The aim of this study was to isolate and characterize Staphylococcus aureus bacteria present on the shell surfaces and in the contents of chicken eggs, taking into account their phenotypic properties, antibiotic susceptibility patterns, and the presence of plasmid DNA. The study included 90 table chicken eggs from laying farms situated in the vicinity of Lublin. A total of 105 bacterial strains identified as Staphylococcus were isolated from the material, of which 18 (17.14%) were of the species Staphylococcus aureus. All 18 S. aureus strains were found to be resistant to at least one of the antibiotics tested, while some (55.55%) showed resistance to five or more of the 17 therapeutic agents. The greatest number of strains showed resistance to erythromycin (66.66%), tetracycline (66.66%), oxytetracycline (61.11%), penicillin G (50%), and amoxicillin (44.44%). The plasmid profile analysis of the S. aureus strains made it possible to evaluate the dependence between antibiotic susceptibility and the presence of plasmids in particular isolates. The results showed that plasmids in various quantities and of varying molecular weights were isolated from 17 of the strains. Most often isolated were small plasmids, of 5.6 kb – from 11 of the S. aureus strains (61.11%), 2.5 kb – from 9 strains (50%), 4.1 kb – from 8 (44.44%), and 4.6 kb – from 7 (38.88%) of the strains.

Key words: table eggs, Staphylococcus aureus contamination, antibiotic resistance, plasmids

Introduction

Nearly half of known Staphylococcus species are indigenous to the human organism and/or that of other animal species. Most are saprophytes which are part of the bacterial flora present in humans and animals. The disease processes they induce are the result of many complex mechanisms determining pathogenicity. Data from the literature show that clumping factor (CF) is present on the cell surface of as many as 50% of pathogenic strains with the ability to multiply in human serum (Różalska et al. 1995). The species most often isolated from food products of animal origin is Staphylococcus aureus, which is isolated with equal frequency from personnel engaged in the processing, storage, and transport of these products. Most strains of this species have the ability to produce one or more enterotoxins, which in many cases are the cause of serious food poisoning in humans who have eaten food contaminated with these...