ICST 2008

1st International Congress of Seafood Technology

nourish by fish...

PROCEEDINGS BOOK



Edited by

Şükran Çaklı
Ufuk Çelik
Can Altınelataman

18-21 May 2008

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PROCEEDINGS OF THE
FIRST INTERNATIONAL CONGRESS OF
SEAFOOD TECHNOLOGY
18 – 21 MAY 2008
ÇEŞME – İZMİR, TURKEY

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I. WELCOME ADDRESS

It is a great honor and pleasure to welcome all of you to the "1st International Congress of Seafood Technology" which will be held on 18 – 21 May 2008, in Çeşme Altın Yunus Holiday Village in İzmir. Ege University, Fisheries Faculty, Department of Fishery and Fish Processing Technology, Section of Fish Processing Technology will be the host of this congress.

This will be the first congress in Turkey with the theme of "*Nourish by fish*". The major topics of the congress are focusing on "*Desirable nutritive and undesirable components in seafood*", "*Advances in processed and added value of products*", "*Aquaculture*", "*Full utilization of the catch*", "*Advanced methodologies*", "*Consumers markets and sea products*".

The congress will be an opportunity for the international community to exchange ideas and develop a common vision for the future of World Seafood Technology. The participants will be the representatives of national and international seafood industry, researchers from international seafood institutes and the bureaucrats. Outstanding keynote speakers will be the well-known and experience leading scientists in their sides.

The honorary speaker of the congress will be Dr. Hartmut Rehbein who is the Deputy Director of the Department of Safety and Quality of Milk and Fish Products, Max Rubner-Institute. Species identification of fishery products by protein and DNA analysis has been the main activities of him for long years. And also in the development of our section, our staff and for being the Turkish member of the West European Fish Technologists Association (WEFTA), his supports for us are unforgettable. We would like to represent our gratefulness and thankfulness for his all sincere supports.

Throughout the ICST 2008 in the scientific program, there will be 76 oral presentation and 34 poster presentations from 18 different countries.

1st International Congress of Seafood Technology Congress will allow the exchange of researchers and knowledge, strengthening the relationships among research institutions and leading to formation of teams and networks of excellence in several areas related to fish products coming either from fisheries or aquaculture.

ICST 2008 is supported by the Republic of Turkey - Ministry of Agriculture and Rural Affairs as a strategic partner. Our Rector Prof.Dr.Ülkü Bayındır is supporting us by being the honorary chairman of the congress. The opening speech will be given by Republic of Turkey - Minister of Agriculture and Rural Affairs Mehmet Mehdi Eker. I am most grateful to them. I am also thankful to scientific board, sponsors, and session chairs of the congress for their support and dedication. Moreover, I am indebted to presenters for sharing their most recent findings with participants and exhibitors for displaying their products. My final appreciation goes to the organizing committee members who have work hard and tirelessly to make the congress successful.

On the behalf of the congress organizing committee, it is my pleasure to wish you a very productive and enjoyable time at the 1st International Congress of Seafood Technology. We look forward to welcoming you in our unique historic and natural beauty, Çeşme with the wide range of facilities and offers of the congress hotel.

Prof. Dr. Şükran Çaklı
Congress Chair

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Ö. Alper Erdem

COMPLETE CONGRESS PROGRAMME

18 MAY 2008, SUNDAY

12:00 **Seafood Shelf-Life and Safety Prediction Workshop (Gerence Hall)**
Organized by the National Institute of Aquatic Resources (DTU Aqua)
in collaboration with the First International Congress of Seafood Technology
Paw Dalgaard, National Institute of Aquatic Resources (DTU Aqua), Denmark

16:00 **Registration**
19:00 **Welcome Coctail (Ocean Hall)**

19 MAY 2008, MONDAY

08:00 **Registration**
09:00 **Opening Ceremony (Ocean Hall)**
Şükran Çaklı, Chairperson
Hasan Girenes, Yaşar Group, Vice President
Ahmet Kocataş, Dean of the Fisheries Faculty of Ege University
Ülkü Bayındır, Honorary Chairperson, Rector of the Ege University
M.Mehdi Eker, Minister of Agriculture and Rural Affairs

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20 MAY 2008, TUESDAY

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Hasan Hüseyin Atar[1] and *Zayde Alçiçek*[1]*

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Abstract

The quality of food products depends on organoleptic, nutritional, and hygienic characteristics, but these evolve during storage and marketing. Many kind of preservation process of food quality has been used in the food industry. However, use of a performing package is necessary in the preservation process. Therefore, packaging is preponderant for the durability of food quality (Debeaufort *et al.*, 1998).

