



Abstracts

FOR

5th International Symposium on Phytochemicals in Medicine and Food

(5-ISPMF)

AUGUST 25 – SEPTEMBER 01 2021, NANCHANG, CHINA



Welcome Address

It is our great pleasure to welcome you to the 5th International Symposium on Phytochemicals in Medicine and Food (5-ISPMPF), which is organized by the International Association of Dietetic Nutrition and Safety (IADNS), Phytochemical Society of Europe (PSE), Physiological Society of Japan, and Phytochemical Society of Asia (PSA). 5-ISPMPF is jointly organized by Nanchang University, Jiangsu University and University of Vigo. Over 410 scientists from 62 countries and other 350 scientists from China have registered to attend this online conference. 5-ISPMPF also has obtained the supports from several international journals including Food Chemistry Marine Drugs, International Journal of Molecular Sciences, Food Chemistry X, Oxidative Medicine and Cellular Longevity, Phytochemistry Reviews, and so on. The international organizing committee and scientific committee board of 5-ISPMPF assembled an exciting and diverse program, featuring 16 plenary lectures, 82 invited lectures, 142 oral presentation, a graduate student forum consisting of 70 short lecture, and more than 100 posters, which dedicate to creating a stage for exchanging the update research results in the phytochemicals for food and human health.

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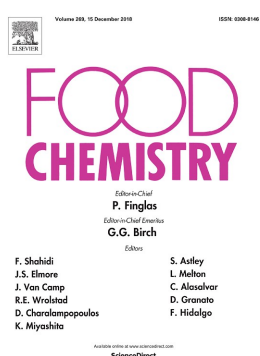
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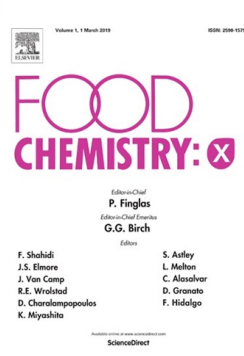
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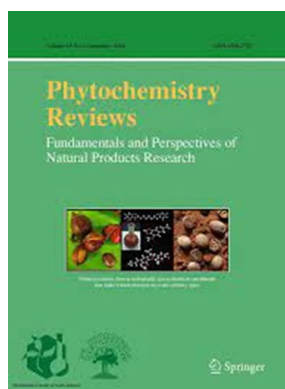
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PP33: Pineapple peel as a source of bioactive compounds with health benefits and potential application in the food industry

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Ananas comosus [L.] Merr popularly known as pineapple is one of the world's most consumed tropical fruits after bananas and citrus [1]. The fruity and exotic flavour of this fruit is one of the most appreciated characteristics and the bioactive properties with beneficial impact on health have aroused interest [2]. However, since only the pulp of this fruit is consumed, tons of by-products is produced annually, generating economic losses for the agri-food sector and negative impact on the environment [3]. In this perspective, the present work aimed to characterize the phenolic profile of the pineapple peel, as well as to evaluate its bioactive properties in order to evaluate its potential application as a natural ingredient in the food industry.

The extract was obtained through heat-assisted hydroethanolic (EtOH/H₂O - 80:20, v/v) extraction. The phenolic compounds were identified and quantified by high-performance liquid chromatography coupled to a diode array detector and electrospray ionization mass spectrometry (HPLC-DAD-ESI/MS). Thirteen phenolic compounds were identified in the pineapple peel extract and classified as a phenolic acids and flavonoids. Flavan-3-ols, such as (epi)gallocatechin, and the flavone apigenin-6,8-*C*-diglucoside were the major compounds. The antioxidant activity of the extract was evaluated through two in vitro assays: the lipid peroxidation inhibition assay (TBARS) and the oxidative haemolysis inhibition assay (OxHLIA). The cytotoxic activity was evaluated in tumour (MCF-7, NCI-H460, AGS and CaCo-2) and non-tumour (VERO) cell lines using the sulforhodamine B method, and the anti-inflammatory activity in lipopolysaccharide-activated RAW 264.7 macrophages by the ability to inhibit NO production. The antimicrobial activity was evaluated against six strains of bacteria, including three Gram-positive bacteria (*Staphylococcus aureus*, *Bacillus cereus* and *Listeria monocytogenes*) and three Gram-negative bacteria (*Escherichia coli*, *Salmonella Typhimurium* and *Enterobacter cloacae*). The antifungal activity of the extracts was tested against a panel of six fungi (*Aspergillus fumigatus*, *Aspergillus niger*, *Aspergillus versicolor*, *Penicillium funiculosum*, *Penicillium aurantiogriseum* and *Trichoderma viride*). The results showed that the extract has a good of antioxidant activity performance, highlighted by the lower IC₅₀ values and consequently greater activity. The same trend was observed for the cytotoxic activity, and the absence of toxicity for the non-tumour cell line was confirmed up to the maximum concentration tested (GI₅₀ > 400 µg/mL). Finally, the extract also showed excellent antibacterial and antifungal activity against the strains tested. This research confirmed the potential application of this pineapple peel as a source of bioactive compounds, which can be used by the food industry as a natural ingredient, thus contributing to a positive economic and environmental impact.

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