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QUALITY OF COUNTERFEIT AND ILLEGAL PLANT PROTECTION PRODUCTS

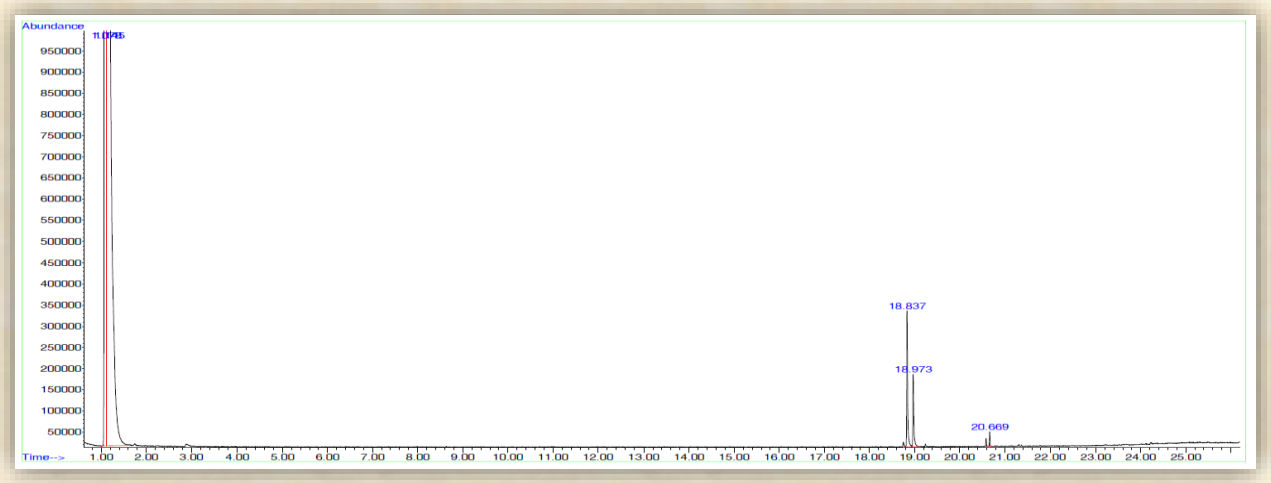
PPPs QUALITY TESTING IN POLAND

- ✓ Official quality checking of pesticides for Main Inspectorate of Plant Health And Seed Inspection – 1107/2009, Chapter VIII, Art. 68
- ✓ Testing of expired products
- ✓ Testing of interventional pesticides (claims, complaints, prosecutor's and police orders, orders from users, distributors and producers)
- ✓ Chemical and phys.-chem. analysis of PPPs, technical concentrates and technical material for registration purposes

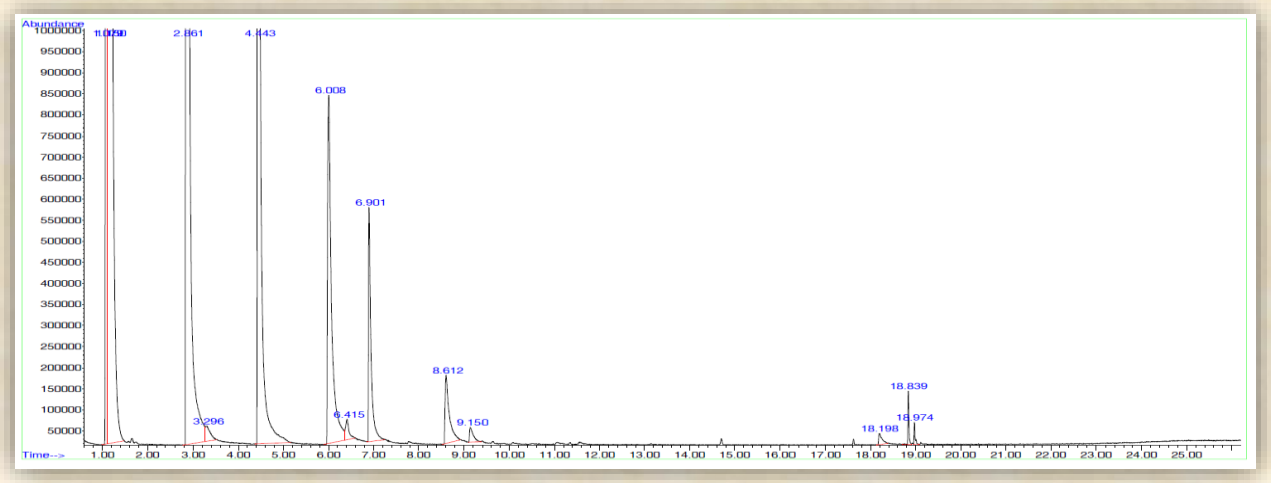
TYPES OF COUNTERFEIT AND ILLEGAL PESTICIDES

