

**TITLE:** EVALUATION FOR A ROLE OF BIOSURFACTANT PRODUCED BY *Salmonella enterica* Enteritidis SE86 IN STORED CHICKEN MEAT

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**ABSTRACT:**

*Salmonella enterica* Enteritidis (SE86) is a food pathogen that caused several salmonellosis outbreaks in Rio Grande do Sul, Brazil. This bacterium has been widely studied and now it is known that it has the ability to produce biosurfactant. However, the interference of this compound for the microorganism in food is still unknown. Chicken meat is a fat-rich environment and we therefore hypothesised that production of biosurfactants to increase bioavailability of fats may represent one way in which spoilage bacteria might enhance the availability of nutrients. This study aimed to investigate the influence of biosurfactant produced by *Salmonella* Enteritidis (SE86) in the survival on chicken meat stored under aerobic conditions and at different temperatures. Initially the chicken thigh meat was subjected to the following treatments: Group 1: chicken with partially purified biosurfactant. Group 2: chicken with *Salmonella* Enteritidis (SE86) and partially purified biosurfactant. Group 3: chicken with *Salmonella* Enteritidis (SE86) without biosurfactant. Group 4: only chicken. Group 5: chicken with sterile water. Subsequently the chicken was stored separately at 4 °C, 15 °C and 30 °C for 3 days. Counts were made of heterotrophic bacteria and *Salmonella* Enteritidis (SE86) at the following times: after pathogen inoculation (T0), after 24 (T1), 48 (T2) and 72 (T3) hours. The results showed that the presence of biosurfactant favored the multiplication of *Salmonella* Enteritidis (SE86) on the chicken meat at temperature of 15°C at all the times tested, revealing a growth rate significantly greater ( $P<0.05$ ). The presence of the biosurfactant suggests a control in the multiplication of heterotrophic bacteria present in the chicken meat stored at all temperature and time tested, especially in the presence of *Salmonella* Enteritidis (SE86) (Group 2). These results indicate that the biosurfactant produced by *Salmonella* Enteritidis (SE86) may play an important role in the spoilage of aerobically stored chicken meat at 15 °C (after 24, 48 and 72 hours), suggesting that the biosurfactant by making nutrients more freely available for *Salmonella* Enteritidis (SE86), wich may provide a competitive advantage for the multiplication of this bacterium in aerobically stored chicken meat.

**Keywords:** chicken meat, *Salmonella Enteritidis* SE86, biosurfactant, heterotrophic bacteria.