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## Intelligent packaging sensors for monitoring meat quality and safety in supply chain

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Intelligent packaging sensors are consumer friendly tools which communicate about the quality and safety of packaged meat/meat products. This device responds either to the metabolites released from meat/meat products or to the environmental storage temperatures. These chromogenic indicators are potential tools in supply chain quality assurance system. In this context, strip-type indicator sensor developed was attached to the packaged meat to study its response with meat quality changes during storage. The results indicated that indicator sensor changed from yellow to blue upon deterioration in meat quality. Simultaneously, the results of meat quality and safety parameters like pH, tyrosine, ammonia, TVBN, free amino acids, color units, standard plate count, psychrophiles, *Pseudomonas*, *Staphylococcus aureus* counts and sensory attributes indicated a significant difference. Sticker-type time-temperature indicator (TTI) based on enzyme-substrate complex using laccase-guaiacol matrix was also developed. During temperature abuse conditions, the TTI changed from colorless to brown. The simultaneous analysis of ERV, glucose, ammonia, free amino acids, TVBN, color values, FDA hydrolysis, tyrosine, standard plate count, coliforms, *Staphylococcus aureus*, psychrophiles and sensory attributes indicated that changes in meat quality parameters were well comparable with color change in TTI. It is concluded that strip-type TVBN-sensitive indicator and sticker-type time-temperature indicators based on laccase-guaiacol complex can be successfully used as quality and safety indicators for monitoring shelf-life of meat in supply chain.

### Biography

Kandeepan G has completed his PhD from Indian Veterinary Research Institute, India. He is a Scientist in the Division of Livestock Products Technology. He has worked at National Research Centre on Yak, Arunachal Pradesh. He has published more than 25 papers in reputed international and national journals and has been serving as an Editorial Board Member of reputed national journals. He has written many book chapters besides publishing books. He is an Active Researcher and already handled five research projects.

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