PROJECT REPORT
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MAY 2000

DEVELOPING A PROCESS FOR

AUTOMATED TUNA HEAD MEAT RECOVERY

FAIR CT - 98 - 9079

ABSTRACT OF THE PROGRESS REPORT FOR THE PERIOD FROM 01-12-99 TO 31-03-00

Guðmundur Stefánsson, Ph.D.

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Developing a process for Automated Tuna Head Meat Recovery

Abstract of the Midterm Report for the period
from 01-12-99 to 31-03-00

Type of contract:	Co-operative research project		
Total cost:	695 kECU	***EC contribution:***	345 kECU or 49,6%
Commencement date:	01-04-99	***Duration:***	2 years
Completion date:	01-04-01		
EC contact:	Mr. Lopes dos Santos, DG XIV, Fax: (+35) 2 295 7862		

Coordinator: Gudmundur Stefánsson, Ph.D.
Director of R & D, Icelandic Fisheries Laboratories
Skúlagata 4, 101 Reykjavík, Iceland
Phone: (354)-5620240 Fax: (354)-5620740
Email: gst@rfisk.is

Partners:	***SME***	01 A.M. Sigurdsson (MESA)
	RTD	02 The Icelandic Fisheries Laboratories (IFL)
	RTD	03 Conservas Isabel de Galicia (CI)
	SME	04 Scanver
	SME	05 Meyace
	SME	06 Consulting Técnico Vidal Touza
	RTD	07 Universidade de Santiago de Compostela (USC)

I. Introduction and objectives

Tuna heads are by-products from the canning of tuna meat. The heads contain meat, which is currently not used to any extent for human consumption. No machines are available to remove the meat, and manual removal is not economically feasible. This project aims at developing an automated prototype machine, which can remove the meat from tuna heads. The machine must recover the meat so it can be incorporated into current products of the tuna industry without loss in quality. It should also be compatible with current automated tuna processing lines in terms of capacity and flexibility regarding fish size.

The project focuses on three main work packages: 1. Determination of the parts (and quantity) of tuna head and collar meat which can be incorporated into canned goods. 2. Development of a prototype machine to remove the meat. 3. Testing of the machine under laboratory and industrial conditions. In the project a multidisciplinary approach will be used to ensure that the intended process technology development can be efficiently integrated into current working practices and that product quality is not affected by the incorporation of the recovered meat. This will involve the transfer of expertise from one fishing sector to another or from the North to the South of Europe.

The project was to start at the end of 1998 but was delayed for about 6 months because of changes of participants. The principle SME is an Icelandic machine manufacturer, specialising in the construction of equipment for meat recovery from different marine species. Another Icelandic SME participates in the project, an engineer consultant. Two Spanish SMEs (machine engineering companies) also participate in the project. The RTD participants that participate in the project are three, two Spanish (tuna manufacturer and a University) and one Icelandic (fish research institute) that also acts as the co-ordinator. The project is expected to be completed in 2001.

The novelty of the technology of mechanically recovering meat from tuna heads will be patented. Initially the novel machine will be utilised in Spain and when proven successful sold and/or licensed to other countries. The prime proposer and the other SME's intend to use the new technology to obtain new markets or services.

II. Description of work

One plenary meeting has been held (January 2000) during the period in Iceland. The research and development work has focused on *Testing of recovered meat* (Task 2), *Development of a prototype machine* (Task 3) and *Testing of the prototype machine* (Task 4).

III. State of progress and achievements

Testing of recovered meat (Task 2) has now been completed. Extensive analysis were carried out where manually recovered meat from tuna head (both from forehead and cheeks) was compared with loin meat (reference). Raw, cooked and canned samples were evaluated. The forehead meat is darker in colour than normal meat and that may give difficulties when it is mixed into normal products at very high levels. The odour and flavour of the recovered forehead meat was however similar to that of loin meat. The forehead meat has one advantage over loin meat as it is more tender and juicier and could therefore be canned as a special, high quality product. On the other hand, meat recovered from tuna cheeks did not comply with the quality criteria of canned tuna due to dark colour and low scores for flavour and texture.

Development of a prototype machine (Task 3) was completed in January this year. At that time the construction of the machinery was finished and the first prototype was ready for testing (Task 4).

Testing of the prototype machine (Task 4) is still in progress. Trials were carried out in January. They went well and the machinery successfully recovered forehead meat from the tuna head. At the plenary meeting held in Iceland in January it was decided to change the machinery slightly in order to improve the yield of recovered forehead meat. That development work is now completed and layouts of the new meat squeezer are ready. Construction of the machinery based on the new layouts is expected to be completed in May and the machine will be sent to Spain shortly afterwards for further testing.

IV. Future actions

The prototype will be sent to Spain in May 2000.
A meeting will take place with all participants in Spain - June 2000.
Completion of Task 4 (*Testing the prototype machine*) - June 2000.
Start of Task 5 (*Setting of quality and hygienic standards*) and Task 6 (*Ergonomic and engineering study*) - May/June 2000.
Start of *Industrial trials* (Task 7) - June 2000.
Third periodic progress report handed in to the Commission - November 2000.