Bioavailability of Coenzyme Q10 Formulated with Palm Oil is Equivalent with a Similar Soy Oil Formulation

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BIOAVAILABILITY OF COENZYME Q\textsubscript{10} FORMULATED WITH PALM OIL IS EQUIVALENT WITH A SIMILAR SOY OIL FORMULATION.

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ABSTRACT
This study investigated bioavailability of coenzyme Q10, comparing two preparations with palm oil and soy oil respectively. A randomized, double-blind cross-over study was conducted with 12 volunteers. The volunteers were randomized in two groups receiving coenzyme Q10 preparations containing 100mg CoQ10 and 400mg soy oil or palm oil respectively each day for two periods of three weeks, with a two weeks washout in between. In conclusion there was no significant difference in bioavailability of coenzyme Q10 using the two different preparations and no adverse effects were observed.

Key Words: Coenzyme Q10, Palm oil, Soy oil, Bio-availability, Controlled cross-over trial.

INTRODUCTION
Preparations used for coenzyme Q10 supplementation are often formulated with soy oil for optimal bioavailability (1). Palm oil, contrary to soy oil, contains antioxidants like E-vitamins and carotenoids that may have a positive effect on health (2). We therefore decided to investigate if bioavailability of a coenzyme Q10 preparation containing palm oil was different from a similar preparation containing soy oil. The two preparations contained Q10 of the same quality (Kaneka).

DESIGN
Randomized, double blind, cross-over study with 12 healthy volunteers conducted at the Institute of Biochemistry, University of Ancona, Italy. Two supplementation periods of three weeks each were separated by a two weeks washout period. In the first period half of the volunteers (Group A) received a soft-gel capsule, Bio-Quinone (Pharma Nord), containing 100mg Q10 and 400mg soy oil, while the other half (Group B) received a similar capsule with 100mg Q10 and 400mg palm oil. In the second period the groups switched to the alternative preparation. The preparations were taken orally with breakfast. Plasma level of coenzyme Q10 was measured before and after all periods.
RESULTS
Figure 1 shows the plasma concentration of CoQ10 in the two groups during the two supplementation periods and during wash out. As shown in the table 1 below there was no statistically significant variation in the bioavailability between the soy and palm oil formulations of the Kaneka CoenzymeQ10. Statistical analysis was conducted by paired t test. No adverse effects was reported.

Table 1. Plasma levels of CoQ10(µg/ml), standard deviation (µg/ml) and P-values

<table>
<thead>
<tr>
<th></th>
<th>Soy oil Baseline</th>
<th>Soy oil Post</th>
<th>Soy oil Δ</th>
<th>Palm oil Baseline</th>
<th>Palm oil Post</th>
<th>Palm oil Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plasma</td>
<td>0.86</td>
<td>1.39</td>
<td>0.53</td>
<td>0.80</td>
<td>1.49</td>
<td>0.69</td>
</tr>
<tr>
<td>S.D.</td>
<td>0.37</td>
<td>0.55</td>
<td>0.30</td>
<td>0.26</td>
<td>0.52</td>
<td>0.44</td>
</tr>
</tbody>
</table>

P-values
Soy vs. Palm 0.4 (baseline levels) 0.4 (post levels) 0.2 (Δ-values)

CONCLUSION
In conclusion, CoQ10 capsules with soy oil and palm oil can be considered equivalent with respect to bioavailability of two otherwise similar CoQ10 preparations.
REFERENCES

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