

# BPP 2022

BIOPARTITIONING & PURIFICATION CONFERENCE  
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# BOOK OF ABSTRACTS



## Poster Session I

- P1 **Recombinant Engineering of Protein A Ligands for Improved Binding Capacity**  
*van Alstine, James; Chakane, Sandeep; Bülow, Leif*
- P3 **Partitioning of DNA in Aqueous Biphasic System Containing Ammonium-based Ionic Liquid and Phosphate Buffer**  
*K K, Athira*
- P5 **Keratin recovery from chicken feathers using ionic liquids**  
*Polesca, Cariny; Passos, Helena; Coutinho, João A. P.; Freire, Mara G.*
- P7 **Development of chromatographic methods for the identification of antineoplastic 17nzymat – na environmental persistence study**  
*Kholany, Mariam; Damasceno, Évila; Vaz, Bárbara; Ribeiro, Fabianne; Coutinho, João A. P.; Costa-Lotuf, Leticia; Soares, Amadeus M.V.M; Loureiro, Susana; Pavlaki, Maria D.; Ventura, Sónia P.M.*
- P9 **Model-based optimization of multistage ultrafiltration for canola protein purification**  
*Rizki, Zulhaj; Ravesloot, Richard; Van Beckhoven, Ruud; Ottens, Marcel*
- P11 **Integrated manufacturing of mRNA nanomedicines using thermoreversible aqueous biphasic systems and ionic liquids**  
*Sousa, Maria I.; Freire, Mara G.; Silva, Francisca A.; Pedro, Augusto Q.*
- P13 **In silico structural analysis of L-Asparaginase from Fusarium proliferatum**  
*Cardoso, Samuel; Cruvinel, Kellen; Abrunhosa, Leticia; Guimarães, Marina; Rodrigues, Ana Luísa; De Abreu, Joel; Homem-De-Mello, Maurício; Magalhães, Pérola; Souza, Paula*
- P15 **Separation of Albumin from Bovine Serum Applying Ionic-Liquid-Based Aqueous Biphasic Systems**  
*Rufino, Ana F.C.S.; Almeida, Mafalda R.; Sharma, Mukesh; Coutinho, João A.P*
- P17 **Dopamine polymerization by enzymatic pathway and biocatalyst reuse using aqueous biphasic systems**  
*Magalhães, Flávia F.; Pereira, Ana Filipa; Tavares, Ana Paula M.; Freire, Mara G.*
- P19 **Gellable aqueous biphasic systems – a platform for biopharmaceuticals encapsulation**  
*Kopilovic, Bojan; A.P. Coutinho, João; Freire, Mara G.*
- P21 **Detection of pentraxin-3 in human 17nzym assisted by aqueous biphasic systems**  
*Mendes, Maria S. M.; Rosa, Marguerita E.; Coutinho, João A. P.; E Silva, Francisca A.; Freire, Mara G.*
- P23 **Human serum pre-treatment for better cancer biomarkers' detection: using ionic liquids to tune the performance of polymer-salt-based tree-phase partitioning systems**  
*E. Rosa, Marguerita; S. M. Mendes, Maria; A. P. Coutinho, João; A. E Silva, Francisca; G. Freire, Mara*
- P25 **Silica-based supported ionic liquid-like phase materials for L-asparaginase purification**  
*Nunes, João C. F.; Almeida, Mafalda R.; Santos-Ebinuma, Valéria C.; Neves, Márcia C.; Freire, Mara G.; Tavares, Ana P. M.*
- P27 **On the NMR spectra of acetic acid under the influence of electrolytes**  
*Madeira, Pedro; Duarte, Luís; Freire, Mara G.; Coutinho, João A.P.*
- P29 **Application of ionic-liquid-based aqueous biphasic systems to extract, purify and preserve DNA**

## P25 SILICA-BASED SUPPORTED IONIC LIQUID-LIKE PHASE MATERIALS FOR LASPARAGINASE PURIFICATION

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### Abstract

L-asparaginase (ASNase) is an aminohydrolase enzyme that can be applied as a biopharmaceutical on the treatment of lymphoproliferative disorders, as an agent for acrylamide reduction in starch-rich foods cooked at high temperatures, in addition to detection and monitoring of L-asparagine levels [1]. Although widely distributed in nature, e.g., plants, animals, tissues and microorganisms, most commercial ASNase are from recombinant microorganisms [1]. While its production can be performed through fermentation, downstream processing of ASNase accounts for up to 80% of total production cost [2]. Hence, a novel cost-effective upstream/downstream method is of emerging concern to allow its use by a widespread population. This work aims the development of a cost-effective process for ASNase purification from recombinant *Bacillus subtilis* cell lysates obtained via ultrasound sonication. Silica-based supported ionic liquid-like phase materials were investigated as cost-effective ASNase purification supports through a simple adsorption method. The effect of specific experimental conditions, e.g., medium pH and material/cell lysate ratio, in the purity of ASNase were optimized. Through this strategy, process costs, energy consumption, and waste produced, might be significantly decreased, leading to ASNase price decrease, thereby enabling its wider application.

### References

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