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MEDICINAL AND AROMATIC PLANT (MAP) SEASONING MIXTURES: BIOACTIVE AND NUTRITIONAL POTENTIAL

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Aromatic and medicinal plants are highly appreciated and used worldwide as condiments, tinctures, and preservatives. Due to their nutritional value and chemical composition, related to properties beneficial to health, their inclusion in the human diet has gained increasing expression [1]. Certain mixtures of plants have greater potential when compared to isolated plants, due to synergistic effects, and these properties make them of great interest in the food, pharmaceutical, and cosmetic industries. They have been consumed directly in prepared dishes, but also by incorporation into foods, making them bioactive and functional [2]. In the present study, four mixtures of aromatic plants used to season poultry, meat, fish, and salads were characterized in terms of nutritional value, according to the AOAC procedures, and chemical composition, namely in free sugars (HPLC-RI), organic acids (UFLC-PDA), tocopherols (HPLC-fluorescence), fatty acids (GC-FID), and phenolic compounds (HPLC-DAD-ESI/MS). The antioxidant, antimicrobial, anti-inflammatory, and anti-tumour capacities were also evaluated, validating their bioactive properties.

Regarding the nutritional value, carbohydrates were the main macronutrients found in mixtures of condiments, followed by proteins and ash. In terms of free sugars, fructose, glucose, and sucrose were detected in all samples, as well as three organic acids, namely oxalic, citric, and malic acids, being malic acid the most abundant. The four tocopherol isoforms (α, β, γ, and δ) and a total of 23 different fatty acids were detected, with a predominance of polyunsaturated fatty acids (PUFA), with high percentages of linoleic acid and linolenic acid. In terms of phenolic composition, twenty-five compounds were identified, with apigenin-*O*-malonyl-pentoside-hexoside as the most abundant compound in all extracts.

Regarding bioactive properties, in terms of antioxidant activity, the extracts of mixtures for meat and salads presented the best results in the TBARS test, while those of mixtures for meat and poultry stood out in the OxHLIA assay. The mixtures for poultry and fish showed the highest anti-inflammatory activity and the mixtures for salads showed the best anti-tumour properties. On the other hand, mixtures for meat and salads revealed the greatest antimicrobial activity. In conclusion, these seasoning mixtures demonstrated valuable bioactive properties, conferred by their chemical composition and by the cumulative and synergistic effects observed in the mixtures, which corroborates the importance of their inclusion in the human diet.

References

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