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Czech J. Food Sci.

K. Cejpek, J. Velíšek: Advances in Chemistry

of Isothiocyanate-derived Colourants

Czech J. Food Sci., 27 (2009): S207-S210

This study is focused on the reactions of isothiocyanates (ITCs) in the presence of amino compounds leading to coloured structures *via* substituted 2-thiohydantoins. A series of complementary experiments has been done and appropriate reaction conditions and structural prerequisites have been defined. Low-molecular colourants isolated and characterised from the model systems can be sorted into three groups. Yellow to red diastereomeric dehydrodimers of 2-thiohydantoin derivatives that contain an acidic methylene group are formed in mixtures consisted of ITCs and amino acids with α -methylene group in mild acidic to mild alkaline systems. The condensation products of the 2-thiohydantoins with reactive aromatic or heterocyclic carbaldehydes from the Maillard reaction, essential oils etc. comprise a heterogeneous group of mostly yellow colourants. Blue compounds of two types

are structurally more complicated structures that arise from *N*-substituted amino acids and ITCs in alkaline media.

Keywords:

isothiocyanates; amino acids; 2-thiohydantoin; carbaldehydes; colour; pigments

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