**Biofilm Formation by *E.coli, Proteus* and *Salmonella* isolated from Pork, Beef and Broiler Chicken and Their Significance as Mono and Dual Species**

TWMSM Senarathna1\*, SU Pathiranage1, GKNG Thilakarathna1, JLCS Perera1, DNN Madushanka1, S Thiranagamage2, TSP Jayaweera1 and HAD Ruwandeepika1

*1Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka,* 2New Anthoney’s Farm Pvt. Ltd, Hanwella

*\*shiranisenarathna12@gmail.com*

Biofilm formation by many foodborne pathogens remained a serious concern for public health and food safety. Compared to mono-species biofilms, multi-species biofilms are more common in natural settings and in places where food is produced. This study was conducted to assess the biofilm formation by *E. coli, Proteus, and Salmonella* as mono and dual-species. The biofilm forming ability of the *E. coli, Proteus, and Salmonella* isolates which were isolated from three meat types *viz* pork, beef and broiler chicken were quantified at five different time durations of incubations (24hr, 48hr, 72hr, 96hr, and 120hr) by using microtiter plate assay. This study revealed that *E. coli* monocultures isolated from pork showed significantly lowest biofilm-forming ability at all tested time points and it has a gradual increment with the extended time points. Among all the tested time points, *Salmonella* isolated from pork in its monoculture status showed the highest biofilm formation at 48hr. *Proteus* and *Salmonella* isolated from beef have not shown any significant difference in their biofilm-forming abilities as monocultures in all the tested time points except 48hrs. In relevant to isolates derived from broiler chicken meat, *Proteus* has enhanced its biofilm formation ability as monoculture from 24hrs to 96hrs. In all tested time points, *Proteus* interaction with *Salmonella* was significantly lesser than the *Proteus* biofilm formation ability in its monoculture status. This study concluded that there is a diversification in the biofilm formation abilities of different bacterial isolates and their combinations when they formed mono biofilms and dual biofilms at different time points.

**Keywords**: *Dual biofilms, E. coli, Proteus, Salmonella*