In the food industry, many kind of plastics are used for food packaging because they are easily and inexpensively produce from raw materials (Iwata *et al*., 2000). Plastic is the general term for a wide range of synthetic or semi synthetic polymerization products. They are composed of organic condensation or addition polymers and may contain other substances to improve performance or reduce costs (http://en.wikipedia.org/wiki/Plastic). Petrochemical based plastics such as polyolefins, polyesters, polyamides, etc. have been increasingly used as packaging materials, because of their availability in large quantities at low cost and favourable functionality characteristics such as good tensile and tear strength, good barrier properties to O_2 and aroma compounds and heat sealability (Tharanathan, 2003).

Disadvantage of plastics has led to serious environmentally and ecological problems due to their total non-biodegrability (Iwata *et al*., 2000). Continuous awareness by one and all towards environmental pollution by the latter and as a result the need for a safe, eco-friendly atmosphere has led to paradigm shift on the use of biodegradable materials, especially from renewable agriculture feed stock and marine food processing industry wastes. Because they have these natural and biodegradable substances from agriculture, biopackaging is non pollutant product. Thus, they contribute to the protection of the environment (Tharanathan, 2003; Debeaufort *et al.*, 1998; Iwata *et al*., 2000; Srinivasa and Tharanathan, 2007).

Not only biobased materials are agriculture feed stock and marine food processing industry wastes but also microbial sources and animal origin materials (Fig.1) (Tharanathan, 2003; Callegarin *et al*., 1997).

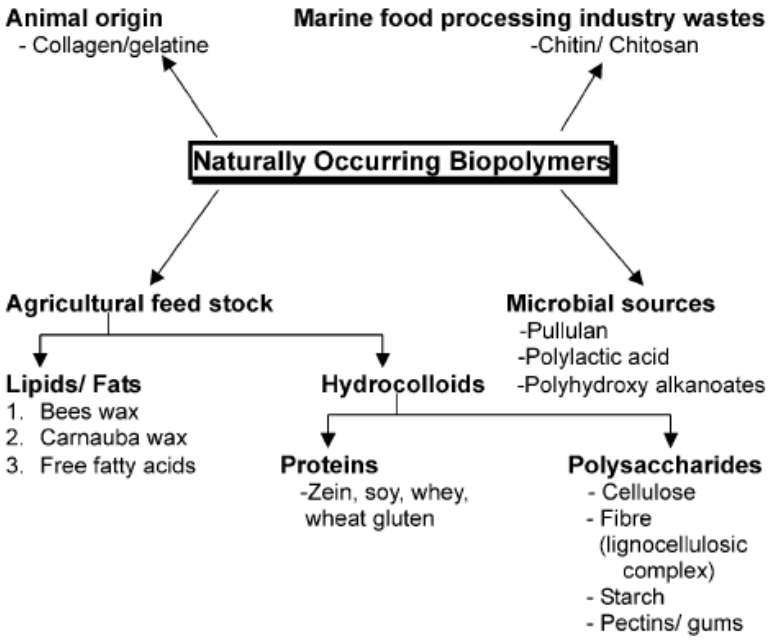


Fig.1. Naturally occurring biopolymers of use in biodegradable packaging films and composites (1).

Most of scientific papers concerning to deal with water vapor transfers, but some other potential applications exist. Indeed biopackaging can be used encapsulate aroma compounds, antioxidants antimicrobial agents, pigments, ions that stop browning reactions or nutritional substances such as vitamins (Debeaufort *et al.*, 1998).

Biopackaging are very promising packaging systems for the future improvement of food quality and preservation during process and storage. Biopackaging due to including materials are perfectly safe for the environment (Tharanathan, 2003; Debeaufort *et al.*, 1998).

Biopackaging will be choosing in the world. Because global warming, reduce source of water and all of the environmental problems will be force taken new precautions. Undoubted, biopackaging will be our future.

References

Callegarin, F, Quezada-Gallo,J.A, Debeaufort, F., Andree V. 1997. Lipids and biopackaging. Jaocs, vol.74, no.10.

Debeaufort, F., Quezada-Gallo,J.A., Andree V., 1998. Edible Films and Coatings: Tomorrow's Packagings: A Review. Critical Reviews in food science, 38(4):299-313.

Iwata, K.,Ishızaki, S., Handa, A., Tanaka, M., 2000. Preparation and characterization of edible films from fish water soluble proteins. Fisheries Science, 66: 372-378

Tharanathan, R.N., 2003. Biodegradable films and composite coatings: past, present and future. Trends in Food Science & Technology 14, 71-78.

Srinivasa, P.C., Tharanathan, R.N., 2007. Chitin/chitosan- safe, ecofriendly packaging materials with multiple potential uses. Food reviews international, 23:53-72.

http://en.wikipedia.org/wiki/Plastic (30.12.2007)