O.C. 139_110 | OLIVE POMACE AS A POTENTIAL PREBIOTIC SOURCE

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Objective: Olive pomace is a common by-product of olive oil manufacturing, which possesses a high environmental burden. Studying the composition and prebiotic characteristics of olive pomace and its extract may not only allow us to create new synbiotic products but also decrease the negative impact of olive oil production on the environment.

Methods: In the case of this study, the effect of olive pomace and its extract on probiotic (Lacticaseibacillus rhamnosus IMC501® - Synbiotec Srl, Camerino, Italy - and Pediococcus acidilactici 46A) and pathogenic bacteria (Escherichia coli ATCC13706, Staphylococcus aureus ATCC 25923, Bacillus cereus ATCC 9634, and Pseudomonas aeruginosa DSM 1117) was analysed through a series of in vitro tests. Firstly, minimal inhibitory concentrations (MIC) were determined for both probiotics and pathogens. Based on the preliminary analysis of MIC, appropriate concentrations of pomace and its extract were added to probiotic bacterial cultures to assess their growth. Lastly, supernatant obtained from probiotic bacterial cultures was used to evaluate the short-chain fatty acid (SCFA) composition and antimicrobial activity of cell-free supernatant (CFS) against the same four selected pathogens.

Results: Interestingly, olive pomace extract stimulated probiotic bacterial growth. On the other hand, supplementation of probiotic bacteria with olive pomace extract has revealed reduced antimicrobial activity of CFS.

Conclusions: These observations lead us to a hypothesis that olive pomace extract supplementation has resulted in the shift of metabolism in probiotic bacteria.

O.C. 140_121 | INVESTIGATION OF THE POLYSACCHARIDES FROM MESONA CHINENSIS AS POTENTIAL NEW PREBIOTIC COMPOUNDS

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Objective: Mesona chinensis is an important medicinal and edible plant widely used in Vietnam, particularly for the preparation of jelly desserts due to its high polysaccharide content. Although previous studies have demonstrated the various health-promoting effects of M. chinensis polysaccharides, detailed investigations on the chemical composition of polysaccharides extracted from Vietnamese M. chinensis remain limited. In this study, we aimed to extract and characterize the polysaccharides from M. chinensis and evaluate their potential as prebiotics for gut microbiota.

Methods: Polysaccharides were extracted from Mesona chinensis using a hot water extraction method, and the resulting crude polysaccharides were subsequently analyzed by high-performance liquid chromatography (HPLC) to determine their monosaccharide composition.

Results: The results showed that the extraction yield was 0.161 g/g dry weight (DW). Monosaccharide composition analysis using HPLC revealed the presence of mannose (0.296 µg/mg), ribose (0.168 µg/mg), glucose (0.757 µg/mg), galacturonic acid (0.237 µg/mg), xylose (1.08 µg/mg), galactose (0.353 µg/mg), and fucose (1.53 µg/mg). Notably, the high levels of fucose and xylose suggest a strong potential for prebiotic activity, as these monosaccharides can selectively stimulate the growth of beneficial gut microbiota.

Conclusions: In conclusion, M. chinensis holds promise as a valuable ingredient in the development of novel functional foods, aligning with current trends in the food industry toward health-oriented innovations.