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Czech J. Food Sci.

**M. Konečný, K. Cejpek,
L. Čechovská, J.**

Volltext: Transformation Pathways of Reductones in the Advanced Maillard Reaction

Czech J. Food Sci., 27 (2009): S149-S152

The transformation of methylene-active reducing Maillard intermediates 4-hydroxy-5-methyl-2*H*-furan-3-one (norfuraneol, 1) and 2,3-dihydro-3,5-dihydroxy-6-methyl-4*H*-pyran-4-one (DDMP) was studied in heated (at 70–95° C up to 2 h) model aqueous binary systems containing various reactive carbonyl Maillard intermediates. Among them, furan-2-carbaldehyde and its derivatives 5-hydroxymethylfuran-2-carbaldehyde and pyrrol-2-carbaldehyde react intensely with the above reductones resulting in significant formation of consecutive reducing products. The active products formation and changes in total electrochemical activity were

amperometric detection. The active products are consisted of primary reductone-carbaldehyde adducts (2a, b) that dehydrate to major active stereoisomeric condensation products (3a, b). The latter are hydrolysed to still electrochemically active compounds (4a, b) with yet unknown structure.

Norfuraneol is transformed by 67– 94% after 2 h heating at 95° C and pH 7 depending on a carbaldehyde, while DDMP react much slowly. Up to 42% of the initial norfuraneol electrochemical activity remains retained in the consecutive products depending on time and carbaldehyde involved.

Keywords:

Maillard reaction; antioxidants; reductones; norfuraneol; carbaldehydes

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