

## Supporting information

### **Maillard Mimetic Food-grade Synthesis of *N*-( $\beta$ -D-Deoxyfructos-1-yl)-L-glutamic acid and *N*-( $\beta$ -D-Deoxyfructos-1-yl)- $\beta$ -alanyl-L-histidine by a Combination of Lyophilization and Thermal Treatment**

Jianan Zhang,<sup>†,§</sup> Mouming Zhao,<sup>†\*</sup> Nanxi Gao,<sup>†</sup> Guowan Su,<sup>†</sup> Baoguo Sun,<sup>‡</sup>

Jiahui Zhang,<sup>§§</sup> Chi-Tang Ho<sup>§\*</sup>

<sup>†</sup> School of Food Science and Engineering, South China University of Technology,

Guangzhou 510640, China

<sup>‡</sup> Beijing Advanced Innovation Center for Food Nutrition and Human Health, Beijing

Technology & Business University, Beijing 100048, China

<sup>§</sup> Department of Food Science, Rutgers University, 65 Dudley Road, New Brunswick,

NJ 08901, United States

<sup>§§</sup> Shanghai Totole Flavouring Food Co. Ltd., Shanghai 201812, China

\*Corresponding author:

Mouming Zhao, Professor

Tel/Fax: +86 20 87113914

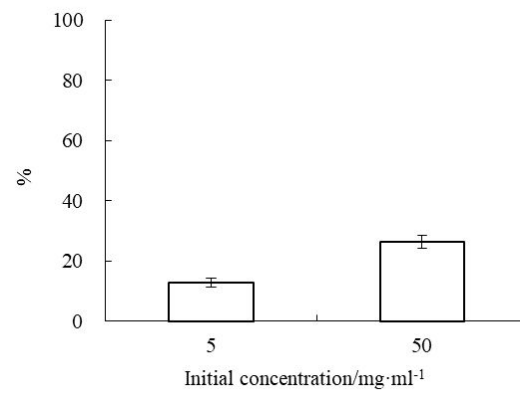
E-mail: femmzhao@scut.edu.cn

Chi-Tang Ho, Distinguished Professor

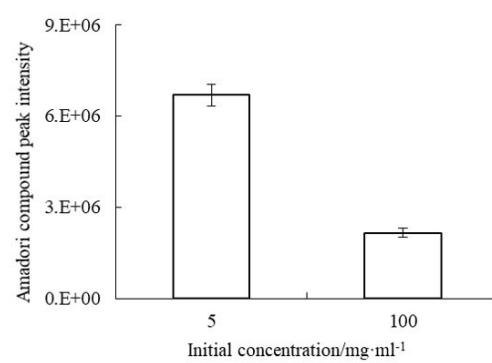
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**Figure S1.** Effect of initial concentration of glutamic acid on the remained content of water in samples after lyophilization.

**Figure S2.** Effect of initial concentration of Glu-Pro on the yield of corresponding ARP after a combination treatment of lyophilization and thermal operation.



**Figure S1.**



**Figure S2.**

**Detail information about MS and NMR analysis:**

*N*-( $\beta$ -D-Deoxyfructos-1-yl)-L-glutamic acid: The characteristic fragmentations of the molecular ion at  $m/z$  310 were identified as  $m/z$  292, 274, 226, 160 and 148, which were in agreement with the observation of other report. As expected, four methine moieties (in grey) and four methylene groups were detected (in black). The carbon atom chemical shifts of three CHOH moieties of fructose were at between 71.06 and 72.07 ppm, whereas another two CH<sub>2</sub> groups (C6 and C1) were shifted at 66.2 and 55.1, respectively. As for signals of 27.8 ppm and 36.1 ppm in black and 65.5 ppm in gray, they were methylene groups (C3' and C4') and methine group (C2') of glutamate residue. The carbon atom resonance signals at 183 ppm and 175 ppm exhibit that they belong to two carboxylate groups of glutamate backbone. The single quaternary carbon of sugar moiety was shifted at 97 ppm.

*N*-( $\beta$ -D-Deoxyfructos-1-yl)-  $\beta$ -alanyl-L-histidine: There were 6 carbon atoms derived from methine groups and 5 from methylene moieties; other 4 carbon atoms were defined as quaternary carbons, one of which corresponded to the second position carbon atom of sugar moiety (C2), the second and third one as carbonyl carbon atom and carboxylate carbon atom of peptide backbone, respectively, and the last one belonged to the imidazole group of histidine residue.