

TOMATO WASTE AS FEEDSTOCK TO EXTRACT PHENOLIC COMPOUNDS WITH ANTI-OXIDANT AND ANTI-INFLAMMATORY BIOACTIVITY

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Introduction: Tomato industry is one of the most developed at world level and produce a lot of by-products. Recently tomato peels and seeds (TP) consider as feedstock to extract bioactive fractions like phenolic compounds. In this work two different TP from Italian plant were selected to profile the flavonoids contents and their antioxidant and anti-inflammatory properties.

Material & Methods: Tomato peel+seed fraction from conventional (TP-CONV) and biological (TP-BIO) cultivation systems were sampled and dried, and were characterized. Polyphenols were profiled by HPLC, total antioxidant capacity (TAC) was evaluated by TEAC and FRAP methods. Immunomodulating effects were evaluated by using Caco-2 cells transfected with a pNiFty2-Luc vector. Enzyme inhibitory activity was assessed against intestinal α -glucosidase and pancreatic α -amylase.

Results: Total polyphenol content were the same in both TP-BIO and TP-CONV however identified phenolic compounds showed distinctive distribution. Both sample extracts expressed antioxidant, anti-inflammatory and enzyme inhibitory activities.

Conclusion: This study highlights the promising TP extracts antioxidant activity, anti-inflammatory, and inhibition on the activity of enzymes related to release/uptake of glucose. These waste products can be recovered and be regarded as potential nutraceutical sources as low-cost but nutritional supplements either in food production as functional ingredients and nutraceuticals or in cosmetic and pharmaceutical industries.

References:

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