

**Titlu proiect:** Metodă microanalitică elementală simultană pentru controlul mediului și alimentelor folosind prelevarea pasivă și instrumentație miniaturizată bazată pe spectrometrie de emisie optică în microplasmă (MULTIPASS)

**Gradul de atingere a rezultatelor estimate etapa 2 2023**

<b>Nr. Crt.</b>	<b>Tip rezultat/produs prevazut</b>	<b>Asumat la contractare</b>	<b>Rezultate (livrabile) obtinute</b>	<b>Grad de indeplinire</b>
1	Raport optimizare conditii de operare a echipamentului DGT-SSETV- $\mu$ CCP-OES	Raport optimizare optimizare echipament DGT-SSETV- $\mu$ CCP-OES la determinare pentru As, Sb, Se	Raport optimizare optimizare echipament DGT-SSETV- $\mu$ CCP-OES la determinare pentru As, Sb, Se	Indeplinit 100%
2	Produs - Soft specializat, control temperatura microfilament de Rh	Software specializat pentru controlul control temperatura evaporare As, Sb, Se	Software specializat pentru controlul control temperatura evaporare As, Sb, Se	Indeplinit 100%
3	Raport de optimizare conditii de operare a echipamentului DGT-SSETV- $\mu$ CCP-OES	Raport optimizare a conditiilor de lucru pentru microtorta cu plasma pentru determinarea simultana multielementala prin DGT-SSETV- $\mu$ CCP-OES (As, Sb, Se)	Raport optimizare a conditiilor de lucru pentru microtorta cu plasma pentru determinarea simultana multielementala prin DGT-SSETV- $\mu$ CCP-OES (As, Sb, Se)	Indeplinit 100%
4	Raport de experimentare a performantelor analitice ale metodelor SSETV- $\mu$ CCP-OES	Raport experimentare privind imbunatatirea performantelor analitice ale metodelor SSETV- $\mu$ CCP-OES cu si fara DGT	Raport experimentare privind imbunatatirea performantelor analitice ale metodelor SSETV- $\mu$ CCP-OES cu si fara DGT	Indeplinit 100%
5	Raport de experimentare - studiu comparativ performante analitice	Studiu comparativ a performantelor analitice pentru DGT-SSETV- $\mu$ CCP-OES cu metodele traditionale GFAAS, TDAAS, ICP-OES si cerintele legislatiei europene	Studiu comparativ al performantelor analitice pentru DGT-SSETV- $\mu$ CCP-OES cu metodele traditionale GFAAS, TDAAS, ICP-OES si cerintele legislatiei europene	Indeplinit 100%
6	Raport validare metode probe de mediu	Raport de validare a metodelor bazate pe DGT-SSETV- $\mu$ CCP-OES pentru determinarea multielementala simultana in probe de mediu	Raport de validare a metodelor bazate pe DGT-SSETV- $\mu$ CCP-OES pentru determinarea multielementala simultana in probe de mediu	Indeplinit 100%
7	Raport validare metode probe de alimente	Raport de validare a metodelor bazate pe DGT-SSETV- $\mu$ CCP-OES pentru determinarea simultana multielementala in probe de alimente	Raport de validare a metodelor bazate pe DGT-SSETV- $\mu$ CCP-OES pentru determinarea simultana multielementala in probe de alimente	Indeplinit 100%
8	Conferinte stiintifice	4 participari la conferinte nationale si internationale	8 participari la conferinte nationale si internationale, 6 postere si 2 prezentari	Depasit 200%

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			orale	
9	Articole stiintifice	2 articole cu FI >3	3 articole cu FI >3	Depasit 150%
10	Raport de faza	Raport intermediar de cercetare	Raport intermediar de cercetare	Indeplinit 100%

