

## **Interrelated Routes Between Maillard Reaction and Lipid Oxidation in Emulsion Systems**

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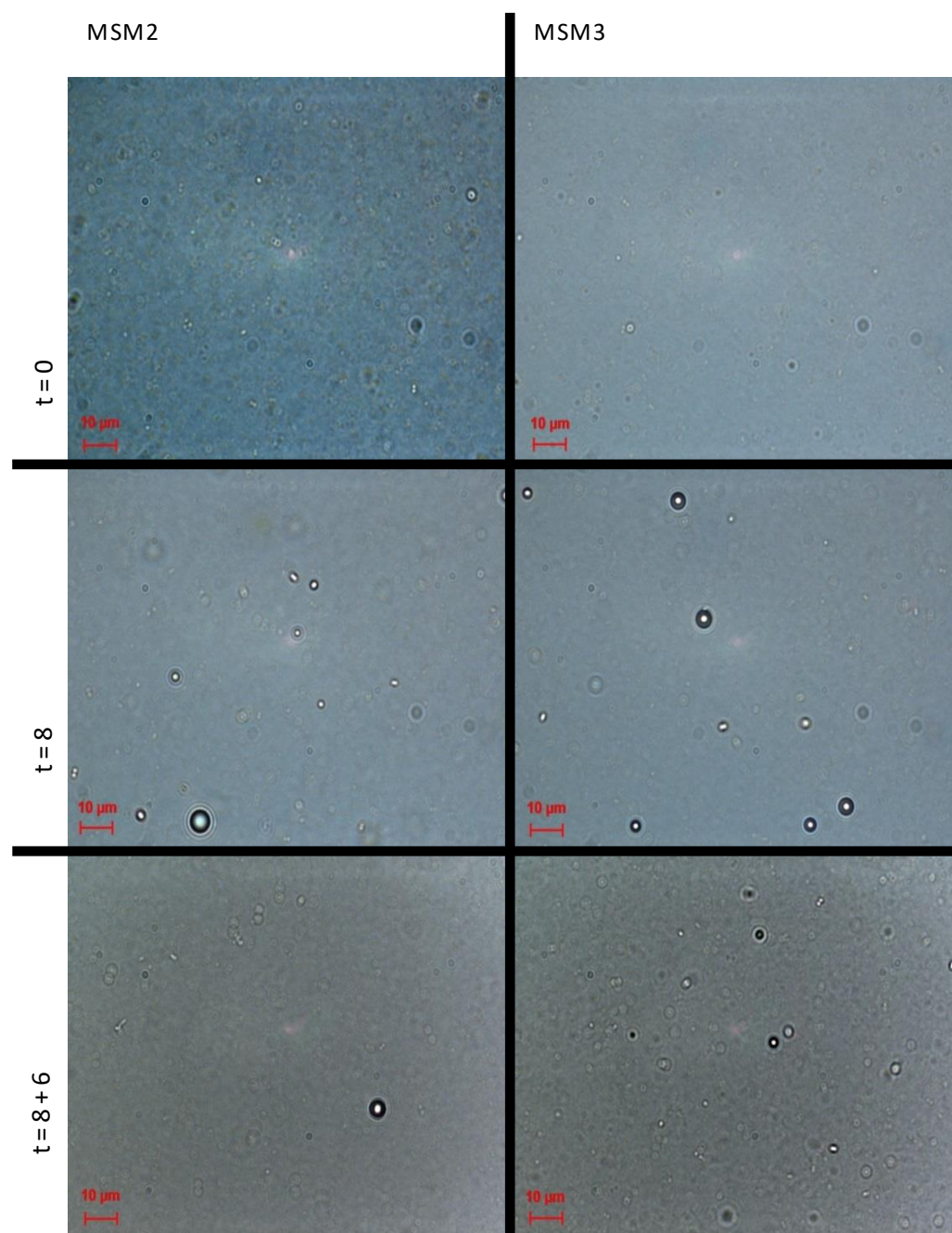
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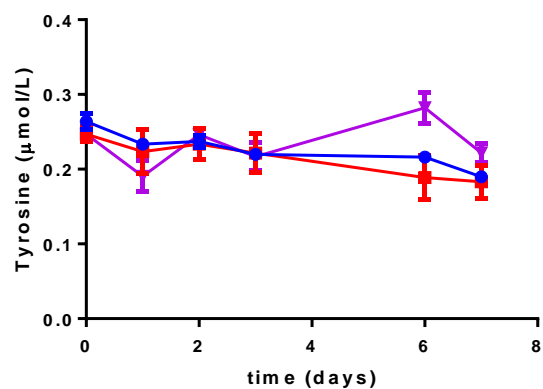
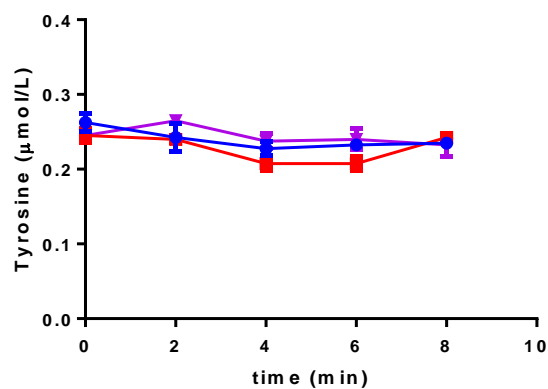
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## Supplementary Figures

