

1. Record Nr.	UNINA9910457010703321
Titolo	Chemistry and biology of ellagitannins [[electronic resource]] : an underestimated class of bioactive plant polyphenols // editor, Stephane Quideau
Pubbl/distr/stampa	Hackensack, NJ, : World Scientific, c2009
ISBN	1-282-44109-4 9786612441097 981-279-741-6
Descrizione fisica	1 online resource (395 p.)
Altri autori (Persone)	QuideauStephane
Disciplina	572.2
Soggetti	Plant polyphenols Plant bioactive compounds Phytochemicals Tannins Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographic references and index.
Nota di contenuto	Preface; Contents; 1. Ellagitannins Renewed the Concept of Tannins; 1.1 Old and New Concepts of Tannins.; 1.1.1 About the chemical stability of ellagitannins.; 1.1.2 Definition of ellagitannins in the narrow and wider senses; 1.1.3 Stereochemistry of ellagitannins.; 1.1.4 Condensation of dehydroellagitannins with other substances; 1.1.5 Accumulation of an ellagitannin of specific structure in a plant.; 1.2 Distribution of Ellagitannins in the Plant Kingdom.; 1.3 Formation and Classification of Ellagitannins in Plants. 1.3.1 Oxidative biological transformations from gallotannins to ellagitannins and dehydroellagitannins 1.3.2 Regiospecificity of the HHDP group on the glucose core, and its correlation to plant families; 1.3.3 C-glycosidic ellagitannins and complex tannins.; 1.3.3.1 Occurrence of C-glycosidic tannins in plants; 1.3.3.2 Biomimetic synthesis of C-glycosidic ellagitannins; 1.3.4 Oligomerization of ellagitannins leading to pentamers; 1.3.4.1 Oligomers as main components in a plant species; 1.3.4.2 Oligomerization via oxidative C-

O and C-C coupling modes; 1.3.4.2.1 The GOG- and GOGOG-type units
1.3.4.2.2 The DOG and D(OG)₂-type units 1.3.4.2.3 The GOD-type unit; 1.3.5 Macrocyclic oligomers; 1.3.6 Structural transformations of ellagitannin oligomers; 1.3.6.1 Isomerization of dimers via Smiles rearrangement; 1.3.6.2 Hydrolysis of ellagitannin oligomers into monomers.; 1.3.7 Seasonal transformations of ellagitannins in a plant; 1.3.8 Production of ellagitannins by tissue cultures; 1.4 Correlation of Ellagitannins of Various Oxidation Stages with Plant Evolution Systems.; 1.4.1 Classification of hydrolyzable tannins based on the oxidation stages of their polyphenolic functions
1.4.2 Correlation of the oxidation stages with Cronquist's system of plant evolution 1.4.3 Isolation of oxidized ellagitannin oligomers in specific plant orders; 1.5 Main Ellagitannin-Rich Medicinal Plants; 1.6 Properties and Primary Activities of Ellagitannins.; 1.6.1 Reduction, stabilization and precipitation of other substances by tannins, and solubilization of precipitates by excess tannin; 1.6.2 Indexes of tannin binding activity and reversal of tannin biological activities; 1.6.3 Antioxidant activities; 1.7. Biological and Pharmacological Activities 1.7.1 Antiviral, antimicrobial and immunomodulatory activities 1.7.2 Antitumor activities; 1.7.2.1 Inhibition of mutagenicity of carcinogens; 1.7.2.2 Inhibition of tumor promotion.; 1.7.2.3 Host-mediated antitumor activity.; 1.7.3 Induction of apoptosis.; 1.7.4 Effects on liver functions and others.; 1.7.5 Absorption and metabolism of ellagitannins in animals; 1.8 Bibliography; 2. Structural Diversity and Antimicrobial Activities of Ellagitannins; 2.1 Monomeric Ellagitannins; 2.1.1 Primary ellagitannins (HHDP esters); 2.1.2 Dehydroellagitannins; 2.1.3 Modified dehydroellagitannins
2.1.4 C-Glycosidic ellagitannins

Sommario/riassunto

This book is the first of its kind that focuses on the chemistry and biology of ellagitannins, a special class of naturally occurring polyphenols which have so far not received the attention they deserve. These polyphenolic substances are found in many plants, including numerous food sources. They not only exhibit unique structural features that fascinate most chemists who are aware of their existence, but also express remarkable biological activities that have yet to attract the interest of the pharmaceutical industry. This is surprising because ellagitannins have been identified as active pr
