

**CLERICI  
SACCO**

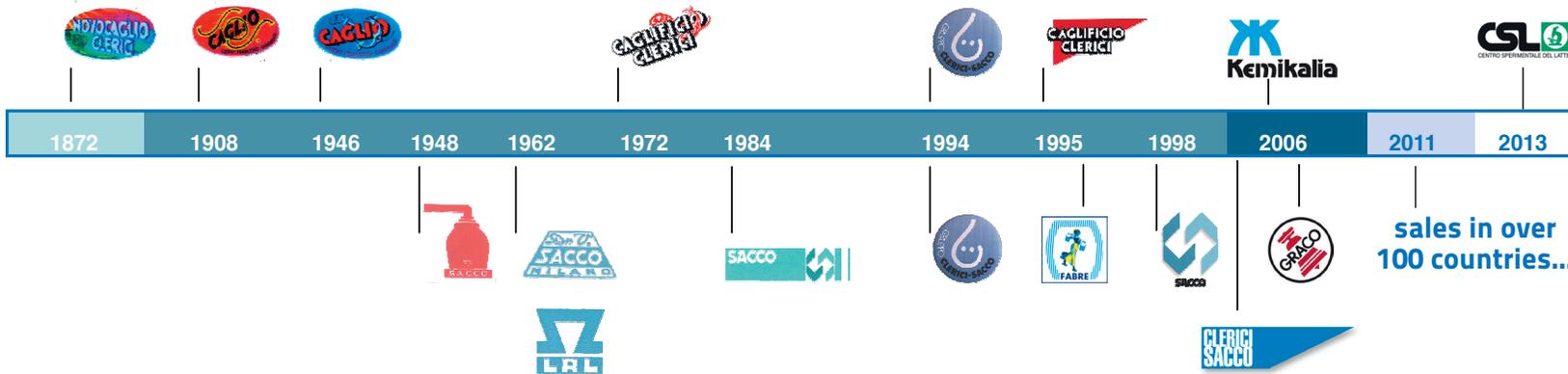
Via Manzoni, 29  
22071 Cadorago (CO) Italia  
Tel. +39 0318866611  
Fax +39 031904596  
info@saccosrl.it



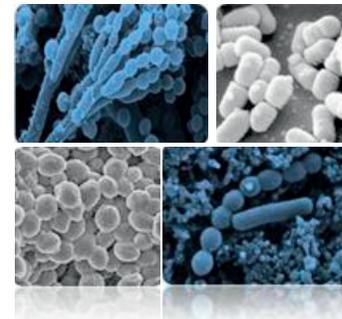
**CLERICI  
SACCO**

# Added safety in seafood production

## Lyoflora FP-18



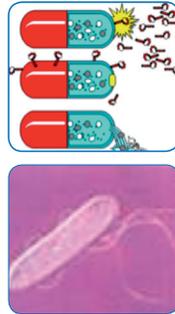
sales in over 100 countries...



*Experience and  
tradition in starter  
culture production*

A variety of food products are linked to listeriosis outbreaks. Among these are ready-to-eat fish products and cold smoked salmon being in the high risk group. The hurdles utilized in processing cold smoked salmon, such as salting, smoking and drying, are not adequate to ensure that *Listeria monocytogenes* cannot develop. Furthermore, the storage conditions, such as vacuum-packaging and chilled storage, do not prevent further growth to an extent which might inflict a health risk.

Some lactic acid bacteria produce bacteriocins which are antimicrobial compounds to which *L. monocytogenes* is susceptible. Consequently, application of a starter culture producing bacteriocins will be an additional hurdle enhancing safety of food products.



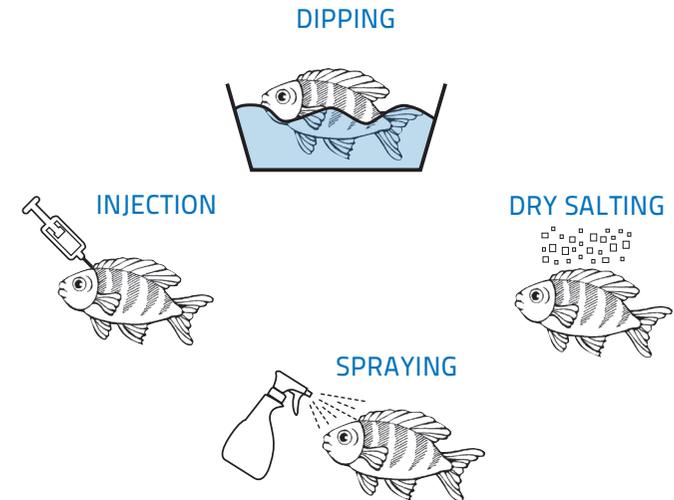
**Sacco has a protective culture for seafood application. Lyoflora FP-18 consists of *Carnobacterium* producing bacteriocins efficiently inhibiting *L. monocytogenes* in fish products such as cold smoked salmon.**

The culture has been developed by two French national research institutes, Ifremer and Oniris, and comprehensive scientific documentation for the activity is available.

**The culture might be used in dry salting process or sprayed onto the surface of fish products but most capably the culture is applied using brine injection.**

**For all application methods the aim is a minimum of  $10^5$  CFU/g fish product.**

## APPLICATION EXAMPLES



### 1. Injection

With 3.5% injected weight gain 3.5 kg brine with  $5.2 \times 10^{10}$  CFU Lyoflora FP-18 should be applied per 100 kg fish product.

### 2. Spraying or dipping

Disperse 5 g culture in 10 l cold water and lightly moisture the surface of the fish with the solution using the 10 l/100 kg fish product.

### 3. Dry salting

Disperse 5 g culture in one litre cold water. 10 ml solution should be applied per 1 kg fish after normal salting and desalting process but before smoking.