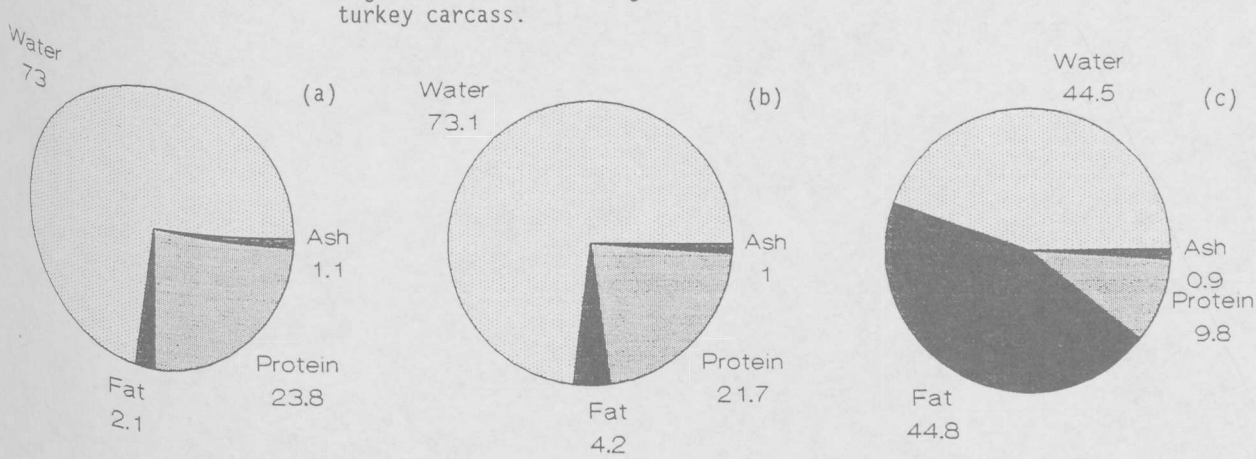

Figure 2 : Composition of white muscles(a), dark muscles(b) and skin(c)

REFERENCES

BUZULMA B.C., RATSKY M.I., 1987. "Veterinary" n 2, 60.

MERKULOV G.A., 1969. Course of pathohystological techniques. Leningrad.

MESHKOV I.P. and SEVERIN S.E., 1979 Practicum on biochemistry.

ZOLOEV G.K., 1987. Bulletin of experimental biology and medicine, 5. 515 p.