

Preface

Biotechnology, or more specifically enzyme technology, has proven to be very profitable in textile and fiber industry, as well as detergency. Leading industrial enzyme producers, such as Novozymes and DuPont, demonstrated significant improvement of ecological footprint (reductions in energy, water, chemicals consumption, and process time), replacing conventional industrial textile processes by enzymatic processes such as desizing, cotton scouring, bleaching, bleach cleanup, and biofinishing/biopolishing. Enzyme technology has not only been proven to be very profitable in processing of natural textiles and fibers. In addition, processing, modification, and functionalization of man-made and synthetic fibers and textiles enzyme technology bring important advantages not only in processing of these materials but also in the design and development of novel functional textile materials. Large-scale application of enzymes for industrial processing of synthetic materials is envisioned in the coming years.

This book is a follow-up to *Advances in Textile Biotechnology* (2010), first edition, and *Textile Processing with Enzymes* (2003). *Advances in Textile Biotechnology*, second edition, provide a thorough overview of recent developments and state of the art in enzyme technology for processing, modification, and functionalization of textiles, textile fibers, and polymers. Two chapters, Chapters 6 and 12, focus on technologies involved in textile biotechnology: “Enzyme stabilization for biotechnological applications” and “Inkjetting of enzymes,” respectively. The other 10 chapters focus on modification and functionalization of textile and fibers using modern biotechnology/enzyme technology. Recent developments and state of art are reviewed in bioprocessing of bast fibers, Poly (vinyl alcohol)-degrading enzyme, bioprocessing of polyester, biosynthesis of polyesters and their application on cellulosic fibers, enzymatic treatment of wool and silk fibers, enzyme stabilization for biotechnological applications, enzyme biotechnology for medical textiles, biopolyphenolics in textiles, processing of cotton and man-made cellulosic fibers, silk materials for biotechnology, and bacterial cellulose as promising biomaterial and its application.

These expert contributions from leading scientists in the field are expected to increase understanding of the enormous potential of enzyme technology in industrial processing, modification, and functionalization of textiles, fibers, and polymers, as well as the acceptance of biotechnology in society.

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