- ✓ Pesticides that do not contain an active ingredient, or contain a different active ingredient,
- ✓ Pesticides whose composition was changed –composition is different from what the label says (e.g. diluted, formulation is different from the one declared on the label),
- ✓ Not registered in a given country,
- ✓ Illegally manufactured (products coming from unregistered sources, which imitate a legal product) –mainly from Asia,
- ✓ Pesticides in unoriginal packaging, and/or with unoriginal label,
- ✓ Pesticides smuggled in, with a label in a foreign language or no label at all.

POOR QUALITY OF COUNTERFEIT AND ILLEGAL PESTICIDES – EXAMPLES

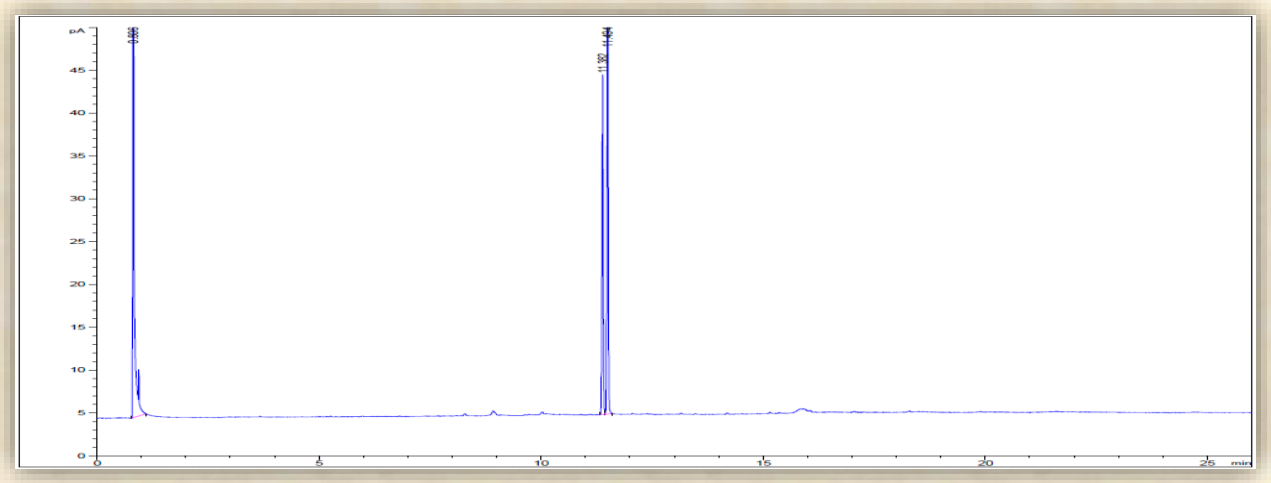


Reference product



Sample

POOR QUALITY OF COUNTERFEIT AND ILLEGAL PESTICIDES – EXAMPLES



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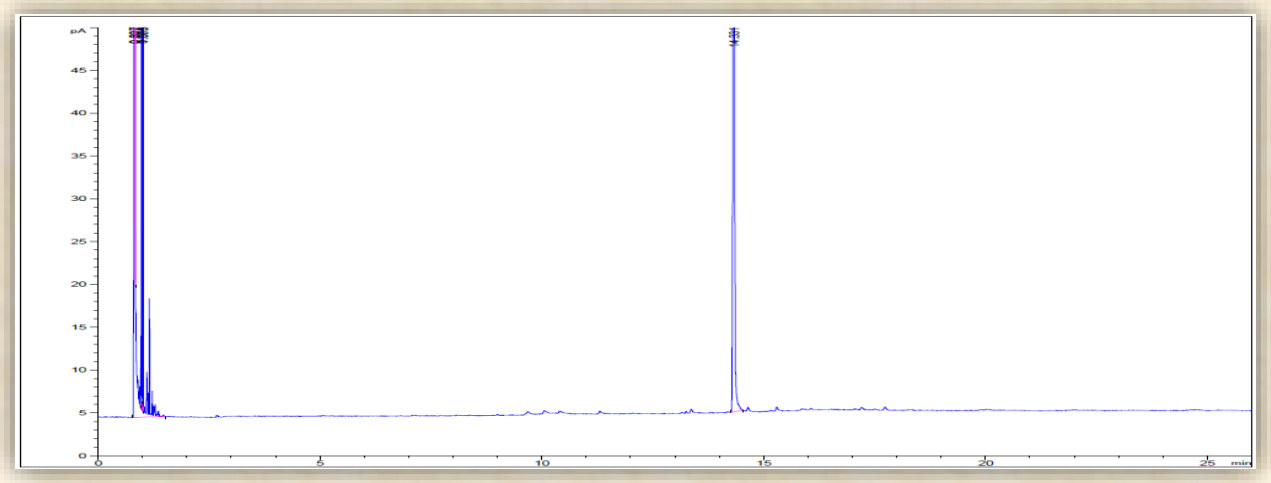
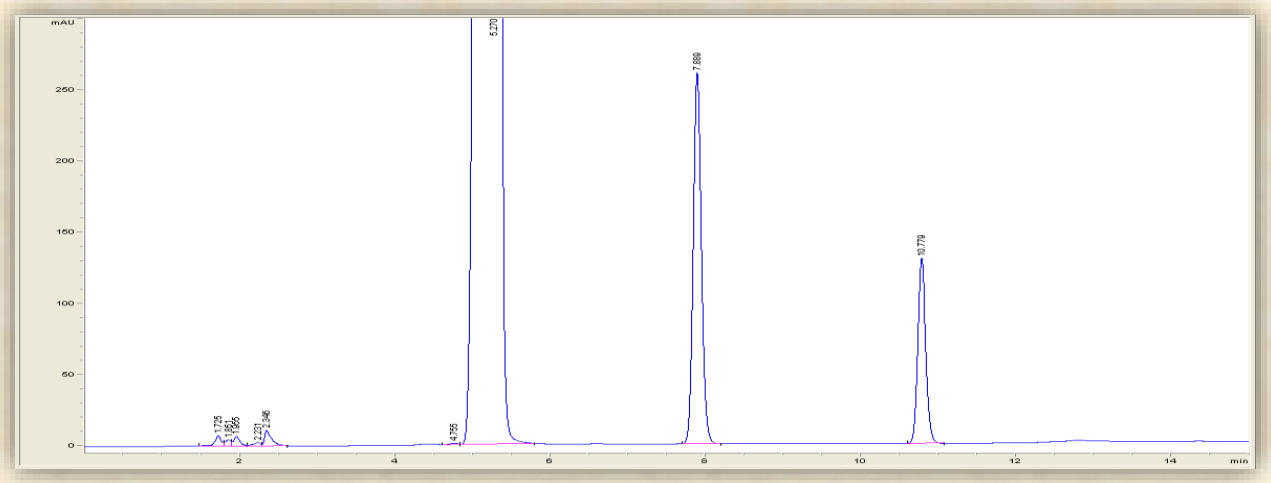


