Yellow dextrins: Evaluating Changes in Structure and Colour During Processing

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Summary

Yellow dextrins are made by pyrodextrination, a starch derivatization which is mainly controlled by moisture, acidity and the amount of heat the material is exposed to. The starch molecules are modified by depolymerization, transglycosylation and the formation of conjugated double bonds. Despite the fact that it is one of the oldest starch modifications, it can still produce products with peculiar and fascinating behaviour. A size exclusion chromatography system (SEC) equipped with four detectors (4D: Light scattering, Viscosity, UV and RI) was used to elucidate structural changes during the preparation of a yellow dextrin. The chromatograms of a certain measurement with this system are shown. The four detectors used were not only able to capture the ordinary behaviour in the early stage of the process, but also reveal interesting information about the structural changes in the final stage of the dextrination. The obtained information points to a final product which has a small fraction of intensely coloured and physically linked small starch fragments. A conversion of the 400 nm absorbance into a yellow-index parameter (YI) was helpful in finding a plausible cause of the observed phenomena.

Beamer-Presentation shown at the meeting.

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