

Special Issue on Antioxidants in Natural Products II

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The importance of consuming natural antioxidant sources has increased significantly in recent years. Due to some negative health consequences and beliefs about synthetic antioxidants, antioxidants from natural sources are safer in food applications. Natural antioxidants, such as polyphenols, carotenoids and vitamin C, anti-cancer, anti-aging, anti-atherosclerosis, anti-inflammatory, etc., exhibit many biological activities. Many studies have been conducted or are being conducted on the extraction, isolation, structural characterization and biological activities determination of antioxidants from natural sources such as fruits, vegetables and olives. In recent years, studies on the recovery of antioxidants from natural food by-products and the authentication of foods and natural products through chemometrics have come to the forefront, especially within the scope of sustainable food systems.

The scope of the Special Issue titled “Antioxidants in Natural Products II” is to bring together all available scientific research on the extraction of new antioxidants from natural sources and their use for human benefit. It is also critical to present current and emerging analytical methods to measure antioxidant activity and other quality parameters of natural products.

A total of ten papers (eight research papers, one review paper and one perspective paper) in various fields of antioxidants are included in this Special Issue. Jianu et al. [1] evaluated the antioxidant and antimicrobial activities of *Nepeta × faassenii* essential oil (NEO). In their study, twenty-six compounds were identified by GC-MS analysis. NEO exhibited broad-spectrum antibacterial and antifungal effects. The antioxidant activity of NEO was evaluated against cold-pressed sunflower oil by different methods. In light of the results obtained, the potential for use of NEO as an antioxidant and antimicrobial agent in the medicine or food industry has been suggested. Le et al. [2] determined the phenolic profile of extract samples of *Symphytum officinale* callus root cultures using various approaches. Two types of unique polymers were isolated from comfrey root culture samples. M-methoxybenzoic acid and rosmarinic acid were identified as the main phenolic compounds. The examined phenolic profile showed that extract samples of comfrey callus cultures had similar properties and were a source with significant antioxidant activity. Giannakas et al. [3] mixed polystyrene natural NaMt, OrgNaMt montmorillonite and thyme essential oil to develop a new packaging film. Durability, oxygen and water vapor permeability, mixing and homogeneity were tested to characterize food packaging films. In addition, the antimicrobial and antioxidant activities of the films were reported. The results showed that polystyrene can be modified and used in food active packaging applications with its food odor prevention properties. Akli et al. [4] optimized the extraction of phenolic compounds from olive leaves using three glycerol-based deep eutectic solvents (DES) containing lysine, proline and arginine. The effect of the liquid/solid ratio, DES concentration and extraction temperature, which are effective operational parameters



Citation: Calokerinos, A.C.; Bener, M.; Proestos, C.; Tarantilis, P. Special Issue on Antioxidants in Natural Products II. *Appl. Sci.* **2023**, *13*, 614. <https://doi.org/10.3390/app13010614>

Received: 16 December 2022

Revised: 24 December 2022

Accepted: 26 December 2022

Published: 2 January 2023



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in the extraction process, was investigated using a three-level Box–Behnken design. The extract with the highest total phenolic content was obtained with glycerol-lysine. It has been reported that there is a linear relationship between the tyrosol content of the extracts and the total phenolic content. Lucarini et al. [5] analyzed the most remarkable academic studies to reveal the relationship between wine polyphenols and health from their perspective. Ntourtoglou et al. [6] investigated how pulsed electric field (PEF) application affected the polyphenol and volatile compound content of grape stem extract. For this purpose, low-energy and short-term PEF treatments were applied to the grape stems in different solvent environments. The total phenolic contents of the extracts were determined by the Folin–Ciocalteu test. In the study, it was reported that PEF and ultrasound-assisted extraction are very efficient processes for the extraction of bioactive compounds from the grape stems. Trilaksana et al. [7] examined the efficacy of *Trigona* spp. propolis as an antioxidant to reduce residual peroxide after coronal bleaching treatments. In light of the findings, it has been reported that 10% of *Trigona* spp. propolis effectively reduces peroxide residues that can be effective at various stages in the application of the composite after intracoronary bleaching treatments. Kumar et al. [8] made a critical review of the bioactive compounds and herbal approach in the treatment mechanisms of obesity, which has emerged as a global epidemic all over the world. Tsiaka et al. [9] examined the nutraceutical efficacy of ten different plant preparations (chamomile, purple coneflower, lemon verbena, pennyroyal, mint, thyme, marjoram, clove, sea buckthorn and St. John’s wort) with in silico techniques combined with LC-MS/MS. Zglińska et al. [10] examined the potential of using extracts from the invasive crustacean species *Faxonius limosus* (thorn-cheeked) crayfish as a natural source of antioxidants. In light of the results obtained, it was revealed that the antioxidant properties of *F. limosus* extract were quite promising.

Even if the submission process was closed for this Special Issue, studies on the extraction, characterization, determination and waste evaluation of natural antioxidants will continue intensively.

Funding: This research received no external funding.

Acknowledgments: We thank all the authors and peer reviewers for their valuable contributions to this Special Issue “Antioxidants in Natural Products II”. We would also like to express our gratitude to all the staff and people involved in this Special Issue.

Conflicts of Interest: The authors declare no conflict of interest.

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