1. Record Nr. UNINA9911004799403321

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Titolo	Biologically Inspired Textiles
Pubbl/distr/stampa	Burlington, : Elsevier Science, 2008
ISBN	1-61583-585-7 1-84569-508-9
Descrizione fisica	1 online resource (243 p.)
Collana	Woodhead Publishing Series in Textiles
Altri autori (Persone)	EllisonM
Disciplina	620.197
Soggetti	Materials - Biotechnology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	Cover; Biologically inspired textiles; Copyright; Contents; Contributor contact details; Woodhead Publishing in Textiles; Introduction; Part I Biomimetic principles, production and properties; 1 Recombinant DNA methods applied to the production of protein-based fibers as biomaterials; 1.1 Introduction; 1.2 Biomimetics and protein-based biomaterials; 1.3 Characteristics of some natural protein-based materials; 1.4 Experimental characterization of model fibrous proteins; 1.5 Expression systems available for recombinant fibrous protein production 1.6 Artificial material production, properties and performance1.7 Conclusions; 1.8 References; 2 Purification of protein solutions; 2.1 Introduction; 2.2 Insoluble removal; 2.3 Cell disruption; 2.4 Soluble protein separations; 2.5 Finishing steps; 2.6 Conclusions and sources of further information and advice; 2.7 References; 3 Spinning of fibers from protein solutions; 3.1 Introduction; 3.2 In vivo or natural spinning of protein-based fibers; 3.3 Protein-based fibrous materials; 3.4 Silk production in spiders and insects: a natural spinning process 3.5 Elements to consider for the in vitro or 'artificial' spinning of protein-based fibers3.6 Factors involved in native self-assembly processes; 3.7 'Mimicking nature'; 3.8 Examples of protein-based fibers produced through artificial spinning technologies; 3.9 Wet-spinning of fibrous proteins; 3.10 Electrospinning of fibrous proteins; 3.11 Applications; 3.12 Future trends and conclusions; 3.13 References; 4 Biomimetic principles of spider silk for high-performance

fibres; 4.1 Introduction; 4.2 Unravelling structure-function relationships; 4.3 Spider and worm spinning; 4.4 Spinning in vitro 4.5 Future trends and applications4.6 Conclusions; 4.7 Sources of further information and advice; 4.8 Acknowledgements; 4.9 References; 5 A biomimetic approach to the production of sustainable structural composites using plant fibres; 5.1 Biomimetic design of composite materials; 5.2 Characteristics of biological materials in biocomposites; 5.3 Fibre extraction, fibre treatment and matrix compatibility in a biomimetic composite; 5.4 Approaches to the realisation of plant fibre composites; 5.5 Conclusions: plant fibre selection for composites reinforcement; 5.6 References
Part II Biomimetic applications in textiles6 Biomimetic principles in clothing technology; 6.1 Introduction; 6.2 The technology of clothing; 6.3 Overview of biomimetic design and development; 6.4 Biomimetic principles and the clothing industry; 6.5 Key issues; 6.6 Future trends; 6.7 Conclusions; 6.8 Sources of further information and advice; 6.9 Acknowledgements; 6.10 References; 7 Self-cleaning textiles using the Lotus Effect; 7.1 Introduction: basics of self-cleaning textiles; 7.2 Learning from the Lotus Effect: superhydrophobicity and self-cleaning 7.3 Measuring techniques for the characteristic Lotus Effect properties

Sommario/riassunto

Biomimetic materials are those inspired from nature and implemented into new fibre and fabric technologies. Biologically inspired textiles explores the current state of the art in this research arena and examines how biomimetics are increasingly applied to new textile technologies.Part one discusses the principles, production and properties of biomimetics. Chapters include recombinant DNA technologies and their application for protein production, spinning of fibres from protein solutions and structure/function relationships in spider silk. The second part of the book provides a review