

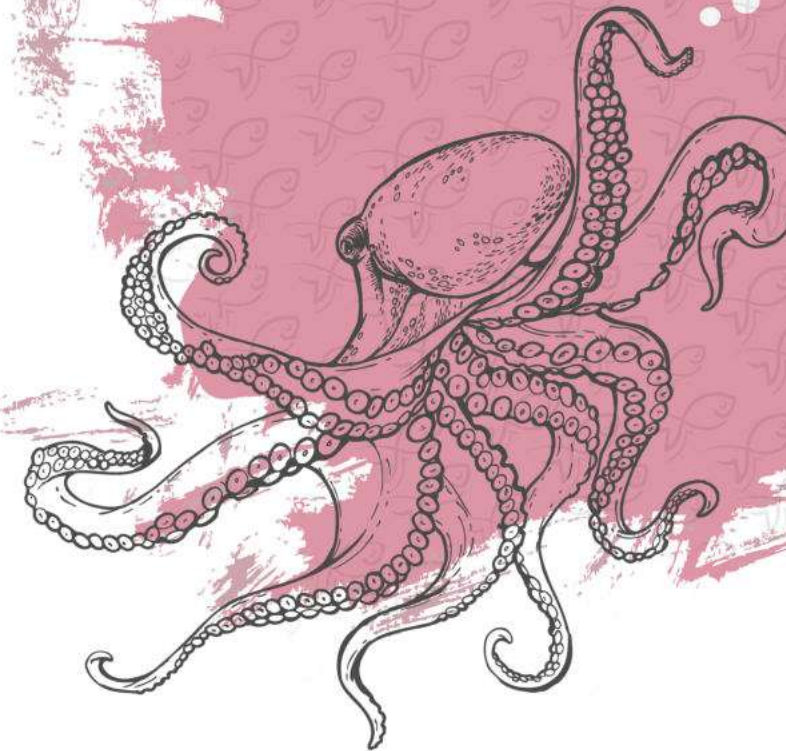
Kingdom of Morocco



Ministry of Agriculture  
and Maritime Fisheries

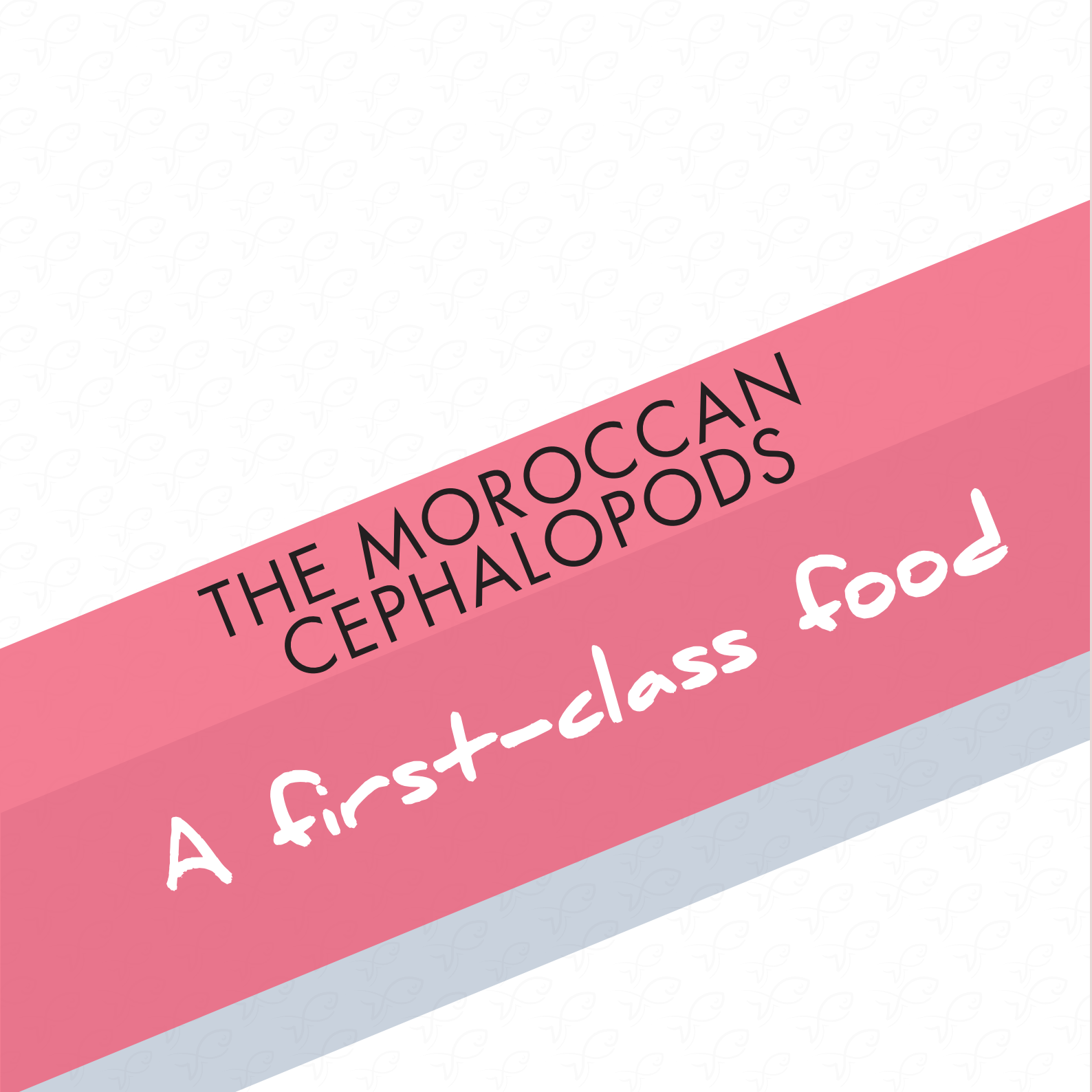
# The Moroccan Cephalopods

Consumer Brochure



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**MOROCCAN SEAFOOD**  
Naturally



