Edible seaweed and French regulation - Synthesis made by CEVA (31/03/2014)

In Europe, seaweeds are considered as novel food. Therefore they are considered as food if put on market as food or food ingredient and consumed to a significant degree before May 15 1997. The marine diatom Odontella aurita by Innovalg (France) has been approved since 9 December 2002 as a novel food ("substantially equivalent")

In France since 1990, some species of seaweed have been authorized for food consumption. France was the first European country to establish a specific regulation concerning the use of seaweeds for human consumption as non–traditional food substances.

Up to day, 21 macroalgae and 3 microalgae are authorized as vegetables and condiments (table 1). Moreover, maximum allowed levels of toxic minerals (lead, cadmium, tin, mercury, mineral arsenic and iodine) have been defined for all edible seaweed (table 2). These low levels are considered a high guarantee of food safety.

Scientific name	Common name
• **Brown seaweed**	
- *Ascophyllum nodosum*	
- *Fucus vesiculosus +serratus*	
- *Himanthalia elongata*	Sea spaghetti
- *Undaria pinnatifida*	Wakame
- *Laminaria digitata*	Kombu
- *Laminaria saccharina*	Royal Kombu
- *Laminaria japonica*	Kombu
- *Alaria esculenta*	Atlantic wakame
• **Red seaweed**	
- *Palmaria palmata*	Dulse
- *Porphyra umbilicalis*	Nori
- *Porphyra tenera*	"
- *Porphyra yezoensis*	"
- *Porphyra dioica*	"
- *Porphyra purpurea*	"
- *Porphyra laciniata*	"
- *Porphyra leucostica*	"
- *Chondrus crispus*	Pioca, lichen
- *Gracilaria verrucosa*	Ogonori
- *Lithothamnium calcareum*	Mäerl
• **Green seaweed**	
- *Ulva sp.*	Sea lettuce
- *Enteromorpha sp*.	Aonori
• **Microalgae**	
- *Spirulina sp.*	
- *Odontella aurita*	
- *Chlorella sp.*	

Table 1 : Synthesis of seaweed usable for food consumption in France

	Maximal level (mg/kg dry weight)
Inorganic Arsenic (As)	3
Cadmium (Cd)	0,5
Mercury (Hg)	0,1
Lead (Pb)	5
Tin (Sn)	5
Iodine (I)	2 000

Table 2. Maximal level of heavy metals and iodine authorized in seaweeds (mg/kg dry weight)

Remark for food supplement

According to the regulation (EC) No 629/2008 setting maximum levels for certain contaminants in Foodstuffs food supplements consisting exclusively or mainly of dried seaweed or of products derived from seaweed can therefore contain higher levels of cadmium than other food supplements. To take this into account, a higher maximum level for cadmium (3 mg/kg dry seaweed) is needed for food supplements consisting exclusively or mainly of seaweed.

Ingredients

- Algal oils rich in DHA have been approved by european commission decision as a novel food ingredient under regulation n° 258/97 : oil from the micro-algae *Schizochytrium sp* and oil from the microalgae *Ulkenia sp.*
- E160a : Mixed carotenes may also be produced from strains of the algae Dunaliella salina. Beta-carotene is extracted using an essential oil. The preparation is a 20 to 30 % suspension in edible oil. The ratio of trans-cis isomers is in the range of 50/50 to 71/29.
- E161j : astaxanthin as colouring substance for feeding-stuffs (salmons and trouts)

References

Regulation (EC) No 258/97 of the European Parliament and of the Council of 27 January 1997 concerning novel foods and novel food ingredients

Opinion of the French Higher Council for Public Health (CSHPF) issued of sessions of 14 June 1988, 13 December 1988, 9 January 1990 and 14 October 1997 (Bulletin Officiel du Ministère de la Santé (n°90/45, p. 103) et B.I.D n°2/98-03, BID n° 4/99-079)

Opinion of the French Food Safety Agency concerning the substantial equivalence of Odontella aurita with authorized seaweed (AFSSA Request n° 2001-SA-0082).

Opinion of the French Food Safety Agency on the recommended maximum inorganic arsenic content of laminaria and consumption of these seaweeds in light of their high iodine content (AFSSA Request no. 2007-SA-0007)

COMMISSION REGULATION (EC) No 629/2008 of 2 July 2008 amending Regulation (EC) No 1881/2006 setting maximum levels for certain contaminants in foodstuffs

COMMISSION DECISION of 5 June 2003 authorising the placing on the market of oil rich in DHA (docosahexaenoic acid) from the microalgae Schizochytrium sp. as a novel food ingredient under Regulation n° 258/97.

OPINION of the French Agency for Food, Environmental and Occupational Health & Safety (ANSES) on an application for authorisation to market a novel food ingredient: DHA-EPA-rich oil from the micro-algae Schizochytrium sp. (Request no. 2011-Sa-0345)

COMMISSION DECISION of 21 October 2009 concerning the extension of uses of algal oil from the micro-algae Ulkenia sp. as a novel food ingredient under Regulation (EC) No 258/97 of the European Parliament and of the Council

Commission Regulation (EU) No 1274/2013 of 6 December 2013 amending and correcting Annexes II and III to Regulation (EC) No 1333/2008 of the European Parliament and of the Council and the Annex to Commission Regulation (EU) No 231/2012 as regards certain food additives

EFSA (2005) Opinion of the Scientific Panel on Additives and Products or Substances used in Animal Feed on the request from the European Commission on the safety of use of colouring agents in animal nutrition. PART I. General Principles and Astaxanthin, The EFSA Journal, 291, 1-40.