Introduction

Flavonoids belong to plant phenolics. The varied biological properties of flavonoids have stimulated interest in these compounds. Herbert, et al (1996) observed reduced risk of Coronary Heart Disease (CHD) in the Women's Health and the Zuphan study with high intakes of flavonols, but did not observe any effect on risk for coronary heart disease. However, Le Marchand, et al (2001) observed inverse association between quercetin (Flavonol) intake and risk of breast cancer. Ormos and apples were the major contributors of flavonoids in this study. Herbert, et al (1996) estimated the average intake of quercetin, kaempferol, myricetin, apigenin and luteolin of 23 mg/day for aglycone forms in the Dutch population. Jousieen, et al (1997) estimated a very similar intake of 26 mg/day for the same flavonoids in the Dutch population. Their estimates were considerably lower than the average intake of 1.5g/day for total flavonoids estimated by Bruneau (1976). The 1g/day estimate included glycoside residues and when converted to aglycone forms it was ~170 mg/day. The glycosidic linkages are important for absorption (Hollman, et al 1993). Dietary flavonols consist mainly of five subclasses - flavonols, flavones, flavonones, flavans and anthocyanidins and most of them exist in nature as glycosides except for catechins which are present in free forms and as esters of gallic acid (Robards and Antolovich, 1997). The glycosidic linkages are important for absorption (Holmahl, et al 1996). However, it is the aglycone form that is utilized by the body. Food sources rich in flavonoids include fruits, nuts, seeds, teas, and cherries, which are rich in flavonoids.

Results

Flavonoids Database: Preliminary flavonoid data for selected foods

<table>
<thead>
<tr>
<th>FOOD</th>
<th>Antioxidant</th>
<th>Cyanidin</th>
<th>Delphinidin</th>
<th>Malvidin</th>
<th>Pelargonidin</th>
<th>Peonidin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cherries, sweet</td>
<td>111.4</td>
<td>9.8</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Table wine, red</td>
<td>0.3</td>
<td>0.5</td>
<td>6.2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Data from analytical studies which used acceptable procedures to separate the flavonoids were used. Separation by thin layer or paper chromatography was not acceptable. Similarly, values for just the total flavonols or just the total of subclasses of flavonoids, except for the subclass anthocyanidins, were not acceptable. These data will be released in late 2002 on NDL’s Web site.

References