# THE MOROCCAN CEPHALOPODS

A first-class food







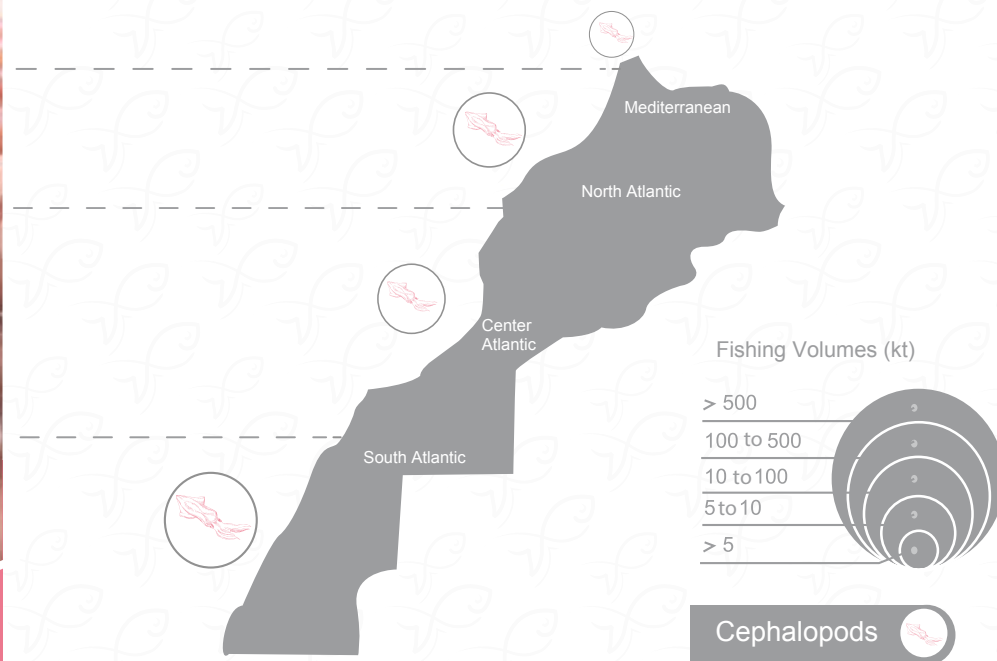


# Discover the moroccan *Cephalopods!*

The cephalopods, which are succulent, are savoury and contain plenty of nutrients essential for our body.

The Moroccan cephalopods achieve a great success, especially with consumers fond of these products.

