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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction -- Sources of redox active secondary metabolites -- The modern art of identification of natural substances in whole plants (I) -- A word on redox activity -- Oxidative stress, antioxidants, chemoprevention and beneficial roles of pro-oxidants -- The French paradox at Tea time: From flavonoids toward synthetic stilbene-based drugs -- Bio reactivity of resveratrol in relation to inflammatory processes; Norbert Latruffe -- Treasures along the oligomeric road from flavonoids to polyphenols and tannins -- The cellular thiolstat as emerging target of secondary metabolites -- Thiosulfinates, organic polysulfanes and related compounds: From an unusual chemistry toward a wealth of potential applications -- Beyond glutathione:- Different low molecular weight thiols as mediators of redox regulation and other metabolic functions in lower organisms -- Garlic based

natural “products”: Turning secondary plant metabolites into a commercial success -- Phytol, a chlorophyll component with anti-inflammatory properties -- Recent advances in molecular genetics of furanocoumarin synthesis in higher plants -- Natural products molten together: Towards multifunctional hybrid molecules with specific activities and applications -- Nanotaxis for antioxidants -- Industrial uses of redox active enzymes -- Systemic enzyme therapy – Fact or Fiction -- Conclusions and outlook.

Sommario/riassunto

Nature endows us with a treasure chest of Green Gold full of amazing substances we can use as part of our daily life. Many of these compounds are ‘redox-active’, and hence able to trigger or interfere with numerous biological processes which occur in our own body, in animals, bacteria, fungi and plants. The resulting, often rather astonishing events witnessed once such natural products meet biological systems, are omnipresent. We protect our body from damage with the help of (redox-active) vitamins, use redox-active antioxidants on our skin to look better and younger and even try to slow down the natural ageing process by stimulating sirtuins and meddling with epigenetic processes. We habitually consume functional foods enriched in polyphenols, for instance in form of grape seed flour, use redox-active plant metabolites as medicines and also spray them on our roses in the hope to improve our own life and the ones of our beloved shrubs. Amazingly, whilst such natural products are all around and also in us, we still do not fully understand how these compounds actually work. This book therefore attempts to resolve some of the mysteries and riddles associated with such products. Written by more than thirty international experts from academia and industry, the book places a firm focus on modern, forward-looking developments in this field and considers such natural products from various angles, from their isolation and characterization all along to product development, licensing and commercialization. Throughout, the reader will be confronted with a medley of modern approaches which enable the fast and efficient identification and isolation of new natural products, help to elucidate their biochemical mode(s) of action and form the basis for their practical uses in Medicine, Cosmetics, Agriculture, Industry and as functional foods. Emerging new techniques, such as extraction and purification methods based on supercritical fluids, cutting-edge mass spectrometry for rapid identification, nanocrystals to improve bioavailability, synthetic chemistry to create hybrid molecules and product development to arrive at commercially viable products will be portrayed. Ultimately, the book provides a better understanding of the field of redox-active secondary metabolites and also attempts to stimulate further interest in this amazing, facet-rich and thriving area of multidisciplinary research and product development.