Title of your abstract \*

**Improvement of recombinant proteins purification by the use of ionic liquids as adjuvants in aqueous two-phase systems**

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Abstract (max. 350 words - including spaces) \*

The advent of biopharmaceuticals in modern medicine brought enormous benefits to diverse human diseases and improved the well-being of many people worldwide. Among these biopharmaceuticals is interferon alfa 2b (IFNα2b), who plays a significant role in antiviral immunological responses and in the treatment of oncological diseases such as hairy cell leukemia and malignant melanoma. Aiming at finding cost-effective, efficient and sustainable technologies for the purification of IFNα2b from *Escherichia coli* BL21 cultures, novel polymer-polymer aqueous two-phase systems (ATPS) with ionic liquids (ILs) as adjuvants were investigated in this work. IFNα2b was effectively solubilized from inclusion bodies, the sample was dialyzed and the partition of IFNα2b was evaluated in the studied ATPS. Several ILs at 5 wt% with distinct chemical structures were investigated to improve the systems selectivity for IFNα2b. Higher partition coefficients of IFNα2b were obtained using ILs composed of aromatic cations and anions with higher hydrogen-bond basicity, in which hydrogen bonding and π-π interactions may account for the increased performance of these systems. Overall, it is here shown that the presence of ILs in low concentrations leads to an increase in the selectivity of polymer-polymer ATPS.

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