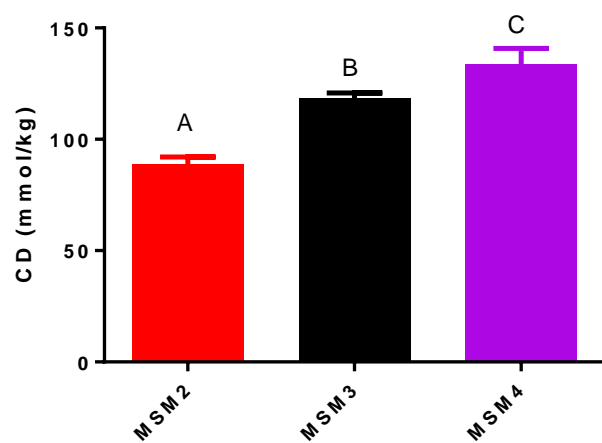
**Supplementary Figure 1:** Optical microscopy images of emulsions (water, canola oil and Tween 20) in model system with Maillard precursors (MSM2) and without Maillard precursors (MSM3), unheated ( $t=0$ ), heated for 8 min at 131 °C ( $t=8$ ) and subsequently incubated for 6 days at 40 °C ( $t=8+6$ ).



**Supplementary Figure 2:** Concentration of tyrosine in: the control aqueous model system (MSM1, blue circles), the emulsion with both MR precursors (MSM2, red squares), and the emulsion with phenylalanine and without glucose (MSM4, purple triangles).



**Supplementary Figure 3:** Concentration of conjugated dienes (CD) in: the emulsion with both phenylalanine and glucose (MSM2, red), the control emulsion with no MR precursors (MSM3, black), the emulsion with phenylalanine and without glucose (MSM4, purple) at the end of incubation at 40 °C (after initial thermal treatment at 131 °C). Different letters indicate a significant difference (Tukey test,  $\alpha < 0.05$ ).



**Supplementary Table 1:** Two ways ANOVA (Tukey test,  $\alpha < 0.05$ ): each marker (phenylalanine, Fru-Phe and phenylacetaldehyde) was compared at each time point among three different model systems (MSM1, phenylalanine and glucose in water; MSM2, emulsion with phenylalanine and glucose; MSM5, phenylalanine and glucose in 1% Tween 20 solution). Abbreviations: ns (not significant), \*\*\*\* (P< 0.0001); \*\*\* (P< 0.001), \*\* (P<0.01), \* (P<0.05). t, time point thermal treatment (min), days of incubation at 40 °C.

Tukey's multiple comparisons test	Fru-Phe	Phe	PA
t = 0 min			
MSM1 vs. MSM2	ns	**	ns
MSM1 vs. MSM5	ns	**	ns
MSM2 vs. MSM5	ns	ns	ns
t2			
MSM1 vs. MSM2	****	****	ns
MSM1 vs. MSM5	****	****	ns
MSM2 vs. MSM5	****	ns	ns
t4			
MSM1 vs. MSM2	****	****	****
MSM1 vs. MSM5	****	****	****
MSM2 vs. MSM5	****	*	ns
t6			
MSM1 vs. MSM2	****	****	****
MSM1 vs. MSM5	****	****	****
MSM2 vs. MSM5	****	*	**
t8			
MSM1 vs. MSM2	****	****	****
MSM1 vs. MSM5	****	****	****
MSM2 vs. MSM5	****	*	**
Day 1			
MSM1 vs. MSM2	****	****	****
MSM1 vs. MSM5	****	****	****
MSM2 vs. MSM5	****	****	ns
Day 2			
MSM1 vs. MSM2	****	****	****
MSM1 vs. MSM5	****	****	****
MSM2 vs. MSM5	****	ns	***
Day 3			
MSM1 vs. MSM2	****	****	****
MSM1 vs. MSM5	****	****	****
MSM2 vs. MSM5	****	ns	ns
Day 6			
MSM1 vs. MSM2	****	****	****
MSM1 vs. MSM5	****	****	****
MSM2 vs. MSM5	****	ns	ns
Day 7			
MSM1 vs. MSM2	****	***	****
MSM1 vs. MSM5	****	****	****
MSM2 vs. MSM5	****	**	*