

## HPLC-DAD DETECTION OF SOME PESTICIDE RESIDUES IN AGRICULTURAL PRODUCTS

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### Abstract

A rapid HPLC method for pesticide residues detection and monitoring in some vegetables, fruits and crops has been developed. The residual pesticide concentrations in samples were compared with MRLs authorized by EU laws.

### Introduction

Productivity of fruits and vegetables has been greatly enhanced by developing techniques work, use of the best seeds and better water management, and also by the efficiency administration of pesticides. As pesticides are hazardous and toxic to human health [1], it is important to find any pesticide traces that can be ingested in order to increase and ensure the security in people nutrition.

### Experimental

The pesticides extraction from food matrices was carried out using two methods: a) QuEChERS and b) ultrasonication in one step, in acetonitrile. After concentration and filtration, the extracts were subjected to HPLC-DAD analyses to identify and quantify the following pesticides: imidacloprid, deltamethrin, bromoxynil, and amidosulfuron.

### Results and discussion

Deltamethrin was found in large quantities in tomatoes and potatoes, and bromoxynil in clementines. In the analyzed cereals, imidacloprid was found in larger quantities in wheat and maize.

### Conclusion

The high sensibility and the short time of analyses recommend this method for pesticides monitoring at farmer's demand. Imidacloprin was found in almost all of the studied samples, in some samples exceeding the MRLs allowed of EU laws [2].

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### References

- [1] K.H. Kim, E. Kabir, S.A. Jahan, Sci. Total Environ. 575 (2017) 525.
- [2] Commission Regulation (EU) 2017/1016 of 14 June 2017, OJ L 159, p. 1–47.