Fresh or frozen, the Moroccan cephalopod remains a real ambassador of the Moroccan sea food. It is highly regarded and sought by gourmets for its qualities, especially in Europe and Asia.







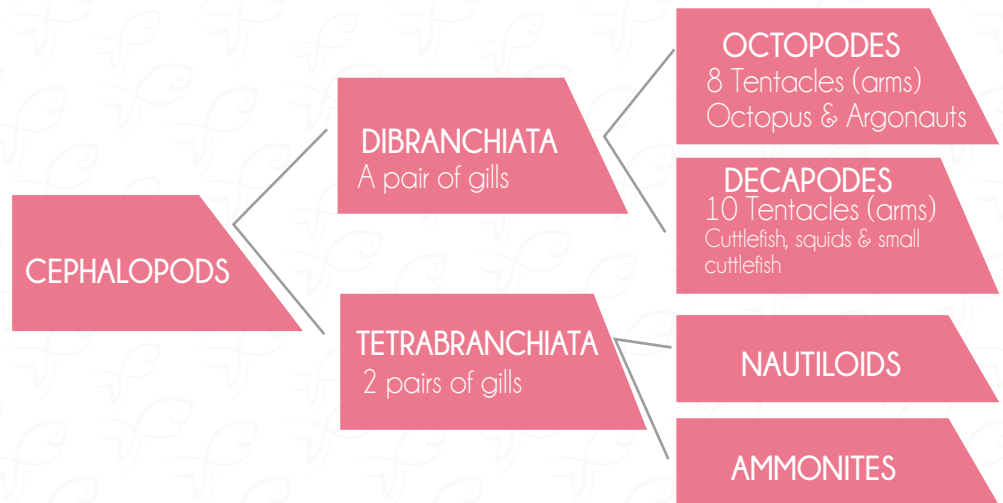
## What is a cephalopod?

The term comes from the Greek Cephalopod, kephale = head and pod = foot. It refers to highly evolved species of molluscs, they are characterized by their intelligence and their ability to change colour and adapt to the environment. Cephalopods have the distinct head crowned with eight or ten cups of tentacles lined for holding prey. In case of danger, they can release an ink cloud to blur water and conceal their escape.

Distributed throughout warm and temperate seas of the world, including the Moroccan Atlantic coast, they can live at great depths.

Depending on the number of gills, there are two groups:

- The Tetrabranchiata
- The Dibranchiata



The main species of cephalopods in the Moroccan seas are the octopus, the squid and cuttlefish; Octopuses have 8 tentacles of the same length, the squid and cuttlefish have 10 (8 short and 2 very long).

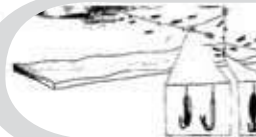
## Tailor made fishing techniques

These molluscs live typically in the Moroccan seas which offer an ideal temperature, rich in funds gravel and nutrients; and their fishing is a tradition among Moroccans. The history of the Moroccan cephalopod fishery began in 1976 through the offshore fleet. In the late 90s, the artisanal fishery developed along with a seasonal specialty of the coastal fishery.

The fishing techniques used targetting the cephalopods are:



**Bottom trawling** : It is a Otter board located in front of the trawl that allows its horizontal opening. Cables called arms link the trawl panels, cone-shaped net towed by a ship. It is connected to the boat by steel cables called warps.



**Jigs (kerracha)** : fishing gear used for octopus fishing, taking the shape of a rigid line with several hooks fixed on it. these hooks should not be placed exclusively at the end of the line in ring forming a grapple.



**Octopus pot** : (Chourraf) it is a cylindrical machine open at both ends and placed on file on the seabed to trap octopus.



**Lures lines** : this fishing techniques uses lures on a vertical line being stirred up and down by hand. It is used at night and it is efficient to capture squids which are attracted by lights and reflections.

## Octopus fishery development plan

The octopus fishery is a considerable activity socioeconomically. Morocco has had to preserve this special way of industry, including the implementation of a management plan tailored to its sustainability. This plan targets preserving this resource through management measures aiming at recovering the stock of octopus, consolidating the investments made in the fishery to a level ensuring the profitability and sustainability of stakeholders, and maximizing socio-economic benefits that emerged from this fishery.





### The Octopus fishery development plan for the South of Sidi Lghazi

The current management system of the octopus fishery is organized in two fishing seasons, "winter and summer" and two periods of fishing for widespread throughout national coastline (spring and fall).

