

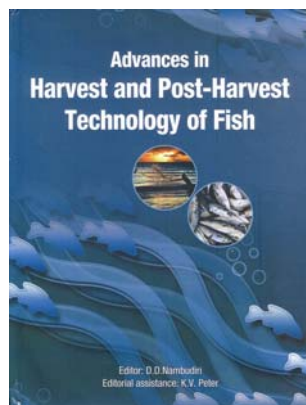
personality of this great investigator, who worked on both photosynthesis and respiration (cytochrome oxidase was discovered by Warburg; he was a Nobel Prize winner in Physiology or Medicine). Overall, one learns that despite many accomplishments, human beings have their weaknesses and stubbornness to give up old ideas. Actually, the controversy was never resolved between Warburg and the others across the Atlantic – it just came to an end with Warburg's demise in Berlin in 1970 – and acceptance by the rest of the world, of the model of two-light reactions, and two-pigment systems.

Not too long ago, I too had the opportunity of visiting Warburg's Institute in Berlin-Dahlem (it now houses the Archives of the Max Planck Society, which is the former Kaiser Wilhelm Gesellschaft), and the book immediately brought back memories of my own pilgrimage there, touring also the office in which Warburg sat. I am delighted that Nickelsen and Govindjee have given such an absorbing and historically significant account with many photographs not only of Warburg but also of Emerson. I was personally thrilled to read about the involvement of Govindjee in this controversy, who himself became a member of the 'Midwest-Gang', when he along with his wife, Rajni Govindjee and Eugene Rabinowitch showed in 1968 that Emerson was right and Warburg was wrong, when they did the experiments with young synchronous cultures of the green alga *Chlorella* under 10% CO<sub>2</sub>, conditions dictated by Warburg after Emerson's death. And lastly, in 1969, Warburg published, just before his death, a paper in the *American Journal of Botany* measuring 12 quanta per oxygen evolution, but calculating, in a hideous way, to mean the number to be 3–4, as was exposed by Govindjee in 1999.

I am sure many serious students of plant sciences will find this book most valuable. Once again, compliments to both the authors for this great piece of historical work. I recommend this book to all graduate students in science, and to all the major libraries in the world.

SATISH C. MAHESHWARI

*School of Life Sciences,  
Jaipur National University,  
Jagatpura,  
Jaipur 302 025, India  
e-mail: profsatishmaheshwari@gmail.com*



**Advances in Harvest and Post-Harvest Technology of Fish.** D. D. Nambudiri and K. V. Peter (eds). New India Publishing Agency, 101, Vikas Surya Plaza, CU Block, L.S.C. Mkt, Pitam Pura, New Delhi 110 088. 2012. xxiv + 444 pp. Price: Rs 2150.

The fisheries sector in India is growing rapidly compared to other agricultural sectors. This growth encompasses increased production from aquaculture and capture, diversification of processing methods, better storage, transportation and marketing. Increased attention of national financial planners to this sector has led to greater resource support for R&D, HRD and infrastructure development. While old establishments have got a fresh lease of life, establishments like the National Fisheries Development Board are already in place along with various new initiatives. This book has hit the shelves at the right time and is expected to come in handy for HRD institutions in India.

The book carries 400-plus pages, of which 15% has been devoted to harvest and does great justice to let readers know of the advances in navigation and safety equipments, on-board improved mechanization and advances in gear technology for responsible harvesting. The chapter on tuna harvesting and handling method could be helpful to students, since India is taking initiatives to harvest this untapped resource. The vessel-tracking system and other recent technologies related to the safety of the crew have got good mention in the book. The global concerns on responsible harvesting have probably prompted the editors to include a chapter entitled 'Technologies for responsible fishing'. Relevant measures to ensure long-term sustainability of aquatic resources outlined by FAO's CCRF article

8 have been described in this chapter. While India hardly harvests a quarter of its tuna resources and there are national and international initiatives to promote tuna utilization, the chapter entitled 'Tuna harvesting and processing technology' is useful.

Fish is valued as a food item basically for its proteins and health food for its fat. Two chapters, one on proteins and one on lipids describe the structure, function and nutritional importance. Though the chapters are complete in their own rights, they do not carry information on the recent advances. The chapter entitled 'Microbiology of fish spoilage' describes fish spoilage in great detail. The author has made a good attempt to relate different stages of spoilage with specific values of chemical, and bacterial parameters and organoleptic indicators. However, separating fresh fish spoilage from marine fish spoilage would have made better reading.

Among the chapters covering processed foods, frozen foods are conspicuously missing while surimi-based products, canned products and value-added products have found their respective places in the book. When majority of the exported products are frozen, and domestic market is warming up to frozen fish products, a chapter devoted to freezing technology would have further enriched the book. Surimi and surimi-based industries in India are slow-growing while the canning industry, though holds a lot of promise, is rather stagnated. Yet as a product category, canned food hold its turf. The advancement in the field is more on thermal processing of retortable pouch than that of rigid cans. Retortable pouch processing has not got any mention in the fish canning chapter. Aseptic packaging and flexible retortable pouch packaging are a few aspects for which readers may have to consult other books.

Markets of ready-to-eat and ready-to-cook products are fastest growing among the processed foods. Coated fish products have hit the market in the last couple of years and are doing exceedingly well. Fish processors want that students passing out from fisheries colleges be equipped with knowledge on these aspects before they join them. The chapter on coated products and the following chapter on value-addition heavily depend on surimi-based products. The editors could have done better in segregating the contents among the authors.

## BOOK REVIEWS

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The seafood packaging chapter definitely does justice to the purpose of book. It has covered all aspects, old and new, and would make a useful and informative reading. The successive three chapters on hygiene and sanitation, biological hazards, and HACCP cover vital components without which the subject of post-harvest technology would not be complete. However, a chapter regarding certification and trade-related issues

could have added to the completeness to the book.

The fact that the book has got its foreword and preface from M. S. Swaminathan and S. Ayyappan respectively, two legendary figures in Indian agricultural science, conveys its significance. Despite the fact that the book suffers from superimposition of contents in different chapters, the usual phenomenon seen in many multi-authored books, it carries valuable

information for the teachers, students and industry personnel. It is a 'must possess' book for all libraries and if affordable, for the students as well.

W. S. LAKRA

*Central Institute of Fisheries Education,  
Panch Marg, Off Yari Road,  
Versova, Andheri (W),  
Mumbai 400 061, India  
e-mail: wslakra@cife.edu.in*

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