

## Identification of antimicrobial resistant bacteria isolated from various Broiler Hatchery Facilities

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### Abstract

Hatching eggs risk of contamination starts right from the point of lay as they are at risk by external contamination through the pores and hairline cracks in the shell, vertical transmission from infected flocks, vectors such as hands, trays, vermin, transport equipment. For this study, we dealt with eggs of different breeder flocks of variable age. Total of 500 samples of breeder eggs that were received at hatchery from breeder farms as well as samples of day old chicks hatched after 21 days of incubation from similar batches of fertile eggs. We took these samples of eggs that were sub divided according to mobility of eggs. Contamination in incubators had also been checked during first 18 days of incubation as multistage incubators facilitate the incubation of microbes as well during the incubation of eggs. Normal eggs as well as from exploder had also been checked and their cause of exploding where multi aged eggs incubated together, after incubation of 18 days we went after the risk of contamination in transfer area from setter to hatchers. All collected samples were sub cultured on blood MacConkey agar and incubated at 37C overnight. Colonies were identified on the basis of culture morphology and colony characteristic. Bacterial confirmation had been done using API20E and 20NE. Antimicrobial susceptibility testing performed by using Kirby Bauer disc diffusion method according to CLSI 2016 guidelines. The data had analyzed using SPSS 25 version. We found that the E. coli are the most prevalent isolated microorganism (100%, (SP 112 Hatcher), 75% (SP 117 Hatcher) and 50% (SP 119 Hatcher, AP 27 Hatcher and SS 02 Setter) followed by Enterococcus spp., 62.5% (SP 119 Setter) and Staphylococcus species considered as commensals. We found the hatcher area overall more contaminated as compared to other isolation site ( $p < 0.05$ ). However, Proteus spp., (100%, 100% and 100%) followed by Enterococcus Spp., (100%, 100% and 100%) and salmonella spp., (80%, 100% and 100%) are the most resistance to penicillin class followed by aminoglycoside and carbapenem class respectively ( $p < 0.05$ ).