The exploitable overall quota is fixed for each fishing year following the National Institute of Fisheries Research (INRH) surveys and divided into three segments targeting this resource in accordance with the scale laid down in the 2004 matrix.

The 2004 Matrix is a platform for development, management and operation. It defines for each segment, the technical measures for this fishery, fishing effort, fishing grounds. The management measures, the country resumed conditions (overall TAC «Total Allowable Catches», quota per segment, fishing area, authorized gear ..) and periods of fishing judgment in the management unit of the fishery are established by decisions after review of the (INRH).

### The Octopus fishery development plan for the North of Sidi Lghazi

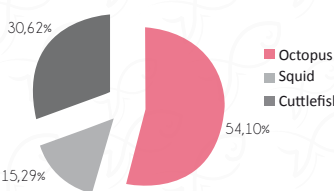

To enable an efficient organization of the octopus fishing activity, and to ensure a sustainable and rational exploitation of the octopus fishery north of Sidi Lghazi and to fight against the illicit circuits, the Department of Marine Fisheries has set up since 2010, a set of management measures, including the determination of octopus catch limits per maritime district and stopping fishing along the national coastline, these measures were accompanied by other provisions to Fight illegal fishing.

To fight the juveniles' fishery, the moroccan regulation has fixed the minimal size at 300 g for the eviscerated octopuses and 400 g for the non-eviscerated ones.



## An honourable *production*

Morocco is an important producer of cephalopods with a national production attaining 80 000 tons, which represents more than 4 billion dirhams, almost 43% of the overall value of the national fisheries production that is distributed as follows:

	Volume (Tons)	Value (Thousands of DH)
Coastal and artisanal fishing	37 600	1 730 600
Offshore fishing	42 100 <div>  <p>             Octopus Squid Cuttlefish           </p> </div>	2 385 100 <div>  <p>             Octopus Squid Cuttlefish           </p> </div>

Reference year : 2014

## Moroccan cephalopods *valued*

The valuation of cephalopods in Morocco consists of different ways, such as freezing, which is the main activity, in addition to fresh packaging and the packaging based on cooking or marinating.

To provide a product of high quality that meets customer requirements, to preserve the safety of the product and its sensorial and nutritional quality, the Moroccan industrial exploitation of cephalopods relies on processes and production techniques at the cutting edge of progress that meet the highest standards of quality and safety. They are all licensed by the Department of Maritime Fisheries and are subject to monitoring and regular follow up. All these units adopt HACCP (Hazard Analysis and Critical Control Point) to assess and control hazards that threaten food safety.





## Moroccan cephalopods, *source of savours and nutrients*

Its authenticity and originality, its unique taste and natural flavour, are the key features that qualify this cephalopod to represent worthily the Moroccan marine area which is extremely rich in terms of cephalopods. The Moroccan cephalopods, with their extremely tender flesh and flavour, help to cook delicious and popular meals appreciated by national and international fans.

Very good for the line, the Moroccan cephalopod is widely provided in protein while being low in fat. It is thus recommended as part of a reduced calorie diet or, more generally, for light and balanced meals.

Like all marine animals, it is also very rich in minerals and trace elements necessary for our balance.

Although it contains little fat, the octopus contains eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), two fatty acids of the omega 3 family. They act as precursors for chemical messengers promoting healthy immune, circulatory and hormonal functioning. Several epidemiological and clinical studies have shown that consumption of omega-3 fatty acids, mainly of marine origin, would have positive effects on cardiovascular health and reduce mortality from cardiovascular disease. These fatty acids act on several fronts, including reducing blood pressure, blood triglycerides and blood clots, reducing the risk of atherosclerosis.



# A country rich in cephalopods

For ages, the Moroccan sea has contained a coveted natural treasure; The Moroccan cephalopod, which reflects the wealth and the important fishing heritage of the Kingdom, thus turning its identity and originality into a valuable currency.

If Morocco has become an important producer and exporter of cephalopods, this is because the Moroccans have been able to retrieve from their contrasting seas precious products recognized by their originality and their Moroccan identity.

