

**ANAEROBIC STARVATION OF STAPHYLOCOCCUS EPIDERMIDIS****R. Sivakanesan**

(Dept. of Biochemistry, Faculty of Medicine,  
University of Peradeniya)

Starvation is one of the principal stresses which micro-organisms may undergo in their natural environment. Furthermore, a study of this nature will be useful in the elucidation of many complex processes taking place in multicellular organisms during starvation.

*Staphylococcus epidermidis* described earlier was starved in sterile phosphate buffer at 37°C (bacterial density 2 mg dry wt ml<sup>-1</sup>). The carbohydrate content of the organism declined from 5.0% to 3.2% over a period of 14 hours of starvation, but an equivalent amount of it appeared in the suspending buffer. Over the same period, the protein content decreased from 49% to 40% and the net loss in protein was only 2%. So it is unlikely that the organism utilizes the degraded protein for its endogenous metabolism. The amino acid pool was rapidly depleted; a net decrease in total free amino acid with the release of ammonia occurred. The RNA content declined from 13% to 3.8% after 10 hours. Nearly 37% of the nucleotide formed during RNA degradation could not be accounted for and therefore it was concluded that they provided endogenous substrate.

Both the viability and energy charge declined rapidly from the onset of and during starvation. The viability declined to 5% after 10 hours. Therefore it could be concluded that *S. epidermidis* dies when the energy available for maintenance is no longer sufficient to support essential cellular functions.

**Reference**

1. Sivakanesan, R. and Dawes, E. A. (1980), Anaerobic glucose and serine metabolism in *Staphylococcus epidermidis*; *J. General Microbiology*, **118**, 143-157.