

PROJECT SUMMARY

The MICROCCP project has two main objectives: (i) development up to prototype stage of a miniaturized equipment in laboratory/portable versions based on atomic emission spectrometry using a capacitively coupled plasma microtorch (μ CCP-AES); and (ii) elaboration of analytical technologies for simultaneous elemental determination in the control of environment and foods. The project is organized in four phases over a period of 36 months.

The μ CCP-AES (Fig. 1) has a modular design to ensure portability. The innovations of the equipment are CCP microtorch, sample introduction systems and analytical technologies for simultaneous multielemental determination. Laboratory and on-site technologies will be elaborated for simultaneous determination of elements in electrothermally vaporized microsamples, As and Sb after hydrides generation and Hg after cold vapor generation. The analytical performances of the elaborated μ CCP-AES equipment and technologies will be compared with those currently used, atomic emission spectrometry in inductively coupled plasma and atomic fluorescence. The expected results are producing new knowledge about analytical performances and broadening of application area of miniaturized spectrometric systems with plasma microtorch to elements control in environment and foods. Results will be valorized by patenting the μ CCP-AES equipment, the assembly microtorch-Au microcoil device for Hg vapor preconcentration and the laboratory/on-site technologies for simultaneous determination of elements in environmental samples and foods after electrothermal vaporization and of Hg after cold vapor generation and preconcentration. Results dissemination will be ensured by publishing (8 papers in ISI journals with relative influence factor > 0.4), 7 participations in national conferences, 6 in international conferences and 2 fairs.

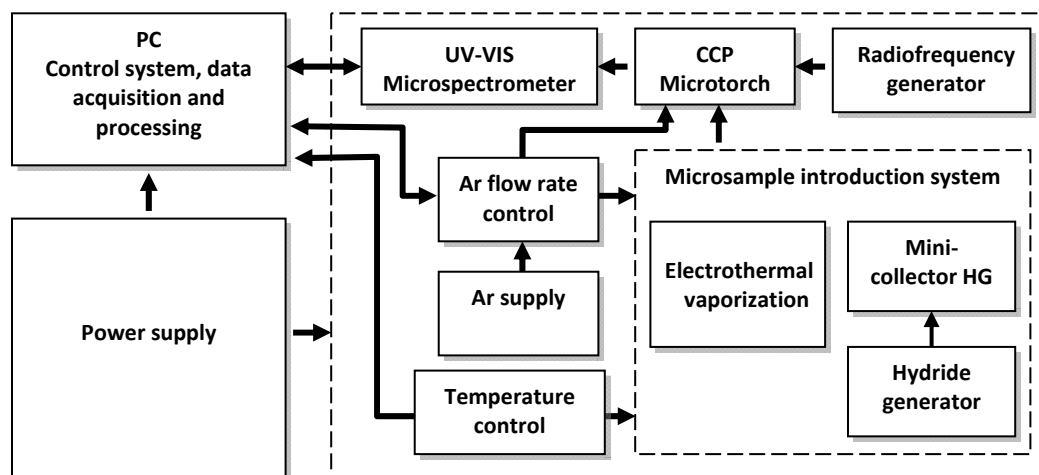


Fig. 1 Schematic diagram of the μ CCP-AES equipment