Sample

"GOOD" QUALITY OF COUNTERFEIT AND ILLEGAL PESTICIDES – EXAMPLES



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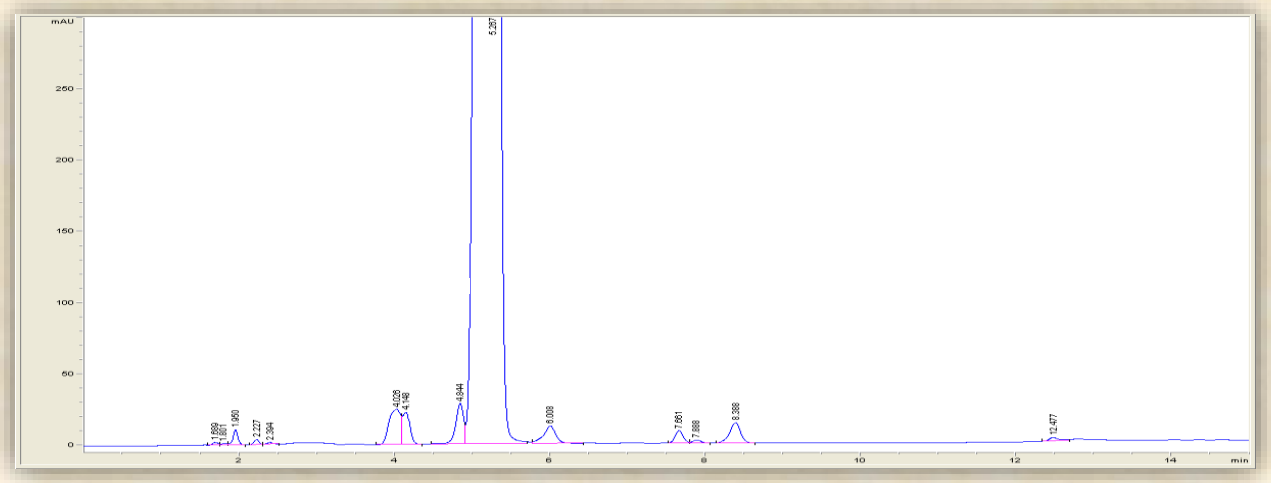
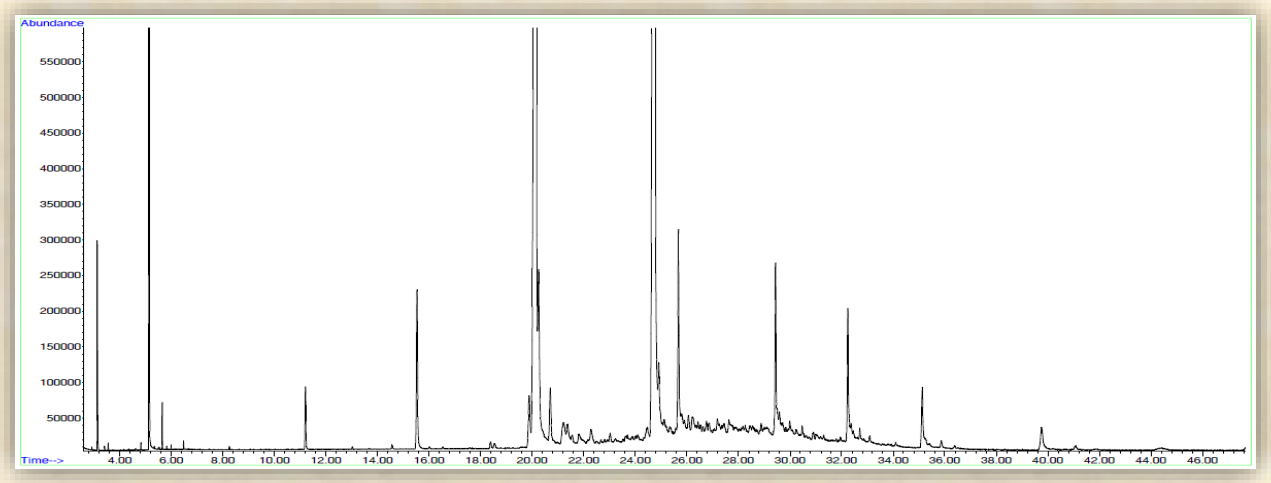


