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Nota di contenuto	Part I Occurrence: Glucosinolates: an Overview -- Glucosinolates: Novel Sources and Biological Potential -- Glucosinolates: a Brief overview over their Chemistry and Biological Activities -- Health-Promoting Compounds of Broccoli -- Genetic analysis of Glucosinolate Variability in Broccoli -- Glucosinolates in the Endemic Plants of the Tribe Alyseae (Brassicaceae) Wild-Growing in Croatia -- Part II (Bio) Synthesis: Costs of Glucosinolates in Brassica Rapa -- The Significance of Glucosinolates for Sulfur Storage in Brassicaceae Seedlings -- The Influence of Environment and Process Parameters on Glucosinolate-Myrosinase System from Brassica -- Control of Glucosinolates in Plants by Environmental Factors (Light) -- Part III Bioactivity: Glucosinolates and Plant Defence -- Glucosinolates and Leaf-Chewing Herbivores --

Insect Attraction versus Plant Defense -- The role of Glucosinolates in Resistance against Molluscan Herbivores -- Glucosinolates Interactions with Herbivores and their Natural Enemies -- Transport of Defense Compounds: Glucosinolates -- Control of Postharvest Disease by Glucosinolates -- Turning the 'Mustard Oil Bomb' into A 'Cyanide Bomb': Aromatic Glucosinolate Metabolism in A Specialist Insect Herbivore -- Glucosinolates and their Nematicidal Activity -- Glucosinolate and Isothiocyanate Production in A Plasticulture Production System -- Part IV Food Processing: The Fate of Glucosinolates During Thermal Processing of Vegetables -- Influence of Fermentation on Glucosinolates and Glucobrassicin Degradation Products in Sauerkraut -- Part V Health and Diseases: Glucosinolates in Health and Diseases -- Protection of Humans by Plant Glucosinolates -- Glucosinolates as Antioxidants? -- Glucosinolates and Bone formation -- Glucosinolates as Nutraceuticals -- Glucosinolates and Cholesterol Gallstones -- Glucosinolates and Bioavailability -- Isothiocyanates -- Antimicrobial Activities of Isothiocyanates -- The Role of Glucosinolate-Containing Vegetables in Cancer Prevention and their Promotion in Clinical Practice -- Glucosinolates and Chemopreventive Activity -- Detoxication of Airborne Pollutants by Broccoli Sprouts -- Antibacterial Activity of Glucosinolates in Humans -- Anti-inflammatory Activity of Sulforaphane -- Chemopreventive Activity of Sulforaphane and Mechanisms of Action -- Sulforaphane: Antitumor Effects and Induction of Apoptosis -- Sulforaphane and Neuroprotection -- Sulphoraphane and Diabetes -- Sulphoraphane and Atherosclerosis -- Clinical and Molecular Evidence of the Consumption of Broccoli, Glucoraphanin and Sulforaphane in Humans -- Part VI Biotechnology: Metabolic Engineering of Aliphatic Glucosinolates in Hairy Root Cultures -- Biotic Elicitors Effectively increase the Glucosinolates Content -- The Physiological Importance of Glucosinolates on Plant Response to Abiotic Stress -- Sucrose Enhances the Accumulation of anthocyanins and Glucosinolates in Broccoli Sprouts -- Enhancement of Glucosinolate and Sulforaphane Formation of Broccoli Sprouts by Zinc Sulphate via its Stress Effect -- Reactivity and Stability of Glucosinolates and their Breakdown Products in Foods -- Part VII Methods: Extraction and Characterization of Glucosinolates -- Analytical Methods for Determining Bioavailability and Bioaccessibility of Bioactive Compounds from Fruits and Vegetables: Glucosinolates -- Phytochemical Fingerprinting for Simultaneous Identification of Glucosinolates and Phenolics -- Major and Minor Glucosinolates by Mass Spectrometry -- Quantification of Plant Surface Metabolites by Matrix-Assisted Laser Desorption-Ionization Mass Spectrometry Imaging: Glucosinolates on Arabidopsis Thaliana Leaves -- Quantification of Glucosinolates by Reverse-Phase Liquid Chromatography -- Glucosinolates: Extraction and Methods of Analysis from Paper Chromatography to Microchip analysis -- Spectrophotometric Method for Quantification of Total Glucosinolates -- The Use of 'Omics Technologies in Brassicaceous Vegetables.

Sommario/riassunto

This is the first comprehensive reference compilation on the substance class of glucosinolates. This handbook introduces the reader to the sulfur-containing glucosinolates (S-glucosides), a class of secondary metabolites of almost all plants of the order Capparales, in particular in the family Brassicaceae (e.g. broccoli and other cabbages), derived from glucose and an amino acid. The book illustrates the natural variety of glucosinolate structures, mainly derived from the precursor amino acid. Chapters describe the resulting rich bioactivity of the glucosides, for example as anti-cancer agents, insecticides, nematicides, fungicides, their potential phytotoxic effects, antimicrobial activity and their

possible role in neurodegenerative diseases and human health. Different methods for the extraction, characterization, quantification and processing of the glucosinolates are introduced, and potential applications are discussed. The fate of glucosinolates during food processing is also briefly addressed. This handbook is written by leading experts and structured in different sections addressing the natural occurrence of glucosinolates, their (bio-)synthesis, bioactivity, food processing of glucosinolate-containing vegetables, health and disease-related aspects, biotechnology, and methods applied in glucosinolate-research. It is thus a rich reference source for every reader working in the field, from chemists and biotechnologists, to life scientists, pharmacists and medical scientists.