 European squid : <i>Loligo vulgaris</i>	 Common octopus : <i>Octopus vulgaris</i>	 Common cuttlefish : <i>Sepia officinalis</i>	 European common squid : <i>Alloteuthis subulata</i>
 Musky octopus : <i>Eledone moschata</i>	 African cuttlefish : <i>Sepia bertheloti</i>	 veined squid : <i>Loligo forbesi</i>	 Horned octopus : <i>Eledone cirrhosa</i>
 Elegant cuttlefish : <i>Sepia elegans</i>	 Broadtail shortfin squid : <i>Illex coindetti</i>	 Spider octopus : <i>Octopus salutii</i>	 Pink cuttlefish : <i>Sepia orbignyana</i>
 Neon flying squid : <i>Ommastrephes bartramii</i>	 Globose octopus : <i>Bathypolypus sponsalis</i>	 European Flying squid : <i>Todarodes sagittatus</i>	 White-spotted octopus : <i>Octopus macropus</i>
	 Common bobtail squid : <i>Sepietta oweniana</i>	 Lesser flying squid : <i>Todaropsis eblanae</i>	



# Zoom on distinguished cephalopods

By being iconic products of the Moroccan cephalopods diversity, species like the octopus, the squid and the cuttlefish in particular, express both the authenticity and typicality of Moroccan fisheries resources.



## Common octopus : *Octopus vulgaris*

It is the most advanced species of molluscs. The octopus has a soft body, globular tapering slightly at the junction with the head. It is covered with mucus, devoid of internal fin and shell. It has arms attached to the head, located around the mouth and has two rows of suckers. The town mantle length is 10 to 23cm.

It is a coastal benthic species, which can go down to 100m depth. It lives in solitude in rocky and sandy bottoms.

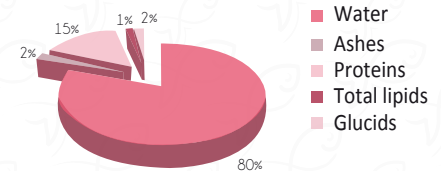
**Health side :** the Moroccan octopus is very good for the body's good shape, it is very rich in protein while being low in fat. It is thus recommended as part of a reduced calorie diet or, more generally, for light and balanced meals.

### Practical side :

### Nutritional side :

For 100g of Octopus

Energy intake : 82 Kcal



Fresh Octopus means...	Minimal commercial size
<ul style="list-style-type: none"> <li>- Pleasant smell and iodine.</li> <li>- Shiny and slippery texture and not sticky - Firm arms when you touch it.</li> </ul>	<p>400 g / non-eviscerated octopus. 300 g / eviscerated octopus.</p>
Well prepared means...	Well cooked means...
<ul style="list-style-type: none"> <li>- Choose it as you like: Whole Fresh, prepared fresh, frozen whole, frozen prepared. (There are also various preparations of octopus cooked in marinade).</li> <li>- Provide 1 to 2 kg for 4 persons. (Octopus greatly shrinks when cooked).</li> <li>- If sold cleaned and beaten, so it's already tender.</li> </ul> <p>Otherwise you have to:</p> <ul style="list-style-type: none"> <li>- Skin it, return it and empty the bowel, remove the eyes and spout. The average sized arms are left whole or cut into bite size pieces.</li> <li>- To tender it: launder it several times in boiling water, cook in a fish sauce, leave it in the freezer at least 24 hours.</li> </ul>	<ul style="list-style-type: none"> <li>• 15 to 45 minutes in boiling water,</li> <li>• Start cooking the octopus in cold water, when water boils, leave it in it for 30 minutes. At last, turn the fire off and cool it in water.</li> <li>• Braise it in a pressure pan, without water, in a bit of olive oil, and leave it cooking covered for 20 to 30 minutes.</li> </ul> <p>After this first cooking, we taste the octopus immediately in a salad, or we cook it as we like: grilled, in the oven ... There's something for every taste.</p>
To keep it well...	
Fresh or cooked, and cleaned, it can be conserved for 48 hours in the fridge and for 3 months in the freezer.	



### European squid : *Loligo vulgaris*

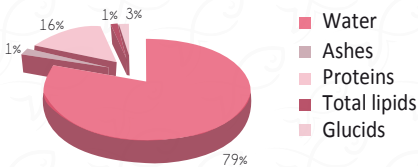
This cephalopod has an elongated body with case and sharp at its rear end, with two lateral fins, and has a thin inner bone, which looks like a rib. The octopus mantle's size is 15 to 25cm. Its head, although distinct, is crowned with 10 arms, muscled and have suckers, two of which are larger for prey capture. The squid is a semi-pelagic species, performing seasonal vertical migrations between 20 to 250m depth.

