Posters

**Stability of (−)-epigallocatechin gallate (EGCG) in a strawberry sorbet**

S Hirun, PD Roach

_School of Applied Sciences, Faculty of Science and IT, University of Newcastle, Ourimbah NSW 2258_

**Background** - Epigallocatechin gallate (EGCG) is suggested to be the active constituent of green tea involved in reducing the risk of cardiovascular disease and cancer. However, EGCG is unstable at high temperature and at neutral or alkaline pH and it may therefore be unsuitable as an ingredient in functional food products. Strawberry sorbet is one of the lowest pH food products (pH < 4), it does not need any heat treatment and is stored frozen.

**Objective** - The purpose was to test the stability of EGCG in a strawberry sorbet immediately after the sorbet was made and during storage in order to determine the feasibility of making a functional food containing EGCG.

**Design** - Three batches of strawberry sorbets with 0.15% and 0.30% (w/w) EGCG were made and the pH measured. The EGCG was then measured by high pressure liquid chromatography (HPLC) immediately after the sorbets were made and after storage at -18°C for 4, 8 and 12 weeks and the results were expressed as mean ± standard deviation.

**Outcomes** - Immediately after the sorbets were made 95% and 92% of the added EGCG was measured in the 0.15% and 0.30% (w/w) EGCG sorbets, respectively. After storage at -18°C for up to 12 weeks, the lowest recoveries represented 81% and 90% of the added EGCG from the 0.15% and 0.30% (w/w) EGCG sorbets, respectively. The pH of the sorbets ranged from 3.45 to 3.59.

<table>
<thead>
<tr>
<th>Added</th>
<th>Just Made</th>
<th>4 weeks at -18°C</th>
<th>8 weeks at -18°C</th>
<th>12 weeks at -18°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGCG % (w/w)</td>
<td>0.150</td>
<td>0.142 ± 0.010</td>
<td>0.123 ± 0.001</td>
<td>0.122 ± 0.003</td>
</tr>
<tr>
<td>EGCG % (w/w)</td>
<td>0.300</td>
<td>0.276 ± 0.002</td>
<td>0.271 ± 0.005</td>
<td>0.274 ± 0.003</td>
</tr>
</tbody>
</table>

**Conclusion** - The EGCG was stable in the strawberry sorbet, especially at the highest concentration of 0.30% (w/w). This is likely to be because the sorbets had a low pH, no heat treatment was involved in making them and they were stored frozen at -18°C. Strawberry sorbet may therefore be useful for making a functional food containing EGCG.

**Effect of dietary sialic acid supplementation on gene expression of polysialyltransferase ST8Sia IV in piglets**

B Wang1, B Yu2, H Hu1, P Petocz3, J Brand Miller1

1_Human Nutrition Unit, School of Molecular and Microbial Biosciences,  
2_Department of Molecular and Clinical Genetics, Central Clinical School, University of Sydney, NSW 2006  
3_Department of Statistics, Macquarie University, NSW 2109 Australia

**Background** - Sialic acid (Sia) is the building block of polysialic acid (PSA) and a quantitatively important component of human milk and brain ganglioside and glycoprotein. Polysialyltransferase ST8Sia IV (PST) is a key enzyme controlling the expression of PSA during neural development.

**Objective** - To examine the effect of dietary Sia supplementation on gene expression of PST in piglets.

**Design** - 3-day-old male piglets (n=53) were randomly allocated to one of 4 groups fed milk replacer supplemented with varying amounts of protein-bound form of Sia for 5 wks: 140 mg/L (control), 300 mg/L (group 2), 635 mg/L (group 3) and 830 mg/L (group 4). Quantitative analysis of PST mRNA in the hippocampus, cortex and liver was performed using SYBR Green and ABI 7900 HT platform. The relative quantification of mRNA levels was expressed using the formula:

\[
\text{Ratio} = \left( \frac{E_{\text{target}}}{E_{\text{reference}}} \right)^{\Delta C(t)(\text{MEAN}_\text{Control} - \text{MEAN}_\text{Sample})}
\]

**Outcomes** - The supplemented groups had higher mRNA levels of PST gene in the hippocampus with a significant dose-response relationship (P = 0.002). The relative mRNA level in the hippocampus of group 3 and 4 was 2 and 2.4-fold higher than that of the control group (P = 0.01 & 0.003) and group 2 (P = 0.01 & 0.003). In frontal cortex, group 4 was about 1.4 - fold higher than that of the control, however the results did not reach statistical significance (P >0.05). The PST mRNA level of brain frontal cortex and hippocampus was significantly higher than those of the liver (P = 0.001).

**Conclusion** - PST mRNA levels responded to dietary supplementation of Sia in piglets. The high level of PST mRNA might contribute to the high Sia incorporation into the brain. Dietary Sia may be important for optimal brain growth and development.