

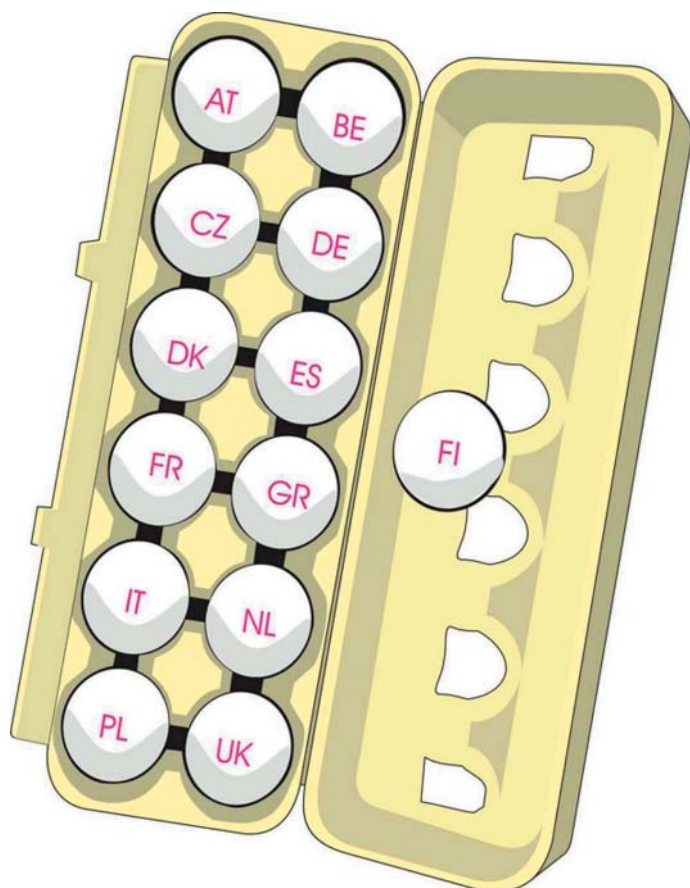


2002 - 2006

Chairman: Prof. Rainer Huopalahti

<http://www.sci.utu.fi/biokemia/cost923/>

<http://cost.cordis.lu>



The aim of the COST Action 923 is to link the multidisciplinary hen egg research being conducted in different European countries with the objective to finding novel uses for, and increase utilisation of novel hen egg products as (functional) food ingredients, and encourage the new non-food uses.

These new ways of using hen eggs and their fractions should help to increase egg consumption and use, combating the effects of overproduction which is common in both the European Union Member States and the Non-EU member states in Europe. This goal will be targeted by forming a network consisting of specialists from research bodies as well as from companies working in this field. In the network the research strengths of each participant will be joined, consequently increasing the skills and knowledge in the area of the network by combining overlapping data as well as expanding viewpoints by synergy.

These objectives will be fulfilled by adopting knowledge from the research conducted in the participating laboratories and from the co-operative projects, which will be developed from this COST Action.

COST

COST is an intergovernmental European framework for international co-operation between nationally funded research activities. COST creates scientific networks and enables scientists to collaborate in a wide spectrum of activities in research and technology. COST activities are administered by the COST Office.

Background

The role of the hen egg in the human nutrition is decisively essential. Eggs are nutritious and healthy, the biological value of both albumen and yolk is high, and the eggshell provides an excellent barrier against both chemical and biological attacks. Hen eggs have been an important nutrient source for mankind for thousands of years. Until today the total potentiality of the eggs has not been discovered.

Egg white, also called albumen, is a viscous 10% solution of proteins and peptides and minerals in water. These proteins are highly nutritive for humans by their amino acids composition, which has been noted several decades ago. In addition, the egg albumen has unique functional properties in food systems, such as stable foam production. Later it has been noticed that the components of the albumen possess micro-biocidal and other new functional properties.



Egg yolk is the more fatty part of the hen egg. The water content is about 50%, and from the remainder 1/3 is protein and 2/3 fat and fat-soluble constituents. The protein part is differing from the albumen, still research work is going on to study its functionality both in foods and other biological systems. The main adverse effect of hen eggs as food has been laid on its content of cholesterol. According to the present knowledge the intake of saturated fat rather than intake of cholesterol is increasing the cholesterol bodies content in bloodstream.

The secondary objectives of the Action

- develop practices and technologies for the fractionation of bio-active food ingredients from eggs and for the production of health-promoting egg products
- introduce and encourage a new non-food branch for the egg production plants
- slow and even stop the rapidly declining per capita consumption of eggs
- support the tendencies to improve the animal welfare, which is important for the production of high quality foods and ingredients
- reduce negative effects on the environment by intensifying the use of all parts of the hen eggs, and by developing new ovo-biotechnologies with respect to sustainable (agricultural) production

Organisation

The Action consist of three Working Groups entitled:

- WG1: Food Use of Novel Egg Products and Fractions
- WG2: Non Food Use of Eggs
- WG3: New Techniques and Technologies for Fractionation, Analysis and Processing of Yolk, Albumen and Shell



WG 1:

Main tasks of the WG 1 include:

- Enhancement of the public knowledge about nutritional properties of hen eggs, and thereby increase the use of hen egg products
- Research on the chemical, functional and sensory quality of “normal” and modified hen eggs, which leads to the knowledge about technological, biological, nutritional and antioxidant properties
- Research on the chemical and functional properties of egg albumen or yolk fractions to be used as food ingredients
- Research to find new (functional) food applications for novel albumen or yolk products and fractions



WG 2:

Main tasks of the WG 2 include:

- To increase the non-food use of novel hen egg products
- To research the chemical and functional properties of egg albumen or yolk fractions, and other components to be used as ingredients and in diagnostics in the medical, pharmaceutical and cosmetic industry
- to research on applicability of novel albumen or yolk products and fractions in non-food industry

WG 3:

Main tasks of WG 3 include:

- Application of analytical non-destructive methods and their utilisation in egg production plants
- Development and utilisation of chromatographic techniques in analytical and production scale
- Isolation and purification techniques for the IgYs
- Fractionation of egg albumen proteins and peptides using novel chromatographic techniques
- Fractionation of egg yolk lipids using the supercritical fluid technology

Common tasks for all three groups include:

- collecting the existing research data and reporting the status quo of HiTech Egg (or modified eggs) processing and production possibilities to the industrial partners and to public
- pinpointing possible industrial applications, which need further fundamental or basic study and recommending such research topics and research collaboration within and between WG's and their participants
- identifying the applications, which need technological development before industrialization
- making suggestions for the WG 3 and its participants to find funding for research collaboration between WG 3 participants as well as with other relevant research parties
- recognising the themes, which with minor R&D effort, are suitable for industrialization, and finding ways to transfer this knowledge and technology to the industrial partners

The COST Action 923 has a Management Committee (MC) responsible for the overall coordination of the Project that includes members from each Working Group. The MC members also represent associations such as World's Poultry Science Association.

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AT, BE, CZ, DK, FI, FR, DE, EL, IT, ES, NL, PL, UK