Abstract

Axiomatic, food processing residues are one of the major problems for all food producer sectors. Therefore, this work was designed to study the full description of guava, olive and potato processing residues. After being collected and prepared, chemical composition, minerals, pigments, phytochemicals (by different solvents) and their antioxidants by two assays, antimicrobial and phenolic profiles were estimated. Moreover, physiochemical, amino and fatty acids of guava seeds and olive pomace oils were detected. The applicability of olive residues extracts incorporated with chitosan to edible film preparing and (apple and strawberry) coating was studied. In addition, possibility of utilization of dried guava and potato residues in cupcake making were performed. Results indicated that the significant differences ($p<0.05$) between oven and solar drying was found in their content of all phytochemicals and their antioxidants. Generally, olive residues had higher phytochemicals, antioxidants and antimicrobial compared to other residues. Methanol and ethanol 80% extracts had high phytochemicals and antioxidants. HPLC and GC-MS analysis detected that the salicylic, pyrogallol and benzoic were the highest phenolic compounds in residues extracts. Also, guava seeds and olive pomace oils had physiochemical parameters close to edible oils. The incorporated of olive residues extracts into chitosan was slightly effected in physical properties and enhanced the antimicrobial activity. Also, this film action to keep chemical, phytochemicals, freshness and microbial quality of coated fruits. Consequently, it significantly reduced the

quality parameters compared to uncoated and fruits coated using watery wax. On the other hand, the guava residues could be used at 10% and potato residues at 5% supplement to the cupcake as a phytochemicals, fibre and antioxidants without any drawback in the organoleptic and other properties. These results asserted that food processing residues could be used in different food industries to valorize it.

Keywords: Food processing residues, phytochemicals, antioxidants, antimicrobial, chitosan incorporated films, apple and strawberry coating, scanning electron microscope, cupcake processing.