Sample

“GOOD” QUALITY OF COUNTERFEIT AND ILLEGAL PESTICIDES – EXAMPLES



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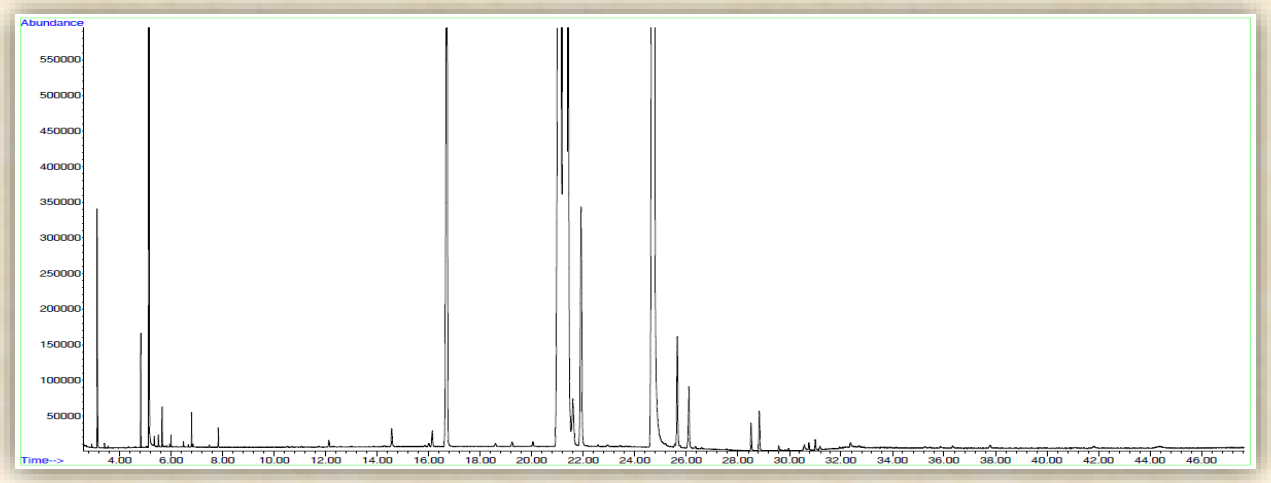
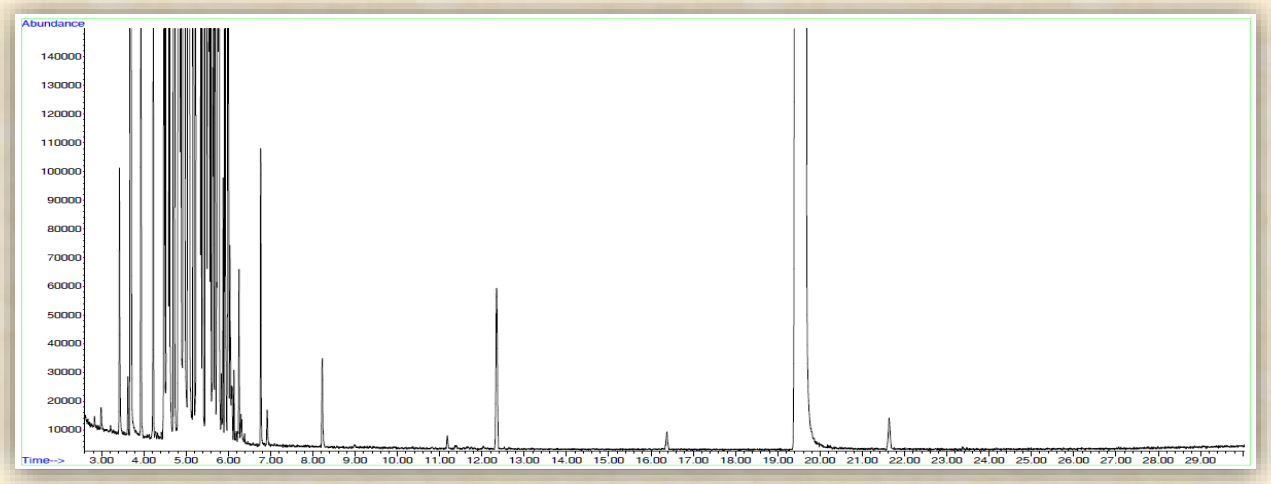


