Title: **Determination of parameters of pharmaceutical interest in biological media**

Student: Joan Sans i Narbona

Date: January 2019

Supervisor/s: Dra. Susana Amézqueta Pérez

Department of Chemical Engineering and Analytical Chemistry

Dra. Clara Ràfols Llach

Department of Chemical Engineering and Analytical Chemistry

Prior to the introduction to the market of a pharmaceutical product, there is a whole process called drug discovery. This development includes four phases: i) R&D, ii) preclinical studies, iii) clinical studies in humans, iv) approval by competent organisms such as the European Medicines Agency (EMA) or the American Food and Drug Administration (FDA). During the R&D and pre-clinical studies different parameters are evaluated such as the absorption, distribution, metabolization and excretion of the drugs, the potential benefits and the mechanism of action, the best form and quantity of dosage, the adverse effects (AEs), the interaction with other co-administered substances, and the effectiveness of treatment. Due to ethically questionable experiments, the use of laboratory animals is currently reduced, therefore, predictive techniques as similar as possible to in vivo studies must be developed. A strategy to simulate the behaviour in animals and/or humans is to perform studies of solubility, protein interaction, etc. using media that resemble the best to fluids of living beings. Many studies reported in the scientific literature have been carried out using water as medium or simple buffers. Nowadays, mediums with compositions much more complex and much more similar to biological fluids such as blood or gastrointestinal fluids are being developed. In this work, a search about which biological media can be acquired from the different suppliers, their preparation and the possible interaction with the drugs will be carried out.