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Bioactive Compounds: Sources, Properties and Applications

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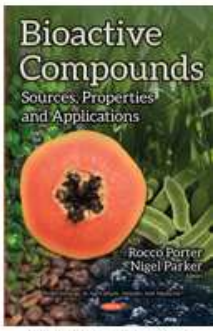

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Book Description:

The study of bioactive compounds has received a considerable rising interest over the last three decades, given their biological activity as reported by scientific evidence linking these substances to the prevention of several types of diseases. Chapter One is aimed at making a wide description of sources, properties and applications of bioactive compounds. Chapter Two summarizes content of bioactive compounds (antioxidants, polyphenols, flavonoids, phenolic acids, vitamins, mineral compounds and others) of adaptogenic plants, including antidepressant, antioxidant, antiinflammatory, antimicrobial and anticancer activities, as well as their potential to prevent several disorders. Chapter Three summarizes and discusses the recent updates and progress made of so far on bioactive compounds from cyanobacteria and their therapeutic importance on human health. The influence of various bioactive compounds present in plant systems on the dehydration process under thermal stress was investigated in Chapter Four. Chapter Five reviews the scientific literature about the structure of PEs, as well as their natural sources and health effects. Chapter Six focuses on the most recent articles about phenolic compounds, their sources, properties and applications. The aim of Chapter Seven was to characterize the composition and antioxidant activity of new Brazilian Coffea arabica cultivars and correlate this information with the genetic background of the coffee plants and the sensory characteristics of the coffee brews. Chapter Eight summarizes and updates the current knowledge about the pharmacological properties of the naphthodianthrones – hypericin and pseudohypericin – and to discuss their main medical application – photodynamic therapy – in several areas. In order to further highlight the importance of Brazil's fruitful diversity and its bioactive potential, a number of items related to Brazilian native fruits will be addressed in Chapter Nine, including their biomes of origin, composition of bioactive compounds and potentials, as well as their limitations and future prospects. Chapter Ten discusses the benefits of using fruits containing bioactive compounds in whole wheat cookies, with particular attention to blackberries. (Imprint: Nova)

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Chapter 5

PHYTOESTROGENS AS BIOACTIVE COMPOUNDS WITH BENEFICIAL EFFECTS FOR HUMAN HEALTH

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ABSTRACT

Phytoestrogens, also called estrogens, are bioactive compounds original from plants. They are similar in structure and functionality to the estrogenic hormones in animals. It has been documented that these compounds have several effects on the human body, namely in terms of carbohydrate, protein, lipid and mineral metabolism. Some of the most known effects of these substances are related to their roles in the women's reproductive system.

The dietary phytoestrogens are present in vegetable sources, like some herbs, grains or fruits. Their structure is similar to that of estradiol, which can act in the body both as estrogenic or antiestrogenic. They are classified into the following categories: i) isoflavones, which are essentially present in legume beans, and particularly soy beans and soy products; ii) lignans, which are part of foods rich in dietary fibre, like cereal brans, beans, legumes or oilseeds; iii) coumestans, found in various beans such as split peas, pinto beans or lima beans, and also in alfalfa and clover sprouts; iv) mycoestrogens, which are produced by molds.

Phytoestrogens can be used as human health enhancers, and have many documented beneficial effects on the human body. They are reported to diminish the incidence of some types of cancer, as well as to minimize menopausal symptoms and prevent osteoporosis. Also some benefits have been associated with the ingestion of these bioactive compounds and protection against cardiovascular diseases.

Hence, this chapter aims at reviewing the scientific literature about the structure of PEs, as well as their natural sources and health effects.

Keywords: phytoestrogen, estradiol, isoflavone, menopause, osteoporosis