

# **COMPUTER-ASSISTED AUTHENTICATION OF FISH, CRUSTACEANS AND MOLLUSCS USING ISOELECTRIC FOCUSING OF SARCOPLASMIC PROTEINS**

Derveaux Sabine, Karen Bekaert and Marc Raemaekers

Departement Zeevisserij, Centrum voor Landbouwkundig Onderzoek  
Ankerstraat 1, B-8400, Oostende, Belgium  
E-mail: sabrine.derveaux@dvz.be

Considering the European council regulation No 104/2000 of 17 December 1999 and the Belgian law of 22 May 1996, indication of official names on the label of fish and seafood products is enforced. Identification of fish, crustaceans and molluscs is possible based on morphological characteristics. However, when fish species are sold as fillets, mislabeling might be a problem. Substitution of a less valuable species for a more valuable one is a commercial fraud. For fresh or frozen fillets, authentication by generating species-specific protein patterns can detect this mislabeling. This is carried out by isoelectric focussing (IEF) where water soluble sarcoplasmic proteins are separated in an electric field according to their isoelectric point (pI). Standardisation of this biochemical technique results in reproducible and reliable results. The similarity of the IEF gel profiles between specimen of the same species is always found larger than between different species. Visual and computer-assisted comparison of IEF profiles of unknown samples with profiles of morphological identified seafood products produced on the same gel or on a previous gel results in a the percentage of similarity between the compared species. By generating IEF profiles of identified seafood species it is possible to develop a computerised identifying database of IEF patterns of sarcoplasmic proteins of all commercialised fish and seafood products.

## References

- Bossier P. and K. Cooreman. 2000. A databank able to be used for identifying and authenticating commercial flatfish (*Pleuronectiformes*) products at the species level using isoelectric focussing of native muscle proteins. *Int. J. Food Sci. Technol.* 35: 563-568.
- Civera T. 2003. Species identification and safety of fish products . *Veterinary Research Communications*. 27 Suppl. 1: 481-489.