Sample

"GOOD" QUALITY OF COUNTERFEIT AND ILLEGAL PESTICIDES – EXAMPLES



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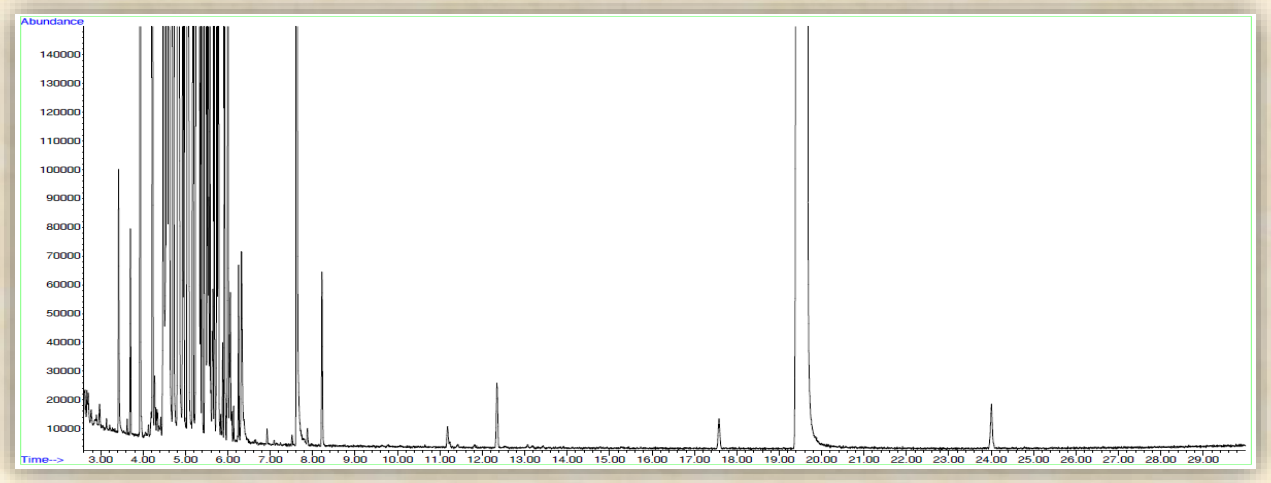
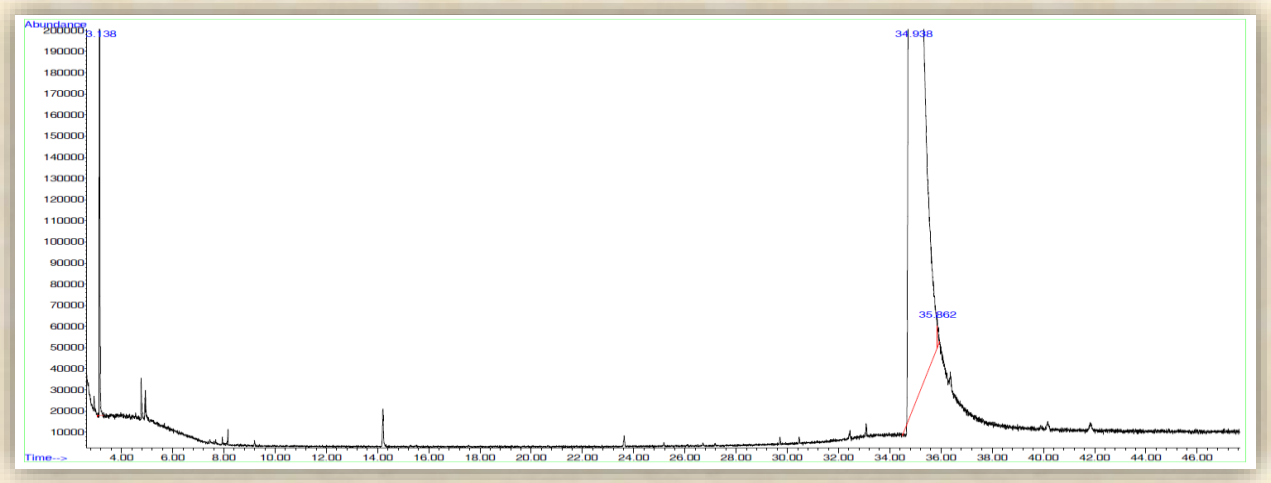


