# Esp: A New Perception to Probiotics

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Abstract

Probiotics are "friendly bacteria" notable for offering protection from harmful microorganisms as well as promoting digestion and the immune system in order to confer health benefits. What seems to be a bit more obscure, however, is the probiotic-like quality that glutamyl endopeptidase (Esp), a protease secreted by the infamous *Staphylococcus epidermidis* bacterium, is suggested to possess. As validated when tested with *Staphylococcus aureus*, Esp appears to display the considerable capacity in prohibiting the colonization of more pathogenic bacteria such as *Escherichia coli* and *Serratia marcescens* that most common antibiotics have failed to achieve. This experiment was performed to determine whether *S. epidermidis* with Esp could inhibit *E. coli* and *S. mar*. However, due to a deficiency in resources and optimal conditions, only half of the investigation could be completed. Regrettably, the only *S. epidermidis* sample available lacked the Esp protease necessary and the initial aim of the experiment had to be compromised. Nonetheless, mixed liquid cultures of *S. epidermidi*s and *E. coli* and *S. epidermidis* and *S. mar* were aseptically assembled in Nutrient Broth and incubated at 37°C for 24 hours. Gram staining was then completed to differentiate the Gram negative cells of *S. mar* and *E. coli* from the Gram positive cells of *S. epidermidis*. Due to the lack of Gram negative cells on the Gram stain slides, it was determined that regardless of Esp, *S. epidermidis* maintained the ability to hinder the growth of other pathogenic bacteria such as *S. mar* and *E. coli*. Although the investigation for Esp slightly deviated from its initial course, the findings that were reaped nevertheless expanded the horizon of feasible probiotics, even revealing the opportunistic *S. epidermidis* pathogen as a plausible candidate. Moreover, with sufficient resources and ideal conditions, the other half of the experiment that tests the potential of Esp may be concluded in order to determine whether the speculation of Esp as a probiotic can truly become reality.