ANTIOXIDANT ACTIVITY AND PHENOLIC COMPOSITION OF AQUEOUS EXTRACTS OF VEGETABLE AND AGRO-INDUSTRIAL RESIDUES

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Vegetable and agro-industrial residues are sources of bioactive compounds currently lead by research development in natural antioxidants. This study aimed to analyze the content of total phenolic compounds, antioxidant activity, and chemical profile in five residues, such as broccoli stalk (BS), leaf/stem radish (LSR), leaf/stem turnip (LST), artichoke residue (AR), and film peanut (FP). These residues were collected in the first half of the year 2009, and lyophilized. The phenolic compounds from their aqueous extracts were measured by Folin-Ciocalteu method. The characterization of the chemical profile was performed by GC-MS. Also, the antioxidant potential was determined by ABTS and FRAP methods. The results of total phenolic compounds (mg GAE/g) found in the residues were: FP (33.86) > LSR (17.75) > LST (13.00) > BS (6.65) > AR (1.88). FP extract presented the highest antioxidant activity through ABTS method (µM TEAC/g) (262.12), followed by LSR (35.70), BS (15.10), LST (14.60), and AR (3.19) extracts. In the FRAP method (µmol/mg ferrous sulfate), FP extract (0.514) showed results superior to the LSR, LST, BS and AR extracts (0.333, 0.197, 0.118 and 0.109, respectively). Epicatechin (FP), syringic acid and sinapinic (LSR, BS and AR), caffeic and ferulic acids (SB, LSR, LST and FP) and kaempferol (BS, FP, and LSR) phenolic compounds were found in the residues. Thus, these results show that vegetables and agro-industrial residues are rich in bioactive substances which could be more widely explored not only by consumers but also by food industry and pharmaceutical companies.

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