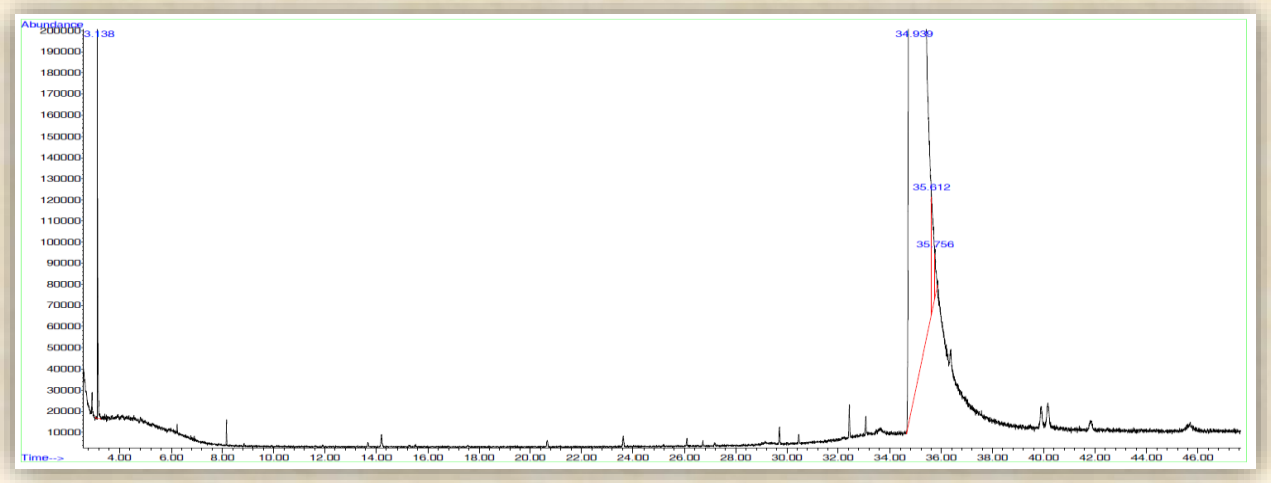
Sample

Note:
- *No. of tested samples (EC) – 34*
- *Exceeding allowable limit (0.3%) – 1*
- *No. of detected counterfeit products – 9*

"HIGH" QUALITY OF COUNTERFEIT AND ILLEGAL PESTICIDES – EXAMPLES (GC-MS)