The health side : It provides many nutrients, as well as a significant source of protein, iron, vitamin D and omega-3 fatty acids, necessary for the balance of our health.

### Pratical side :

### The nutrition side :

For 100g of Squid  
Energy intake : 92 Kcal



Fresh squid means...	Minimal commercial size
<ul style="list-style-type: none"> <li>- Thick body - Transparent meat and firm when touched.</li> <li>- Cupping with sucking sensation when touched.</li> <li>- Arm with a pearlescent appearance.</li> </ul>	11cm long from the eyes to the extremity of the caudal fin.
Well prepared means...	Well cooked means...
<ul style="list-style-type: none"> <li>• Choose to your liking: Whole Fresh, prepared fresh (specially slices), frozen whole, frozen prepared (specially slices). (There are also various preparations of it cooked in marinade).</li> <li>• If it is not prepared, you should remove the cartilage, drain and rinse the ink bag, which can be kept for a sauce, in cold water. (The arms of small squid are usually left whole or cut longitudinally, while the body can be sliced, unless we want to stuff it).</li> <li>• To make it tasty, it is necessary to cook 5 minutes.</li> </ul>	<ul style="list-style-type: none"> <li>• Immerse it for 30 seconds in boiling water. We can then prepare it to his liking, either serving over rice, pasta or couscous, or in salads.</li> <li>• Cut into pieces that you can roll in flour and fry in high temperature until they get golden.</li> <li>• You can cook in different ways: grilled, by topping on a pizza, in sushi ... There's something for every taste.</li> </ul>
To keep it well...	
Ideally, you should consume it the same day of purchase. Otherwise, do not exceed 1 or 2 days in the coldest part of the refrigerator.	







### Common cuttlefish : *Sepia officinalis*

This cephalopod is quite stocky. Its mantle contains stripes and covers the inner shell or cuttlebone, its common length varies between 15 and 25cm, the maximum length is 35cm. Its head has 10 tentacles with suckers around the mouth, two of which are longer and retractile. The suckers form 5 to 6 rows, the medians are moderately bigger.

It likes mixed depths, sandy, muddy or herbarium of the coast to about 150m depth, but it is more abundant above 100m.

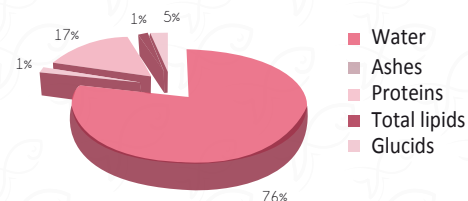
The health side : the cuttlefish are characterized by a particularly low content in fat and high in protein. It is an excellent source of copper, selenium and B12 vitamins, and contains many other nutrients essential for health.

### The pratical side :

### The nutrition side :

For 100g of Cuttlefish

Energy intake : 74 Kcal



Fresh Cuttlefish means...	Minimal commercial size
<ul style="list-style-type: none"> <li>- Translucent flesh when touched. - Arm with a pearlescent appearance.</li> <li>- Firm body when touched.</li> </ul>	100 g / non-eviscerated unit.
Well prepared means...	Well cooked means...
<ul style="list-style-type: none"> <li>• Choose to your liking: Whole Fresh, prepared fresh (specially slices), frozen whole, frozen prepared (specially slices). (There are also various preparations of it cooked in marinade).</li> <li>• Remove the bone, drain and rinse the ink bag, which can be kept for a sauce, in cold water. (The arms of small squid are usually left whole or cut longitudinally, while the body can be sliced, unless we want to stuff it).</li> <li>• To make it tasty, it is necessary to cook 5 minutes.</li> </ul>	<p>After cooking (at your liking; casserole in boiling water or stir-fried with or without vegetables, marinated, natural ...</p> <p>We can either prepare it in salads, with pasta... There's something for every taste.</p>
To keep it well...	
Ideally, you should consume it the same day of purchase. Otherwise, do not exceed 1 or 2 days in the coldest part of the refrigerator.	