Participarea la manifestari stiintifice

- **3 participari la a 49th International Conference of Slovak Society of Chemical Engineering (SSCHE), Tatranske Matliare, Slovacia, 15–18 Mai 2023**
  1. Eniko Covaci, Simion Bogdan Angyus, Marin Senila, Maria Frentiu, Tiberiu Frentiu. Elimination of spectral interference between Cd and As in their monitoring in water by using *in-situ* diffusive gradients in thin film passive sampling and detection by *ex-situ* microplasma optical emission spectrometry set-up equipped with a low-resolution microspectrometer. **(Poster)**
  2. Eniko Covaci, Simion Bogdan Angyus, Marin Senila, Maria Frentiu, Tiberiu Frentiu. Evaluation of green and white degree of a method based on *in-situ* diffusive gradients in thin film passive sampling coupled with *ex-situ* microplasma optical emission spectrometry set-up for determination of toxic elements in river water. **(Poster)**
  3. Simion Bogdan Angyus, Marin Senila, Eniko Covaci, Tiberiu Frentiu, Maria Frentiu. Monitoring of toxic trace metals in river water using *in-situ* diffusive gradients in thin film passive sampling and small-sized electrothermal vaporization capacitively coupled plasma microtorch optical emission spectrometry. **(Poster)**
- **2 participari la a 4th Young Researchers' International Conference on Chemistry and Chemical Engineering (YRICCCE IV), Debrecen, Ungaria, 1–3 Iunie 2023**
  4. Simion Bogdan Angyus, Marin Senila, Eniko Covaci, Tiberiu Frentiu. Diffusive gradients in thin film and electrothermal vaporization capacitively coupled plasma optical emission spectroscopy method for the evaluation of bioavailable Cu, Zn, Cd and Pb fraction in agricultural soils. **(Prezentare orală)**
  5. Eniko Covaci, Simion Bogdan Angyus, Marin Senila, Maria Frentiu, Tiberiu Frentiu. Greenness and whiteness of small-sized electrothermal vaporization capacitively coupled plasma optical emission spectrometry with *in-situ* diffusive gradients in thin films passive sampling (DGT-SSETV- $\mu$ CCP-OES). **(Prezentare orală)**
- **O participare la 14th International Conference Processes in Isotopes and Molecules, Cluj-Napoca, Romania, 19-22 Septembrie 2023**
  6. Sergiu Cadar, Dorin Petreus, Toma Patarau, Eniko Szilagyi, Bogdan Angyus, Frentiu Tiberiu, Optimization of the electrothermal evaporation process based on intelligent control of the power source. **(Poster)**
- **O participare la IEEE 29th International Symposium for Design and Technology in Electronic Packaging (SIITME), Craiova, Romania. 17-21 octombrie 2023**
  7. Sergiu Cadar, Dorin Petreus, Toma Patarau, Eniko Szilagyi. Comparative analysis of two types of filaments with COMSOL for electrothermal process. **(Poster)**
- **O participare la Conferinta Agriculture and Food - current and future challenges, AGRIFA, Cluj-Napoca, Romania. 20 octombrie 2023**
  8. Marin Senila, Marius Roman, Bogdan Angyus. Mercury fractionation in soil using Diffusive Gradients in Thin-films coupled with thermal decomposition - atomic absorption spectrometry. **(Poster)**

## Articole ISI publicate

1. Simion Bogdan Angyus, Marin Senila, Tiberiu Frentiu, Michaela Ponta, Maria Frentiu, Eniko Covaci. In-situ Diffusive Gradients in thin-films passive sampling coupled with ex-situ small-sized electrothermal vaporization capacitively coupled plasma microtorch optical emission spectrometry as green and white method for the simultaneous determination of labile species of toxic elements in surface water. *Talanta*, 2023, 259, numar articol 124551, DOI: 10.1016/j.talanta.2023.124551 (IF 6.1)
2. Simion Bogdan Angyus, Marin Senila, Eniko Covaci, Michaela Ponta, Maria Frentiu, Tiberiu Frentiu. Simultaneous determination of Cd, Pb, Cu and Zn as total and labile fraction in soil using small-sized electrothermal vaporization capacitively coupled plasma microtorch optical emission spectrometry after diffusive gradients in thin-films passive accumulation. *Journal of Analytical Atomic Spectrometry*, acceptat 2023, DOI: 10.1039/D3JA00258F (IF 3.4)
3. Marin Senila, Metals and metalloids monitoring in water by passive sampling: A review, *Reviews in Analytical Chemistry*, 2024 (publicat online 2023), 39, 141 (IF 3.4) (IF 4.3)