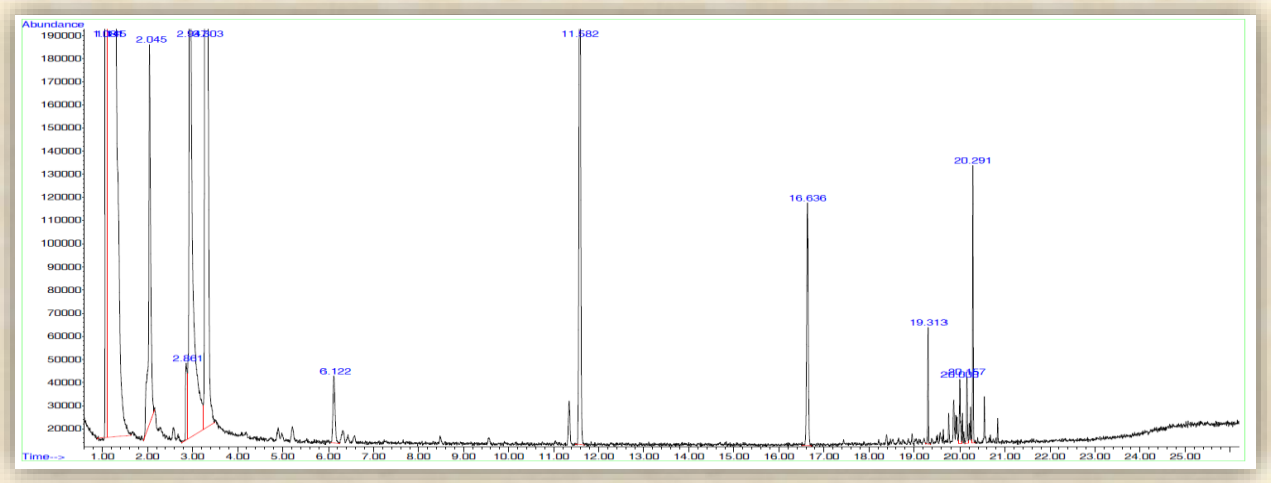


Reference product

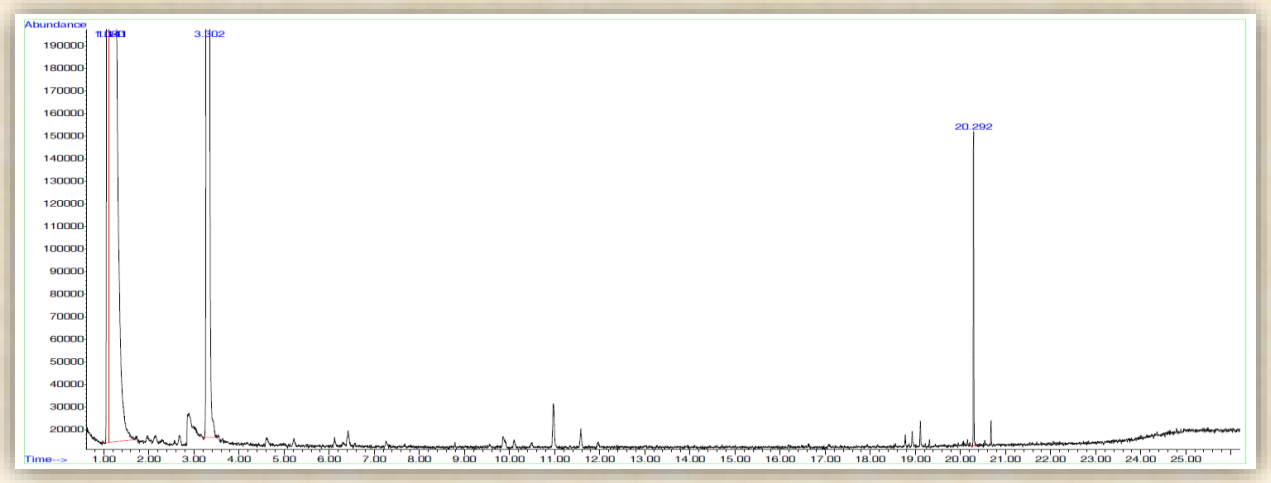


Sample

"HIGH" QUALITY OF COUNTERFEIT AND ILLEGAL PESTICIDES – EXAMPLES (HS-GC-MS)

