

## Intelligent Packaging Sensors for Monitoring Quality and Safety of Meat and Meat Products

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| <i>Salient features</i>                          | <ul style="list-style-type: none"> <li>➤ Sensors, quality indicators and time-temperature indicators to evaluate quality and safety of meat during supply chain and storage.</li> <li>➤ Validated and approved technologies by Institute Technology Management Unit.</li> </ul>   |
| <i>Advantages</i>                                | <ul style="list-style-type: none"> <li>✓ Low cost and prepared from easily available raw materials.</li> <li>✓ The quality indicators and time-temperature indicators are safe.</li> <li>✓ Improves quality and post-harvest management of meat.</li> </ul>   |
| <i>Process Technology / Product developed by</i> | <p>Dr. S. K Mendiratta, Department of Livestock Products Technology<br/>           ICAR - Indian Veterinary Research Institute (IVRI), Izatnagar 243122, Bareilly, Uttar Pradesh</p> <p>mendiratta_65@yahoo.co.in, drttalukder@gmail.com,<br/>           Dr Kandeepan G, Dr. Ravi Kant Agrawal, Dr. Suman Talukder, Division of Livestock Products Technology, ICAR-IVRI, Izatnagar, Bareilly, Uttar Pradesh</p>  |
| <i>Year</i>                                      | 2014-15   |
| <i>Source of funding</i>                         | MoFPI   |
| <i>More information</i>                          | <p><b>Status of commercialization / Patent / Publication</b></p> <p>Development of on-package indicator sensor for real-time monitoring of buffalo meat quality during refrigeration storage. Food Analytical Methods, 8 (6): 1591-1597</p> <p>Anthocyanins Based indicator sensor for intelligent packaging application. Agricultural Research, 5(2): 205-209.</p> <p>Exploring purple leaf sand cherry (<i>Prunuscistena</i>) extracts based indicator to monitor meat quality during storage at <math>10 \pm 1^\circ\text{C}</math>. International Journal of Livestock Research, 8(7): 214-220.</p> <p>Development of colorimetric on-package indicator for monitoring of chicken meat freshness during refrigerated storage (<math>4 \pm 1^\circ\text{C}</math>). Journal of Animal Research, 8(5): 847-853.</p> <p>Jamun fruit (<i>Syzgiumcumini</i>) skin extract based indicator for monitoring chicken patties</p> |

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quality during storage. *Journal of Food Science and Technology*, 57(2): 537–548

Application of lipase based enzymatic time temperature indicator (TTI) as quality marker for frozen chicken meat. *Food Science and Technology Research*: 26(1): 9-16. 2020.

Development and evaluation of time-temperature integrator for monitoring high temperature thawing of frozen buffalo meat *Turkish Journal of Veterinary and Animal Sciences*, 41(4): 496-505.

Enzymatic time temperature indicators: A review. *The Pharma Innovation Journal*, 7(10): 643-647.

Development of on package indicator sensor for real-time monitoring of meat quality. *Veterinary world*, 8(3): 393.

#### **Transfer of technology**

The technologies developed have been approved by Institute Technology Management Unit after getting them validated at three other Institutes.