Influence of green muscle disease on quality of meat subjected to thermal treatment

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Abstract

As a result of continuous increase in poultry production and poultry breeding selection numerous forms of diseases appeared including the green muscle disease. The goal of the study was to determine the influence of the green muscle disease on quality of meat subjected to thermal processing. The material for the study consisted of 55 samples of the major pectoral muscles originating from female post-production turkeys and turkey broilers. The samples were subjected to organoleptic evaluation and tests aimed at determining the meat tenderness. On the basis of the results obtained it is concluded that the meat originating from turkeys suffering from the green muscle disease, subjected to thermal processing, shows significant differences in cross-section color, juiciness and taste.

Key words: turkey, green muscle disease, heating, meat quality

Introduction

As a consequence of continuous increase poultry production and related breeding selection of poultry aimed at obtaining the highest possible bodyweight of birds within the shortest time, many diseases characterized by degenerative changes in muscles appeared. The green muscle disease, otherwise called the deep chest myopathy or Oregon disease, most frequently observed in post-productive female turkeys is one of those (Wight et al. 1981, Sosnicki and Wilson 1991, Pastuszczak 2000, Bilgili and Hess 2002, Bianchi et al. 2006, Pastuszczak and Uradziński 2009). In a case of this disease the macroscopic changes are present in the minor pectoral muscle (m. pectoralis minor) while the major pectoral muscle (m. pectoralis major) is usually unchanged (Wight et al. 1979, Wight and Siller 1980, Grunder et al. 1984, Tyszkiewicz 1995, Pastuszczak et al. 2002). Absence of changes in the major pectoral muscle causes that meat obtained from those muscles is considered suitable for consumption. During the microscopic examinations pathological changes of various intensity were found in both minor pectoral muscle and the major pectoral muscle (Grunder et al. 1984, Pastuszczak 2000, Pastuszczak and Uradziński 2002). At the same time tests were performed aimed at determination of the hygienic and technological value of the fresh meat originating from female turkeys with changes and those in which macroscopic changes were not observed. Those studies showed that as concerns microbiological quality such meat could be considered suitable for consumption, however, because of slightly decreased technological value resulting from changes in pH, water absorptiveness, color and chemical composition, different quality requirements should be set for the meat originating from such flocks (Pastuszczak and Uradziński 2009).