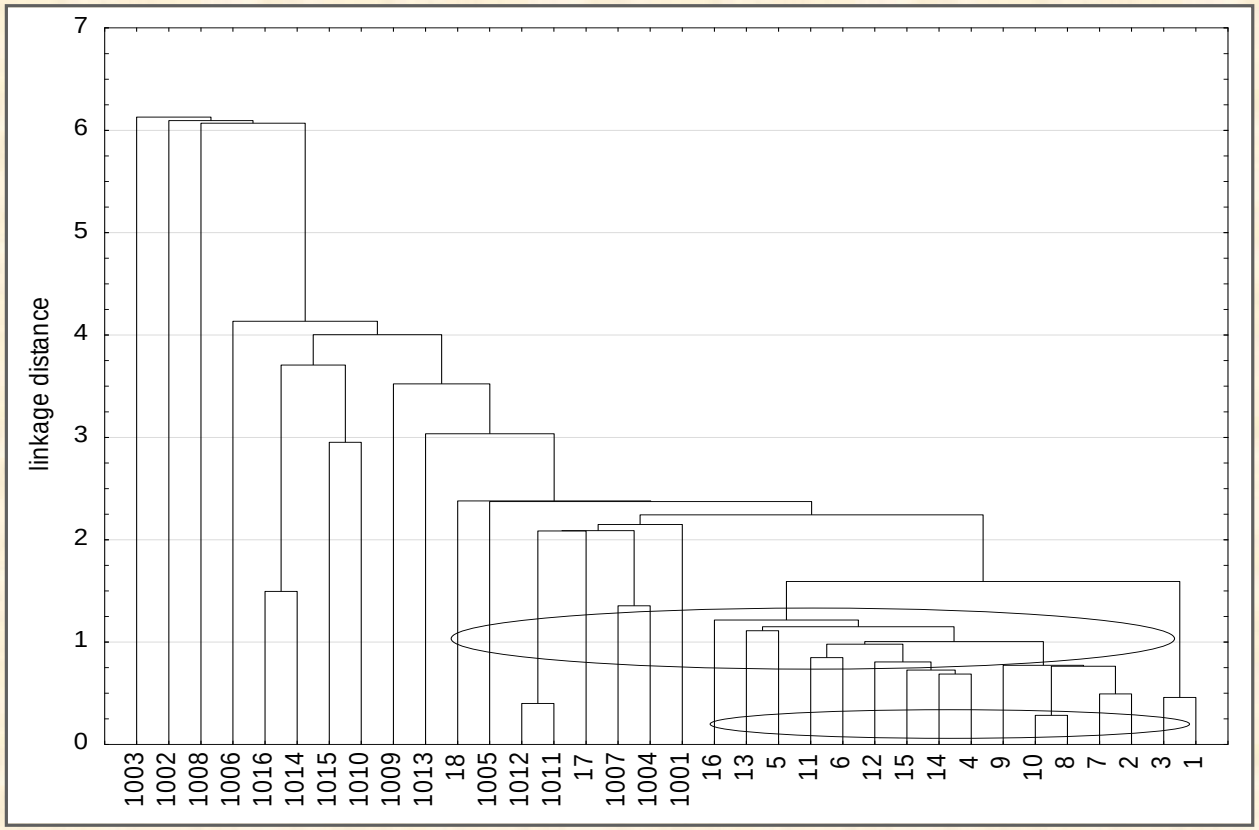


Reference product



Sample

CLUSTER ANALYSIS OF 34 SAMPLES OF PPPs IN EC FORMULATION CONTAINING CHLORPYRIFOS



SUMMARY AND CONCLUSIONS

- ✓ Quality of counterfeit and illegal plant protection products is increasing (proper a.s. proper level of impurities, similar analytical profile, absence of toxic impurities) - problems with the imposition of penalties
- ✓ The need for good co-operation between registration department and control laboratory (notification of a change of the formulation components) - rapid distribution of information
- ✓ Difficulties of the control laboratory:
  - Incomplete documentation (analytical methods for a.s., impurities and co-formulants)
  - Full identification of all formulation components in some cases is almost impossible (some co-formulants in PPPs are themselves mixtures)
  - Lack of tolerance for physical and chemical parameters, content and impurities and co-formulants
  - Over engagement of technical means (equipment capacity, time)
- ✓ Cooperation, advanced lab equipment

PUBLICATIONS

- ✓ Miszczyk M., Płonka M., Bober K., Dołowy M., Pyka A., Pszczolińska K. (2015) Application of chemometric analysis based on physicochemical and chromatographic data for the differentiation origin of plant protection products containing chlorpyrifos. Journal of Environmental Science and Health, Part B: Pesticides, Food Contaminants, and Agriculture Wastes, 50 (10):744–751
- ✓ Płonka M., Walorczyk S., Miszczyk M., Kronenbach-Dylong D. (2016) Simultaneous gas chromatographic determination of chlorpyrifos and its impurity sulfotep in liquid pesticide formulations. Journal of Environmental Science and Health, Part B: Pesticides, Food Contaminants, and Agriculture Wastes, 51 (11): 736–741

Thank you for your attention