

ABSTRACT

Pesticides exposure is unavoidable due to its release into the environment by contaminating the air, soil and water. They are present in agricultural products in the form of residues and can be transported throughout the food chain to humans. They have harmful effects on health leading to the development of several diseases such as cancer, Parkinson's disease, auto-immune diseases... Therefore, a sampling campaign is necessary to obtain an idea on the status of pesticide residues in agricultural products aiming to draw a conclusion on the quality of agricultural practice. This sampling campaign was conducted to cover most of the Lebanese areas. It involves the cultivation of strawberries which are very fragile and require intensified treatment by pesticides that have a short post harvest interval. In addition, strawberries are considered among the most favorite fruits for children. This study includes the results of the analysis of 34 samples of strawberries, among them four frozen foreign samples, and the comparison between several methods of analysis through recovery rate using the appropriate instruments for such analysis (GC-NPD-ECD-MSD). The Quechers method using PSA as adsorbent matrix was chosen with a recovery rate between 97 and 104%. It also includes the analysis by Scan and SIM modes on the GC-MS, taking in consideration the various method parameters (temperature, column ...). The obtained results show that, the most pesticides present in the studied samples are the same as those detected in the study conducted by the Commission of European Communities in Brussels in 2004, but with higher concentrations. Also the same results were obtained by the studies that were carried out on apples, potatoes, and cherries. Thus, there must be a sustainable monitoring program that covers the major agricultural products.

Keywords: Pesticides, Residues, Strawberries, Quechers Method, analysis of multiresidue of pesticides, GC-MS, GC-ECD-NPD.