performance was tested for crystal violet and whey protein isolate (WPI). Spent brewer's yeast suspension was chosen as a complex cell matrix model for the recovery of three industrially relevant enzymes: α-amylase, protease, and invertase. A central composite design was performed in order to model and optimize the operation process parameters. Critical parameters were Top and Bottom phase feeding flow, number of static mixers, and sample load. Mass transfer was improved in more than 150% in Gentian violet and WPI in the top phase when compared to batch experiments. Differential partitioning was evidenced by recovery of α-amylase in the top phase, and invertase at the interphase. Continuous operation showed noteworthy advantages over batch operation regarding partitioning. Separation time was reduced in approx. 10 min when compared with batch processes. Results show that a continuous large-scale ATPS represent a viable and reproducible extraction/purification system at industrial scale.

P-102 **Quantitative structure-property relationship for odorants by partitioning in aqueous two-phase systems.** Pedro P. Madeira [1], Ana Bessa[1], Miguel A. Teixeira[1], Luís Álvares-Ribeiro[1], Alírio E. Rodrigues[1], and Boris Zaslavsky[2] ; University of Porto, PORTUGAL[1], Analiza, Inc., USA[2]

It has been suggested some years ago that the distribution of a compound (e.g. drug) in vivo, in the absence of active transport mechanisms, may be approximated by equilibrium partitioning between different aqueous environments. Aqueous two phase systems (ATPS) being formed by two or more distinct aqueous phases with different solvent properties can be adequately used as a model to simulate processes occurring in vivo.
In the present work partition ratios of 9 odorants (p-anisaldehyde; methyl anthranilate; coumarin; trans-cinnamyl alcohol; vanillin; aniline; indole; acetophenone; and 4-nitrophenol) were measured in ten different polymer/polymer ATPS, all at physiological pH. The data was well described by the modified solvatochromic equation using only three descriptors (solute dipole-dipole, hydrogen bonding and electrostatic interactions with aqueous environment) and was used to obtain their corresponding solute-specific coefficients .
The results obtained in the present work show that linear combinations of these aroma compounds-aqueous environment interactions can be used in a quantitative-structure relationship to describe their odor detection threshold. They also suggest that *(i)* the receptor (or receptors) involved in the mechanism of perception of these compounds is strongly charged or has a strong dipole; *(ii)* the receptor-solute dipole-dipole interactions have opposite effects to the receptor-solute charge redistribution interactions in the odor perception, and *(iii)* the compounds in the present study interact similarly with odorant receptors.

P-103 **Development of a method for purifying trypsin that combines precipitation of protein-polyelectrolyte complexes with hydrophobic interaction chromatography.** Mauricio Braia[1], Gisela Tubio[1], Barbara Andrews[2], Oriana Salazar[2], María Elena Lienqueo [2] and Diana Romanini[1]; Universidad Nacional de Rosario, ARGENTINA[1], Universidad de Chile[2]

Trypsin (TRP) is a serine protease widely used in the food and pharmaceutical industries and in molecular biology. Alginate (ALG) is an anionic polylectrolyte obtained from brown algae which has been extensively used for many biomedical applications due to its biocompatibility, low toxicity, relatively low cost and gelation capacity. Proteins and polyelectrolytes form insoluble complexes via electrostatic interactions that might be useful to isolate and immobilize enzymes. Hydrophobic interaction chromatography (HIC) is a powerful technique used for separating proteins based on their hydrophobic properties. The combination of precipitation of protein-polyelectrolyte complexes and HIC is presented as a novel strategy for purifying proteins. The aim of this work was to develop a method for purifying TRP that combines precipitation of TRP-ALG complexes and HIC purification. At pH 3.5 TRP and ALG interact to form an insoluble complex that can be precipitated, obtaining a recovery of 93 %. Then, the precipitated complex was dissolved in buffer TRIS 50 mM pH 8.00 NaCl 1 M and injected into a Phenyl-sepharose column. The recovery was 57 % and we are working to improve it. The most important feature is that it allowed separation of the TRP from the ALG.
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P-104 **Mechanisms of protein sorption and transport in cellulosic ion exchangers of differing salt tolerances.** James M. Angelo and Abraham M. Lenhoff; University of Delaware, Newark, DE, USA

Cellulosic ion exchange materials have recently been developed that allow high loading capacity and rapid uptake of proteins in addition to displaying a low sensitivity to heightened total ionic strengths (TIS) of the solution, making protein retention and separation of undiluted feed streams much more feasible. The functional