

ADVISORY COMMITTEE ON NOVEL FOODS AND PROCESSES

REFINED ECHIUM OIL

ISSUE

The Committee is invited to consider the response provided by Croda Chemicals Ltd to the comments raised at the January meeting and discuss whether this provides sufficient information for the Committee to conclude its evaluation of this novel food ingredient.

**Background**

1. At the January 2007 meeting, Members considered further information in relation to this application from Croda Chemicals Ltd for the approval of a refined echium oil from *Echium plantagineum* as a novel food ingredient (ACNFP/80/1). This followed an initial discussion at the meeting in September 2006 (ACNFP/79/3).
2. A letter detailing the ACNFP's outstanding comments on this application was sent to the applicant on 25 January 2006 (see Annex 1) and these are summarised below:
  - I. **Protein Analysis** – Members were of the view that the protein extraction method used was not adequate because the proteins able to partition into the oil will be partially unfolded and therefore unlikely to be soluble in water. Members also noted that the Bradford method used for protein determination relies on dye binding to largely intact proteins and as the oil refining process is highly likely to denature and modify the proteins this will affect the ability of the Bradford method to function. The Committee was also of the view that a dye binding assay is less effective with lower molecular weight proteins/peptides.
  - II. **Nutritional Implications** – The Committee reiterated their concerns that the NI could be seen as an alternative to other source of PUFAs and for this reason, consumers may disregard advice on the consumption of products such as oily fish, for which a nutritional benefit has been established.

**Applicant's response**

3. The applicant responded to these comments on 19 February (Annex 2). The Secretariat wishes to highlight the following points:
  - I. **Protein Analysis** – The applicant has proposed the following experimental plan to determine the protein content of the NI:
    1. Proteins will be extracted from 500 g samples of crude and super refined oil according to the procedure of Olszewski et al. (1998). The protein content will then be determined using the BCA assay.
    2. The proteins isolated will be separated by SDS-PAGE (staining with Coomassie Blue) and the presence or absence of proteins in the

molecular mass range 11.5-13 kDa (consistent with cytochrome C) will be established.

3. If proteins in the molecular mass range 11.5-13 kDa are present, mass spectrometry will be performed to determine if cytochrome c can be detected.

The results of this analysis will be available shortly before the meeting and will be tabled for discussion.

- II. Nutritional Implications** – The applicant is of the view that because it proposes to label the NI as “refined echium (vegetable) oil” this should distinguish it from fish oils which are the predominant source of DHA/EPA in the diet and supplements focussed on cardiovascular health.

The applicant also notes that echium oil is rich in the essential fatty acids alpha-linolenic acid (ALA, Omega-3) and d-gamma-linolenic acid (GLA, Omega-6) which are precursors for eicosanoids in the body. ALA is recognised as being important in its own right in a number of Member states including France who have set a daily recommended value of up to 2.2 g per day for total omega-3 fatty acids.

The applicant points out that a similar product that is widely available on the market is flax seed oil (linseed) oil which is included in many food supplements and can also be combined with fish oils. The applicant has provided example labels of these products (Annex 2, p3-4)

The applicant states that the NI would not be nutritionally disadvantageous to the consumer if it replaces the current use of flax and/or other similar vegetable sources of essential omega-3 and omega-6 fatty acids.

### **Committee Action Required**

4. The Committee is asked whether the applicant’s response provides sufficient information and adequately addresses its concerns.
5. If so, the Secretariat proposes to draft an opinion incorporating the ACNFP’s comments on Croda Chemicals Ltd application which will be discussed at the next Committee meeting in May.
6. If not, the Committee is asked to indicate what additional information would be required.

**Secretariat**  
March 2007

Annexes attached:

Annex 1 – Letter to the applicant with the Committee’s comments

Annex 2 – Response from the applicant

**ADVISORY COMMITTEE ON NOVEL FOODS AND PROCESSES**

**Letter to the applicant with the Committee's comments (25 January 2007)**

**Secretariat**

**March 2007**



**ANNEX 2 to ACNFP/81/4**

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**Response from the applicant (19 February 2007)**

**Secretariat**

**March 2007**