

Visualization of pork curing using ^{23}Na -Magnetic Resonance Imaging – the role of connective tissue.

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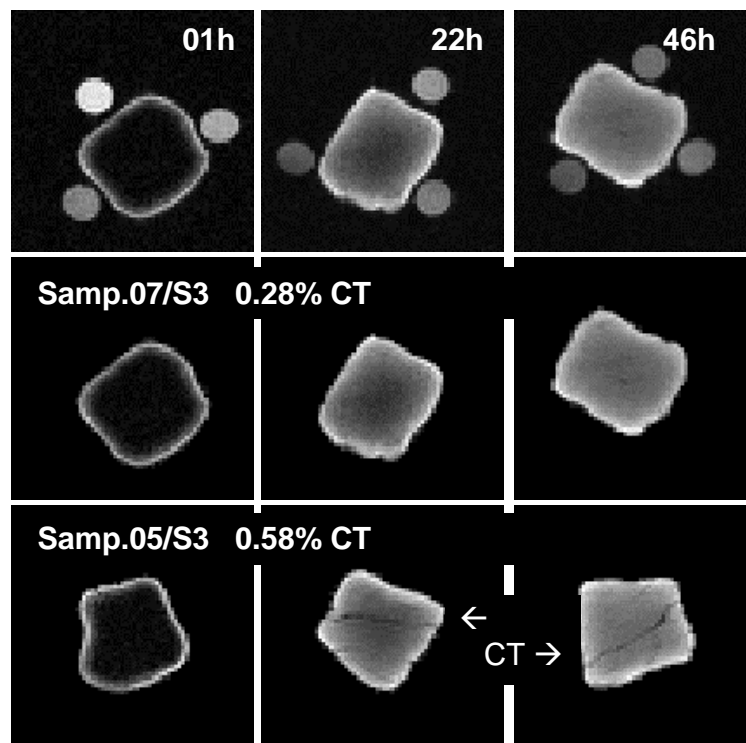
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General objectives

a) Visualization of curing in pork meat using ^{23}Na -Magnetic Resonance Imaging (MRI).
b) Gathering experience with the recently acquired ^{23}Na MRI antenna at Århus University Hospital and measurement of salt distributions in meat. c) Quantitative and qualitative evaluation of the influence of connective tissue on curing rate.

Materials and methods

^{23}Na density maps were acquired during curing of porcine muscles varying in connective tissue (CT). Total amount of CT was determined using a standard laboratory analysis. Diffusion was evaluated in directions parallel and perpendicular to large visualized areas with CT. Three known salt markers were introduced with the sample for intensity correction. ^{23}Na imaging was performed on a Varian 7 Tesla research MR spectroscopy/imaging system operating at 79.3 MHz.



Main results

^{23}Na density images show a clear salt concentration profile over time in different pork muscles. CT is clearly seen in ^{23}Na density maps as well as profiles of rows and columns of the images. These first results are promising indicators for answering our main research goal: the relation between the amount and organization of CT and diffusion of salt in meat (after industrial meat bringing/curing). More data will be collected on samples with different degrees of CT, with a higher sampling frequency.