Overview of Vietnam cashew production

- Vietnam is one of 2nd world biggest countries for area and production of cashews after India
- Production of cashew nuts in 2010 reached 291.5 million tons.
- This is the 4th consecutive year Vietnam cashew industry maintains the top export position of the world.

Profit division in cashew value chain

Weight of cashew apple: 8 – 10 times that of nut.
Compositions of Viet Nam cashew apple

<table>
<thead>
<tr>
<th>Compositions (%)</th>
<th>Red cashew</th>
<th>Yellow cashew</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture</td>
<td>85.92</td>
<td>86.38</td>
</tr>
<tr>
<td>Pectin</td>
<td>0.86</td>
<td>0.98</td>
</tr>
<tr>
<td>Reducd sugar</td>
<td>7.74</td>
<td>7.26</td>
</tr>
<tr>
<td>Protein</td>
<td>0.88</td>
<td>0.52</td>
</tr>
<tr>
<td>Fat</td>
<td>0.30</td>
<td>0.27</td>
</tr>
<tr>
<td>Cellulose</td>
<td>3.56</td>
<td>3.34</td>
</tr>
<tr>
<td>Tannin</td>
<td>0.42</td>
<td>0.48</td>
</tr>
<tr>
<td>Minerals</td>
<td>0.44</td>
<td>0.5</td>
</tr>
</tbody>
</table>

(Source: Pham, V.N., 1991)

Micronutrients of fruits (per 100g)

<table>
<thead>
<tr>
<th>Fruits</th>
<th>B₁ (10⁻⁹g)</th>
<th>B₂ (10⁻⁹g)</th>
<th>C (mg)</th>
<th>P (mg)</th>
<th>Ca (mg)</th>
<th>Fe (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow C.A.</td>
<td>98.75</td>
<td>239.6</td>
<td>11</td>
<td>41</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Red C.A.</td>
<td>128.75</td>
<td>186</td>
<td>11</td>
<td>41</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Pineapple</td>
<td>80</td>
<td>20</td>
<td>24</td>
<td>11</td>
<td>16</td>
<td>0.3</td>
</tr>
<tr>
<td>Avocado</td>
<td>120</td>
<td>150</td>
<td>16</td>
<td>38</td>
<td>10</td>
<td>0.6</td>
</tr>
<tr>
<td>Banana</td>
<td>90</td>
<td>60</td>
<td>10</td>
<td>28</td>
<td>8</td>
<td>0.6</td>
</tr>
<tr>
<td>Lemon</td>
<td>40</td>
<td>Trace</td>
<td>45</td>
<td>10</td>
<td>14</td>
<td>0.1</td>
</tr>
<tr>
<td>Pomelo</td>
<td>40</td>
<td>20</td>
<td>40</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mandarin</td>
<td>70</td>
<td>30</td>
<td>31</td>
<td>23</td>
<td>33</td>
<td>0.4</td>
</tr>
<tr>
<td>Orange</td>
<td>80</td>
<td>30.9</td>
<td>49</td>
<td>23</td>
<td>33</td>
<td>0.4</td>
</tr>
</tbody>
</table>

(Source: Pham, D.T., 2003)

Cashew apple utilization...

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
<th>Description and Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>Prunes</td>
<td>Cashew prunes, produced by boiling the cashew apple in molasses, is very similar to dehydrated prunes or dates.</td>
</tr>
<tr>
<td>Juice</td>
<td></td>
<td>The cashew fruit is pulped by grating or pounding and the juice is pressed out and strained. Cashew Juice has five times more citric acid than orange juice and is thus a good source of preservation acid medium when mixed with other fruit juices or vegetables.</td>
</tr>
<tr>
<td>Wine</td>
<td></td>
<td>The juice of the cashew apple can be processed into wine using the conventional method of producing fruit wines. The alcoholic content averages 18%.</td>
</tr>
<tr>
<td>Pulp</td>
<td></td>
<td>The fibrous pulp obtained after extracting juice from the cashew apple can be used as animal feed or dried and processed into diet fibre biscuits.</td>
</tr>
</tbody>
</table>

(Source: USAID, 2002)

Cashew apple teas

- Vietnam:
  - The apples are usually used as fresh fruits.
  - A small amount is used for making wine.
  - Products from researches (not yet commercialized):
Cashew apple utilization...

- Enhance the value of abundant cashew apple.
- Reduce environmental pollution.
- Increase the income for farmers.
- Create jobs for workers.
- Diversify food products.

Miniresearch

“Added-value for Cashew Industry by Producing a Reduced-Fat Cashew Apple Chips”

Cold chain for fruits in Vietnam?

Pomelo case
Any cold chain for cashew apple?

- Freezing prior to frying has an important impact on the fat content and other qualities of the chips after frying. The chips have a lower fat content and better organoleptic qualities. (Knok et al., 1995)

References

- Lebensmittelwissenschaft und Technologie, 28: 87-95.
- http://agro.gov.vn/
- www.vinacas.com.vn

Thanks for your attention!