Istituto di Chimica dei Composti Organometallici

ICCOM Firenze incontra ICCOM Pisa

Venerdì 25 Gennaio 2019
Alle ore 11:00

presso Aula 2 – Edificio F
Area della Ricerca CNR, Via Madonna del Piano 10 – Sesto F.no

La Dr.ssa Emilia Bramanti di ICCOM-Pisa terrà il seguente seminario:

"Combined HS-SPME-GC-MS and HPLC analysis of salivary metabolites dynamic in health and disease. Preliminary results"

Dr. Francesco Vizza
ICCOM-CNR

Abstract:

Metabolomics of biological fluids, tissue/cellular extracts and cell culture media combined with multivariate data analysis tools is a powerful approach to investigate alterations in metabolic pathways following various perturbing events (e.g. disease states, drugs, nutrition). “Holistic” metabolite profiling has expanded over the past few decades and hence has evolved through various stages. In the last years saliva emerged as a non-conventional, valuable matrices in diagnostic medicine and therapeutic drug monitoring, as well as in toxicology, and occupational and environmental exposure. Saliva has many advantages in terms of collection, storage, shipping, and voluminous sampling and handling. It can be considered functionally equivalent to blood in reflecting the physiological state of the body due to the rapid diffusion equilibrium between the dissolved substances in the blood capillaries and salivary fluid through thin membranes of salivary glands. Many metabolomics studies on saliva are focused on the comparison of different individual groups (health *vs* disease).

In this “proof of concept” study we investigated by solid phase micro-extraction gas chromatography coupled to mass spectrometry (SPME-GC-MS) the VOCs profile and by liquid chromatography-diode array detector (HPLC-DAD) the main non-volatile salivary metabolites (lactate, acetate, oxalate, uric acid), coupled to multivariate analysis, to verify how the dynamics of major salivary metabolites was affected in representative healthy subjects by antibiotic assumption, specific diets and in patients affected by non alcoholic fat liver disease (NAFLD). The results herein presented are novel as they are discussed relatively to the possible employment of saliva metabolites as biomarkers of “personal monitoring” during a drug treatment or specific diets or critical events that have to be monitored over time.

Biographic sketch:

Emilia Bramanti is a scientist in analytical and bioanalytical chemistry. Her research is focused on the development of novel analytical hyphenated methodologies for environmental and bioclinical applications, food and protein chemistry, cultural heritage. Co-author of more than 144 refereed papers in international journals, 2 EPO, 2 US patents, she has a long time experience in consulting/research projects with SME, teaching, tutoring, training. Currently she is involved in 6 European Projects Life+. ORCID http://orcid.org/0000-0001-8478-7370