

**P24****MAILLARD REACTION PRODUCTS IN COMPLEX FOOD SAMPLES: HOME MADE VERSUS CANNED FOOD****Theresa Kaeubler<sup>1\*</sup>, Friederike Manig<sup>2</sup>, Thomas Henle<sup>3</sup>**<sup>1 2 3</sup> Chair of Food Chemistry, Technische Universität Dresden, Dresden, Germany\*Corresponding author - E-mail: [theresa.kaeubler1@tu-dresden.de](mailto:theresa.kaeubler1@tu-dresden.de), Phone: +49(0)351-463-32618

Maillard reaction products (MRPs) are formed during the non-enzymatic reaction between amino compounds and reducing sugars by thermal processes, storage and preservation of food. MRPs shape the sensory characteristics with regard to taste, scent and color, but are also discussed in the context of the pathogenesis of metabolic diseases [1], culminating in recommendations for a "MRP-free" diet or avoidance of industrial processed food [2]. It is frequently postulated that a consumption of industrially processed foods leads to a higher intake of MRPs [3]. However, little is known about the quantitative relevance of dicarbonyl compounds and glycated amino acids in home-made and/versus industrially processed food. For the present study, 13 commercially available canned food meals were recreated by home cooking with respect to main ingredients and energy intake. For both meal groups, individual MRPs were analyzed i) after cooking/processing and cooling and ii) after ready-to-eat heating. Quantitation of the dicarbonyl compounds methylglyoxal (MGO), glyoxal (GO), 3-deoxyglucosone (3-DG), 3-deoxygalactosone (3-DGal) as chinoxalines after derivatization with *o*-phenyldiamine and hydroxymethylfurfural (HMF) was performed by HPLC-UV [4]. The glycated amino acids (pyrraline, N $\delta$ -(5-methyl-4-oxoimidazolin-2-yl)-ornithin (MG-H1), N-(4-methyl-5-oxo-1-imidazolin-2-yl)sarcosine (MG-HCr), N $\epsilon$ -(carboxyethyl)lysine (CEL), N $\epsilon$ -(carboxymethyl)lysine (CML)) were analyzed via LC-MS/MS by using the respective isotopologues as internal standards [5]. It could be shown that no pronounced differences were observed between the MRP content of a home-made and the corresponding canned food item. The widely held thesis, both in public and in scientific communities, that industrial production leads to a higher heat load of food and thus to a higher daily intake of MRPs cannot be sustained.

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[3] Dr. Vlassara's A.G.E.-Less Diet: How Chemicals in the Foods We Eat Promote Disease, Obesity, and Aging and the Steps We Can Take to Stop it. H. Vlassara, S. Woodruff, G. E. Striker, Garden City, Square One Publishers, 2016.

[4] J. Degen, M. Hellwig, T. Henle, *J Agr Food Chem*, 60 (2012) 7071.[5] F. Manig, M. Hellwig, F. Pietz, T. Henle, *Foods*, 11 (2022) 2112.**Keywords:** Maillard reaction products, home-made and/versus industrially processed food**Acknowledgement:** This study is embedded in the EU-wide ePIDEMic project under the umbrella of JPI ERANET HDHL and was supported by the BMBF grant no. 01EA1909.