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High pH thresholding of beef with VNIR hyperspectral imaging

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Highlights

- A novel non-invasive approach detects whether beef has a pH above a specific threshold tending towards being dry, firm, and dark (DFD) meat.
- The constructed classification model exhibits a robust detection of beef meat with high pH even under different freshness conditions.
- The underlying biochemical and physical aspects of DFD meat and in conjunction with its spectral response is thoroughly discussed.

Abstract

Initial quality grading of meat is generally carried out using invasive and occasionally destructive sampling for the purposes of pH testing. Precise pH and thresholds exist to allow the classification of different statuses of meat, e.g. for detection of dry, firm, and dark (DFD) (when dealing with cattle and sheep), or pale, soft exudative meat (when dealing with pork).

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